ORCHARD WHITNEY SITE

415 Orchard Street & 354 Whitney Street
City of Rochester
Monroe County, New York

Remedial Investigation Work Plan
Quality Assurance Project Plan
Health and Safety Plan
Community Air Monitoring Plan
Citizen Participation Plan

Prepared for:

City of Rochester
Division of Environmental Quality
30 Church Street
Rochester, New York 14614

Prepared by:

LU ENGINEERS
Civil and Environmental

2230 Penfield Road
Penfield, New York

JULY 2006

WORK PLAN

Remedial Investigation

City of Rochester
Environmental Restoration Project
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ATTACHMENTS

1.0 Introduction

Lu Engineers has prepared this Remedial Investigation Work Plan for the City of Rochester Department of Environmental Services to complete an Environmental Investigation at 415 Orchard Street and 354 Whitney Street. The proposed components of this investigation are based on the requirements of the New York State Department of Environmental Conservation (NYSDEC) 1996 Clean Water/Clean Air Bond Act Environmental Restoration Program (ERP). As such, all work related activities will follow the procedures established by the NYSDEC in DER-10 "Technical Guidance for Site Investigation and Remediation".

The work described herein is designed to generate a NYSDEC-approved Site Investigation/ Remedial Alternatives Report (SI/RAR) that will be used to select a remedy for the site.

The purpose of the remedial investigation at the Site will be to delineate the nature and extent of contamination. The data generated by additional sampling and testing at the Site will be used to further define the horizontal and vertical extent and concentration of contaminants in the soil and groundwater. The additional hydrogeologic and soils data will provide a means of determining how contaminants attained their present distribution in the environment, and what changes in contaminant distribution may be likely to occur due to groundwater flow and other processes.

Once the extent of contamination and hydrogeologic soils information has been analyzed, potential environmental exposure pathways will be examined. The identification of significant site characteristics, extent of contamination, and exposure pathways (if completed exposure pathways are indicated) will provide basis for developing remedial alternatives that are based on conceptual future uses.

Along with this Work Plan, a project-specific Quality Assurance Project Plan (QAPP), Health and Safety Plan (HASP), Community Air Monitoring Plan (CAMP) and Community Participation Plan (CPP) have also been prepared.

2.0 Site History and Description

Lu Engineers visited the Site on February 3, 2006, along with City of Rochester personnel and on August 4, 2006. We have reviewed records pertaining to the Site from local government offices and previous investigations at the Site provided by the City of Rochester. The findings of these previous reports are summarized below; Lu Engineers used this information to prepare this Work Plan.

2.1 Site Location

The Orchard-Whitney site (Site) is located at 415 Orchard Street and 354 Whitney Street in the City of Rochester, New York (Figure 1). The Site has a combined area of 3.9 acres and is located near the intersection of Lyell Avenue and Broad Street. One multi-story structure of approximately 128,900 square feet remains on the Whitney Street property. This building is partially demolished due to damage sustained during a fire in 2003. There is also one multi-story structure of approximately 371,600 square feet located on the Orchard Street property. An aerial base map showing current Site conditions is included as Figure 2.

2.2 Site History

The Site has been used for various commercial and industrial uses since the early 1900s. From 1915 to 1922, the North East Electric Company operated on the Site. General Motors occupied the Site from 1930 to 1967. Industrial activities including the production of electrical equipment, heat treating, plating, coal storage, boiler operations, petroleum fuel storage and industrial wastewater treatment were performed on the Site.

After General Motors closed operations, other industrial operations took place at the Site including; metal finishing, synthetic foam production, printing, plastics manufacturing and warehousing. These operations took place at the Site until the early 1990s.

The current Site owners have been non-responsive, and although the City has offered the parcels at tax delinquent auctions, no viable developers have shown interest.

2.3 Previous Field Investigations

Since 2000, the Site has undergone a series of environmental investigations. These investigations include:

- December 2000: Phase I Environmental Site Assessment; 354 Whitney Street, 415 Orchard Street, and surrounding properties at 367, 370, and 406 Orchard Street.
- August 2003: Pre-demolition Asbestos Inspection of 354 Whitney Street Building 1A.

- August 2003: Pre-demolition Asbestos Inspection of 354 Whitney Street Building 2/2A/Brick Mill.
- 2005: Phase II Site Investigation completed by NYSDEC on the 354 Whitney Street parcel as part of a USEPA Targeted Brownfield Assessment.

Phase I Site Assessment, 2000
The environmental site assessment performed by Day Environmental (2000) identified a number of environmental concerns including:

- Past use of the facility for industrial and manufacturing purposes;
- The presence of aboveground and underground storage tanks and associated piping;
- Suspect asbestos containing materials (ACM);
- Former coal storage piles and visible leachate;
- Floor drains;
- Containers with unknown contents;
- Suspect PCB-containing equipment;
- Stained flooring;
- A potential on-site wastewater treatment system; and
- Petroleum and several hazardous substances above NYSDEC groundwater quality standards in on-site groundwater monitoring wells (installation date, construction details unknown).

Based on their findings, Day Environmental recommended additional investigation to further characterize the Site.

Asbestos Pre-demolition Surveys, 2003
The asbestos pre-demolition surveys completed on the Whitney Street site will be sufficient to proceed to building demolition on that parcel. A pre-demolition survey for the Orchard Street Site will be completed as part of this project.

NYSDEC Investigation, 2005
The NYSDEC completed an environmental investigation on the Whitney Street parcel under the USEPA Targeted Brownfield Assessment Program. According to Mr. Todd Caffoe of the NYSDEC, the data from this investigation is not yet available in written form. Mr. Caffoe did tell Lu Engineers that surface soil sampling results indicated trace amounts of PCBs and groundwater sample results did not show significant amounts of hazardous substances or petroleum. Mr. Caffoe suggested that an additional round of groundwater sampling be incorporated into this investigation for wells installed by the NYSDEC.

2.4 Physical Setting

The Orchard/Whitney Site is located in the City of Rochester North West Quadrant. Residential and commercial properties surround the Site.

Topography
The topographic relief of the Site is 525 feet above mean sea level. The Site is relatively flat with the exception of the property to the immediate south being a raised railroad bed, approximately 5-8 feet above ground surface. Other features of note are the former Erie Canal and the Genesee River Gorge located to the east.

Surface Water
Surface water runoff at the Site is collected in the Monroe County Sewer System. There are no surface water bodies within one-half mile radius of the Site. There are no public/private drinking water supply wells within one-half mile of the Site.

Groundwater
Base on local topography, groundwater at the Site is most likely influenced by the former Erie Canal and the Genesee River Gorge and is expected to be northeasterly. There have been six (6) groundwater monitoring wells installed at the Site by the NYSDEC; the information on these wells was not available at the time of this Work Plan.

Geology
According to the New York State Museum Map of New York Finger Lakes Sheet, native soils beneath the Site consist mainly of lucustrine sands and silts; soils are underlain by dolostones of the Lockport Group. Based on previous Site assessments, bedrock is typically present between 10 and 15 feet below ground surface.

Land Use/Sensitive Receptors
The area surrounding the Site is mainly residential and commercial; some light industrial is also present, there is also a railroad bed to the immediate south. Edgerton Park is located to the north of the Site, and the new PATEC Park Stadium is located to the southeast.

Facilities serving children in the vicinity of the project include: Rochester City Schools Elementary Level #5, 17, 30, 57, and Jefferson Secondary School. Facilities also serving the needs of elderly persons include: Jefferson High School and Edgerton Community Center.

A map showing the location of residences and other sensitive receptors is included as Figure 2.

2.5 Current Site Conditions

Representatives from Lu Engineers along with City of Rochester personnel visited the Site on February 3, 2006. Lu Engineers also visited the Site on August 4, 2006. Currently the Site is vacant. The majority of the Whitney Street parcel has been demolished due to damage sustained during a fire in 2003.

2.6 Conceptual Site Model

Potential site contamination is related to a variety of industrial activities over a period of many years. A conceptual site model for the project is outlined in the table below.

Media	Known or Suspected Source of Contamination	Type of Compounds (General)	Contaminants of Potential Concern (Specific)	Primary or Secondary Source Release Mechanism	Migration Pathways	Potential Receptors
Soil	1) Paint Booths 2) Petroleum storage tanks 3) Plating operations 4) Waste oils 5) Wastewater	Metals, solvents, fuels, PCBs	Arsenic; Cadmium; Chromium; Lead; Mercury; Acetone; Ethylbenzene; Methylene Chloride; Toluene; Xylene: PCBs	Leaks and spills	Infiltration / percolation	Human: direct contact if excavation occurs in contaminated areas
Groundwater	Contaminated Soil (secondary source)	Metals, solvents, fuels	Cadmium; Chromium; Lead; Mercury; Benzene; Ethylbenzene; Isopropylbenzene; Napthalene; 1,2,4 TMB; 1,3,5 TMB; Xylene, PCBs	Infiltration or percolation from soils	Groundwater flow	Human or ecological receptors are not expected to be exposed
Air/Soil Vapor	1) Contaminated soil or groundwater under buildings	Solvents, fuels	BTEX	Volatilization of contaminated groundwater and/or soil	Migration into buildings	Human: Inhalation during investigation and cleanup
Building	1) Transformer oil 2) Fluorescent light capacitors 3) Building materials 4) Ash 5) Drains and Trenches 6) Manufacturing equipment	PCBs, Asbestos, waste oils	PCBs, Asbestos, waste oils	Leaks/Spills, disturbance of building materials	Dispersion by human activity	Human: direct contact with site workers/ visitors, inhalation

Previous environmental investigations have revealed that volatile organic compounds (VOCs), several metals, and semi-volatile organic compounds (SVOCs) have been detected in subsurface soils and groundwater above NYSDEC Soil Guidance Values on the Whitney Street parcel. Information on the Orchard Street parcel is limited. There are no local private wells in the area of the Site and the surrounding community is on public water and sewer service.

2.7 Technical Objectives

The goal of this investigation is to fully delineate the nature and extent of contamination at the Site and use the information to develop appropriate remediation technologies for the Site.

Specific project objectives include:

- Characterization and quantification of all sources of contamination which may impact on and off-site properties.
- Delineate contaminant concentrations, media affected, building structures, soil, wastes, and groundwater, current and potential extent of contamination in groundwater (horizontal and vertical), mobility, migration potential, and other significant routes.
- Identify all potential routes of exposure and the populations and environmental receptors at risk.
- Define groundwater characteristics including soil permeability, depth to saturated zone, hydrogeologic gradients, proximity to drinking water aquifers, flood plains, and wetlands, and current and potential groundwater use.
- Identify surface water classifications, existing use designations and private wells in the area.
- Perform an exposure assessment which qualitatively describes the extent to which the property's contaminants pose an unacceptable risk to the air, land, water, and/or public health.
- Complete a pre-demolition asbestos survey on the 415 Orchard Street parcel.
- Complete a full hazardous materials inventory for the property and provide cost estimates for appropriate disposal.
- Produce a NYSDEC-approved SI/RAR for use in remedy selection.

To ensure that suitable and verifiable data results are obtained from the information collected at the Site, quality assurance procedures will be detailed in a Site-specific Quality Assurance Project Plan (QAPP). The QAPP will further detail the activities in the Work Plan and how they are designed to achieve data quality objectives.

3.0 Scope of Work

Soil borings, test excavations, groundwater samples, surface soil samples, asbestos sampling and a full hazardous materials inventory will be used to evaluate the Site conditions. The investigation will include the following primary tasks:

Pre-Demolition Phase

- PCB assessment of all existing facility equipment including, but not limited to, hydraulic lifts, electrical equipment, ballast and bulbs, oily residues in facility drip pans, melt-water and flooding in the Engine Room of 354 Whitney Street, and liquid materials in floor drains and trenches.
- A full hazardous materials inventory including sampling for waste characterization to identify all materials requiring appropriate disposal prior to demolition.
- A pre-demolition survey at 415 Orchard Street.
- A limited lead inspection and sampling for both 354 Whitney and 415 Orchard.
- Perform oversight of all buildings targeted for demolition.

Post-Demolition Phase

- Completion of 10 to 15 test trenches to further evaluate subsurface conditions across the Site.
- Install groundwater monitoring wells (15 estimated) to evaluate groundwater quality, characteristics and flow information.
- Obtain groundwater samples from the existing and newly installed wells.
- Complete background soil borings (5 estimated) at off-site locations (to be determined) to establish local background concentrations for metals and PAHs.
- Obtain surface soil samples across the property, using a grid based system to evaluate exposure routes as required by the NYSDOH.
- Sampling of coal spoils located along the railroad that runs along the southern Site boundary.
- Survey sampling locations and groundwater monitoring wells and obtain elevations to water and hydraulic conductivity measurements for all on-site wells.

A detailed description of each work task is provided in the following sections. Proposed sampling locations are indicated on Figure 3.

3.1 Field Screening and Health and Safety Monitoring

A Site-specific Health and Safety Plan (HASP), Appendix B, was prepared for the project in accordance with applicable general industry and construction standards of the Federal Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, as well as any other Federal, State or local applicable statutes or regulations. The HASP will be adhered to by all personnel involved in the investigation. Particular attention will

be paid to the hazards present on the Site due to the dilapidated condition of the Site buildings. If any sample locations or quantities are inaccessible, due to the nature of the Site materials may be assumed hazardous for estimating purposes. Samples may be taken at the time of demolition if conditions improve for proper characterization and disposal.

Monitoring of the work area and screening of soil and groundwater will be conducted throughout the duration of field activities to assure the safety of on-site workers.

Air monitoring of the work areas will be conducted using the following (or equivalent) instrumentation:

- An aerosol particulate meter
- An explosimeter
- A PID equipped with a 10.2 eV lamp (or equivalent)

A written Community Air Monitoring Plan (CAMP) was prepared in accordance with the requirements of the Environmental Bond Act. This Plan will be followed during all Site activities. The CAMP for Site work is attached as Appendix C.

Prior to beginning subsurface sampling and testing, the Underground Facilities Protective Organization (UFPO) will be contacted to determine the locations of underground utilities within the study area. It may be necessary to alter the proposed locations of the soil borings due to underground utilities. Any such modifications will be made at the discretion of the field team leader in consultation with the City of Rochester and NYSDEC staff as appropriate.

3.2 PCB Assessment

Site conditions documented in previously performed investigations indicated the presence of stained areas where former transformers and other electrical equipment was located. In addition, rainwater and snow melt water flooded portions of the lower level of the powerhouse on the 354 Whitney Street property. Drainage from this flooding entered the trenches and drains in the building and potentially contained PCBs. Mr. Caffoe indicated that the sediment in the bottom of these trenches should be sampled for PCBs. Sediment samples will be collected from the flooded areas along with the following locations:

- One sample will be collected from the gear mechanism of an overhead heavy equipment lift system located in the Engine Room of the 354 Whitney Street western building.
- One sample will be collected from the gear mechanism of the overhead window control system located in the Engine Room of the 354 Whitney Street western building.
- Up to four samples will be collected from the areas within the Engine Room suspected of housing transformers or other engine-driven or electrical equipment.
- One sample will be collected from the area of the former hydraulic lift located at the northwest corner of the 354 Whitney Street western building.

- Up to six samples will be collected from the electrical equipment located in the upper portion of the Engine Room of the 354 Whitney Street western building.
- Up to three samples will be collected from the engine-driven or electrical equipment associated with machinery located in the Boiler Room of the 354 Whitney Street western building.
- Up to four samples will be collected from the melt-water flooding the lower level of the Engine Room of the 354 Whitney Street western building.
- Up to four samples will be collected from oil residue and drip pans observed on the elevator mechanisms located on the sixth floor of the 415 Orchard Street building, and;
- Two samples will be collected from the floor drains located on the first floor of the Orchard Street building.

PCB sampling will consist of collecting liquid samples from transformers, electrical equipment, elevators, etc. Sediment samples and liquid samples will be collected from the flood water area. Either wipe samples or concrete chip samples will be collected from areas of concrete with obvious staining. The decision on which method to use will be at the discretion of the field team leader and recommendations of the City. PCB sampling methods and procedures are detailed in the QAPP.

3.3 Hazardous Materials Inventory (Waste Characterization)

Lu Engineers will conduct a room by room inventory in all buildings to identify the type and quantity of suspected hazardous materials. These quantities will be provided in a form that can be used to arrange appropriate disposal. Any necessary research of MSDS or related databases to facilitate disposal will also be conducted. The inspection will include fluorescent light ballasts, electrical/mechanical equipment and all of the known items previously identified by the City and/or previous Site assessments.

Sampling and measurement of the existing tanks with a dipstick and water paste to determine volume and type of contents remaining in the tanks. Based on this information, Lu Engineers removal estimates for all tanks identified during the investigation will be provided.

3.3.1 Drum Sampling

In the event that drums containing unknown substances are encountered, one sample from each drum will be collected for TCL VOCs, PCBs/pesticides, TAL metals, cyanide, and TCLP (if necessary). Special precautions will be taken when performing drum opening and sampling. Continuous air monitoring will be performed on all drums during opening and sampling. Drum opening tools will be non-sparking. Once drums are open, liquid sampled will be collected with pre-cleaned, dedicated glass thieving rods, and solid samples will be collected with pre-cleaned dedicated stainless steel spoons. Sampling details are outlined in the QAPP.

We have included costs for sampling the materials identified in your RFP. Additional sampling will take place as necessary and authorized in accordance with the fees established in our existing term agreement. Analytical testing of unknown materials will be billed based on the specific testing that is required to complete a waste inventory.

3.4 Asbestos and Lead Services

The asbestos and lead pre-demolition survey at the Site will include the following:

3.4.1 Asbestos

354 Whitney Street Site
A Record Review consisting of reviewing available asbestos investigations and record plans for the Site will be conducted.

415 Orchard Street
A Record Review of available asbestos investigations and record plans for the Site will be conducted.

A Pre-demolition asbestos survey of 415 Orchard Street will be performed to identify and quantify materials and debris to be considered a suspect asbestos containing material. The survey will identify homogeneous areas for asbestos sampling. Through compliance with 40 CFR Part 763, Subpart E, the inspection will meet the criteria required by OSHA to "rebut the designation of installed material as Presumed Asbestos Containing Material" codified in 29 CFR Part 1910.1001(j)(8)(ii)(B). Bulk samples of all suspect Asbestos Containing Materials (ACMs) identified during the pre-demolition survey will be collected. Sampling will be performed in accordance with AHERA regulations, 40 CFR Part 763.86 and 763.87 and NYS Code Rule 56-5.1. The sample location shall be noted on inspection forms. For estimating purposes, it is assumed that a total of two hundred (200) samples will be collected and analyzed. Asbestos bulk sampling will be conducted by a NYSDOL certified Asbestos Inspector.

A laboratory approved by both the New York State Department of Health (NYSDOH) and a federal accreditation through NVLAP, NIST, AIHA or an equivalent nationally recognized round robin testing program shall perform sample analysis. The analysis shall proceed as follows:

- Initially, testing of all samples using the Polarized Light Microscopy (PLM) method of gravimetric reduction, acid digestion, and point counting analysis for the presence of asbestos mineral fibers.
- Per ELAP requirements, a second test of each non-friable, organically bound material (NOB) sample that is PLM-negative will be analyzed using Transmission Electron Microscopy (TEM).
- For estimating purposes, it is assumed that one hundred (100) NOB samples will require TEM testing as part of the ELAP NOB analysis.

An Asbestos Technical Memorandum summarizing the findings of the pre-demolition survey will be developed. Quantities of asbestos containing materials and hand developed asbestos location sketches for 415 Orchard Street shall be provided. Two bound copies and one unbound copy of the asbestos technical memorandum will be submitted. A preliminary pre-demolition asbestos abatement cost estimate for the structure(s) on 415 Orchard Street will be provided.

3.4.2 Lead

An EPA-certified Lead Risk Assessor will conduct a limited lead inspection of 354 Whitney Street and 415 Orchard Street concurrently with the asbestos pre-demolition survey. Paint chip samples of representative homogenous components, damaged or intact, shall be sampled for Total Lead Content. Lead wipe samples will be collected in a few representative rooms containing damaged paint and dust at the discretion of the certified risk assessor. For estimating purposes, it is assumed that thirty (30) paint or dust wipe samples will be collected and analyzed for 415 Orchard Street and that twenty-five (25) paint or dust wipe samples will be collected and analyzed for 354 Whitney Street.

A laboratory approved by the New York State Department of Health (NYSDOH) and/or the United States Environmental Protection Agency (USEPA) will perform sample analysis.

A limited Lead Inspection Report for this property will be developed. Two bound copies and one unbound copy of the limited lead inspection report will be submitted.

The following technical assumptions are for the Pre-Demolition Phase:

- The City of Rochester Police Department will make reasonable efforts to provide a safety related presence for Lu Engineers employees.
- The City will provide Site and building access.
- A pre-demolition asbestos survey, including the development of asbestos location plans, will not be required for 354 Whitney Street.

3.5 Demolition Inspection and Sampling

The City will complete the demolition of the Site buildings. While the demolition process is underway, Lu Engineers will be on site to inspect the demolition process with respect to potential discovery of suspect environmental materials and information relating to subsurface environmental conditions. Particular attention will be paid to the site hydraulic systems, drainage features and foundation slab. The on-site representative from Lu Engineers will have the discretion (with City authorization) to take additional samples, as necessary, to completely assess any potential environmental concerns that may be found during the demolition. At the present time it is estimated that at a minimum of five (5) samples may be collected from the site during demolition.

3.6 Test Trenches

After the buildings are removed on the Whitney Street site, Lu Engineers will complete a test trench investigation to further evaluate subsurface conditions across the Site. Test trenches will be completed at the Site to evaluate the nature and extent of the contamination associated with identified areas of concern. These areas include the location of known former petroleum or chemical storage and handling, locations of reported surface spills or staining, floor drains, sumps, trench drains and areas containing electrical equipment and hydraulic lifts.

Trenches will be excavated using a conventional backhoe or excavator with the capability to reach bedrock, approximately 10 to 15 feet below ground surface. Trench depth will vary depending on location intent and characteristics observed, with some completed to bedrock. Excavated material will be returned to the appropriate trench after field screening and sampling is complete.

Suspect areas that have been identified as possible sources of contamination will be addressed with the test trenches as follows:

- Surface and subsurface conditions associated with a former 275-gallon aboveground storage tank (AST) located on the south side of the boiler room at 354 Whitney Street (Trench #1);
- Subsurface conditions associated with the former location of one 5,000-gallon gasoline underground storage tank (UST) and one dispenser located on the west side of the north courtyard of 354 Whitney Street (Trench #2);
- Surface and subsurface conditions associated with one former in-ground hydraulic lift, one floor drain located in the northwest corner of 354 Whitney Street, building 2A, and one floor drain located at the former location of the northeast portion of 354 Whitney Street Building 1A (Trench #3 and Trench #4);
- Subsurface conditions associated with trench drains located in the former plating room of 354 Whitney Street (Trench #5 and Trench #6);
- Surface and subsurface conditions associated with pipes of unknown purpose located on the east side of the remaining portion of 354 Whitney Street (Trench #7);
- Surface and subsurface conditions associated with suspected PCB-containing electrical equipment located in the engine room of 354 Whitney Street (Trench #8);
- Surface and subsurface conditions associated with unknown USTs or a possible wastewater treatment system located in the small central courtyard between 354 Whitney Street and 415 Orchard Street (Trench #9 and Trench #10);
- Surface and subsurface conditions associated with one former transformer vault located in the engine room of 354 Whitney Street (Trench #11);
- Subsurface conditions associated with two floor drains located in 415 Orchard Street (Trench #12 and Trench #13).

Soil samples will be collected from each trench and field screened. Visual observations, characterization of subsurface materials, and field measurements of volatile organic compounds (VOCs) for initial determinations of contamination will be recorded. Headspace screening will be performed using a portable PID meter.

One discreet sample from each test trench will be submitted for analysis, for a total of 13 samples. The sample exhibiting the highest apparent evidence of contamination from each test trench based on field screening will be submitted for laboratory analysis. If no VOCs are detected or if no evidence of other contamination is apparent, the sample submitted will be based on visual observations. The NYSDEC will be given the opportunity to review and approve submitted samples.

Samples submitted for laboratory analysis will be analyzed by the following methodologies based on known or suspected contaminants at each test trench location: USEPA Method 8260 + MTBE (TCL VOCs), USEPA Method 8270 (SVOCs), USEPA Method SW-846 (Metals), USEPA Method 8082 (PCBs).

3.7 Monitoring Well Installation

Monitoring wells will be located in areas of known former petroleum or chemical storage and handing, locations of reported surface spills or staining, floor drains, sumps or trench drains, areas containing electrical equipment or hydraulic lifts, and areas of concern identified or incompletely characterized during trenching or building demolition.

The installation of fifteen (15) groundwater monitoring wells is planned for the investigation at this Site. Twelve of these borings will be completed on site and an estimated three additional wells will be located at hydraulically up- and down-gradient locations.

Each boring will be advanced using 4.25 ID hollow-stem augers. Continuous split spoon samples will be collected (ASTM Method D-1586) at each boring and characterized using the Unified Soil Classification System. All split-spoon samples will be logged by a geologist and recorded for reference. Field headspace measurements of volatile organic compounds from soil split-spoon samples will be performed using a portable PID meter. The samples will be collected using a standard 2-inch outer diameter (OD) split-spoon driven by a 140-pound drill rig hammer. Blow counts will be recorded for each split-spoon sample.

Based on known bedrock depths in the immediate vicinity of the Site, the depth to bedrock is estimated to range from 10 to 15 feet below ground surface. This information was confirmed in our discussion with Mr. Caffoe. Upon reaching competent bedrock, the borehole will be advanced using rotary techniques and coring. HQ rock cores will be obtained from four well bores in such a way as to facilitate development of an accurate picture of Site-wide near surface bedrock hydrogeology via fence diagrams and profiles.

All borings will be advanced ten feet (10 ft) into bedrock where groundwater monitoring wells will be installed.

All groundwater monitoring wells will be constructed according to the following specifications: 10 feet of 2-inch Schedule 40 polyvinyl chloride (PVC) machine-slotted screen (0.010-inch slot) installed from the bottom of the boring up to 5 feet above the top of the water table to account for potential seasonal water level fluctuations. Two-inch ID Schedule 40 PVC riser casing will be used to complete the wells to grade. A sand filter pack composed of chemically inert, coarse-grained sand will be placed from the bottom of the boring to 1 to 2 feet above the top of the screen. A 2-foot thick bentonite seal will be placed above the sand, followed by Portland cement/5% bentonite grout to surface.

The wells will be completed flush to grade complete with locking, protective steel casings set in concrete drainage pads. Vented PVC well caps will be placed on each well upon completion. No glue will be used for completion of wells.

Drill cuttings and water generated during drilling will be handled in accordance will all applicable protocols. The City will be responsible for proper staging and disposal of all investigation-derived wastes. Final disposal of soils and water will also be dependent on the results of the soil and groundwater analyses to be conducted during this investigation.

Split-spoons will be appropriately decontaminated prior to each use. Decontamination will involve these three steps:

1. Removal of gross debris;
2. Rinsing with an Alconox solution; and
3. A triple rinse with distilled water.

The drill rig and associated tooling will be decontaminated using steam-cleaning methods at a designated location. All decontamination residues will be collected in a decontamination pool lined with 6-mil polyethylene sheeting. Prior to completion of the project, all decontamination wastes will be transferred into drums or a site holding tank for appropriate staging and disposal as previously described.

3.7.1 Monitoring Well Development

After construction of each well is complete, the well will be developed until pH, specific conductivity and temperature have stabilized and turbidity of the discharge is 50 nephelometric turbidity units (NTU) or less. All field instrument measurement made during development will be recorded. The wells will initially be surged in order to draw sediments out of the sand pack and into the well for removal. If significant effort does not attain the proposed goal of 50 NTU, the well will be considered as developed if all other parameters have stabilized. Development will occur no sooner than 48 hours after well installation. Development wastewater will also be stored in drums or a site holding tank.

3.8 Groundwater Sampling

Prior to sampling, the water level at each well will be measured with reference to the casing elevation and recorded. The static volume of water will be determined for each location. At a minimum, three volumes will be purged from each well. Groundwater sampling will be conducted by means of dedicated disposable polyethylene bailers attached to new polyethylene twine. Field parameters including turbidity, pH, conductivity, dissolved oxygen and temperature will be measured periodically and recorded prior to collecting the samples. Once these parameters have stabilized (and at least 3 well volumes have been purged) the well will be sampled. Purging waste water will also be stored in drums or in a site holding tank pending appropriate disposal.

The wells will be sampled and analyzed for semi-volatiles, TCL volatiles and MTBE, PCBs, and TAL Metals following ASP 2000 (CLP) methods. If turbidity is greater than 50 NTU low flow sampling methods will be utilized to sample the wells for heavy metals. All monitoring wells will be checked for the presence of free phase light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL). Once obtained, all samples will be immediately labeled and placed on ice in a cooler in preparation for delivery to the contract laboratory.

A total of three (3) complete groundwater sampling events will be performed throughout the Site investigation in order to determine the local groundwater hydraulic gradient, to establish baseline groundwater parameters, and to define the horizontal and vertical extent of groundwater contamination at the Site. The NYSDEC wells installed on the Whitney Street parcel will be included in this sampling. The exact number of NYSDEC wells is not known and we have therefore estimated six (6) additional samples.

Monitoring well locations will be instrument surveyed and the top of casing determined to 0.010 foot accuracy to mean sea level by Lu Engineers' survey department. GPS coordinates will be collected to determine each monitoring well location to 0.010 foot accuracy.

Groundwater depths, laboratory analytical data, site survey data and GPS data will be used to prepare a groundwater flow model illustrating depth to groundwater and local hydraulic gradient as well as to prepare contaminant concentration plume maps.

3.9 Background Soil Borings

An estimated five (5) soil borings will be advanced at off-site properties to be determined in order to establish local background concentration levels of metals and PAHs. It is estimated that borings will be advanced to approximately 15 feet below ground surface or until bedrock is reached. Subsurface soil samples will be collected continuously via split-spoon in accordance with ASTM Method D-1586 and characterized according to the Unified Soil Classification System. Field headspace measurements of volatile organic compounds from soil split-spoon samples will be performed using a portable PID meter. One soil sample will be collected from each location for submission for laboratory analysis for constituents of concern. A drilling log will be kept documenting soil characteristics, headspace concentrations, water table depth, sample recovery, blow counts and other pertinent information.

3.10 Surface Soil Sampling

In order to address potential land use restrictions, surface soil samples will be collected from across the Orchard Street parcel using a grid-based system to provide a representative sample batch. These samples will supplement the surface soil samples collected by the NYSDEC on the Whitney Street parcel. The samples will be collected using a dedicated pre-cleaned, stainless steel spoon or trowel to transfer the soil into the appropriate sample containers. The samples will be collected from a depth of 0 to 2 inches below the ground surface at these locations.

It is estimated that ten (10) samples will be collected as part of the surface soil sampling. Samples will be analyzed for the presence of TCL VOCs, SVOC, TAL metals and PCBs. In the event that a suspected background contaminant is found in excess of the applicable standards, criteria, and guidance for surface soils at the Site, Section 3.6 of DER-10 will be followed to demonstrate to the DER that the contaminant concentration is due to background.

3.11 Sample Collection Summary

All samples will be obtained, handled and characterized in accordance with NYSDEC Analytical Services Protocol methods. Samples will be relinquished to an accredited and appropriately (NYSDEC ELAP CLP) certified analytical laboratory. All chain of custody requirements will be strictly adhered to for designated analyses.

The NYSDEC Division of Environmental Remediation *Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports* will be followed. Lu Engineers' Quality Assurance Officer for this project will be Susan Hilton. Steve

Campbell will be the Project Manager and Greg Andrus will be the Field Team Leader for this project. Category B deliverables will be required for all analytical reporting in order to provide the necessary documentation to be reviewed to evaluate the usability of the data and to provide calibration data needed to verify results, as necessary.

One duplicate sample will be obtained for each sample type. Also, one matrix spike (MS) and matrix spike duplicate (MSD) will be collected for samples of each media. One groundwater field blank and two groundwater trip blanks will be relinquished to the contract laboratory for the designated analyses. Samples duplicated will be selected at the discretion of the field team leader (geologist).

The table below identifies all samples and laboratory analytical procedures required to complete this project.

Summary of Sampling and Laboratory Analyses

Type	Location	Analyses	# Field Samples	Field Duplicates	MS/MSD	Total
Subsurface Soils	12 onsite borings (for monitoring wells)	TCL VOCs, SVOCs, Metals, PCBs	**12**	**1**	**1/1**	**15**
	5 offsite (3 monitoring wells)	TCL VOCs, SVOCs, Metals, PCBs	**5**			**5**
	13 test excavations	TCL VOCs, SVOCs, Metals, PCBs	**13**	**1**	**1/1**	**16**
Surface soils	Overall site (grid based)	TCL VOCs, SVOCs, Metals, PCBs	**10**	**1**	**1/1**	**13**
	Subslab	TCL VOCs, SVOCs, Metals, PCBs	**5**			**5**
PCB / Waste Characterization	Equipment Oil / Residue	PCBs	**15**	**1**	**1/1**	**18**
	Water / Sediment	PCBs	**6**			**6**
	NYSDEC Recommended Sediment	PCBs	**4**			**4**
	Wipe / Chip	PCBs	**5**			**5**
	unknown materials from haz mat inventory	Waste Characterization*	**TBD**			**TBD**
	1 composite drill cuttings	Waste Characterization*	**1**			**1**
	1 composite drilling water	Waste characterization*	**1**			**1**
Groundwater ( ) denotes 3 Rounds	12 onsite / 3 offsite wells	TCL VOCs, SVOCs, Metals, PCBs	**15**	**1**	**1/1**	**18 (54)**
	NYSDEC installed wells	TCL VOCs, SVOCs, Metals, PCBs	**6**			**6 (18)**
	Equipment Blank	TCL VOCs, Metals				**1 (3)**
	Trip Blank	TCL VOCs				**3 (9)**

* Waste Characterization includes Full TCLP, ignitability, PCBs, paint filter test, and semi volatiles

3.12 GIS Prior to Building Demolition

Lu Engineers will use aerial photography provided by New York State GIS website as a base for establishing appropriate site features. Lu Engineers will use Trimble GeoXT GPS unit to confirm existing locations and establish new points of reference. We feel this is important to establish a historical reference for building footprints, sampling points, and internal appurtenances.

3.13 Citizens Participation Plan

A Citizens Participation Plan has been prepared in accordance with the requirements of the Environmental Bond Act and is included in Appendix D. Lu Engineers, at the request of the NYSDEC or the City, is prepared to provide support in preparation for public meetings.

4.0 Project Personnel

The personnel for this project are anticipated as follows:

Robert Elliott, P.E.	Project Director
Steve Campbell, CHMM	Project Manager
Greg Andrus, CHMM	Field Team Leader/Geologist
Christine Davey	Asbestos/Lead/PCB Engineer
Susan Hilton, P.E.	Asbestos/Demolition Engineer
Roy Green	Environmental Specialist
Rebecca May	Field Technician
Subcontractors	
Upstate Laboratories	Analytical Laboratory
To be determined	Test Excavations
To be determined	Soil Boring & Monitoring Well Installation
Earth Tech, Inc.	Data Validation (as necessary)

Qualifications for Lu Engineers' personnel are included in Appendix A.

5.0 Report

Upon receipt and review of all necessary data, a Site Investigation/Remedial Alternatives Report (SI/RAR) will be prepared in accordance with the format illustrated in Appendix A of the Municipal Assistance Environmental Restoration Projects "Brownfield Program" Procedures Handbook (June 2002). The Report will describe the extent and distribution of contaminants at the Site, describe hydrogeologic factors and groundwater conditions and discuss the potential for contaminants to impact future tenants or off-site receptors.

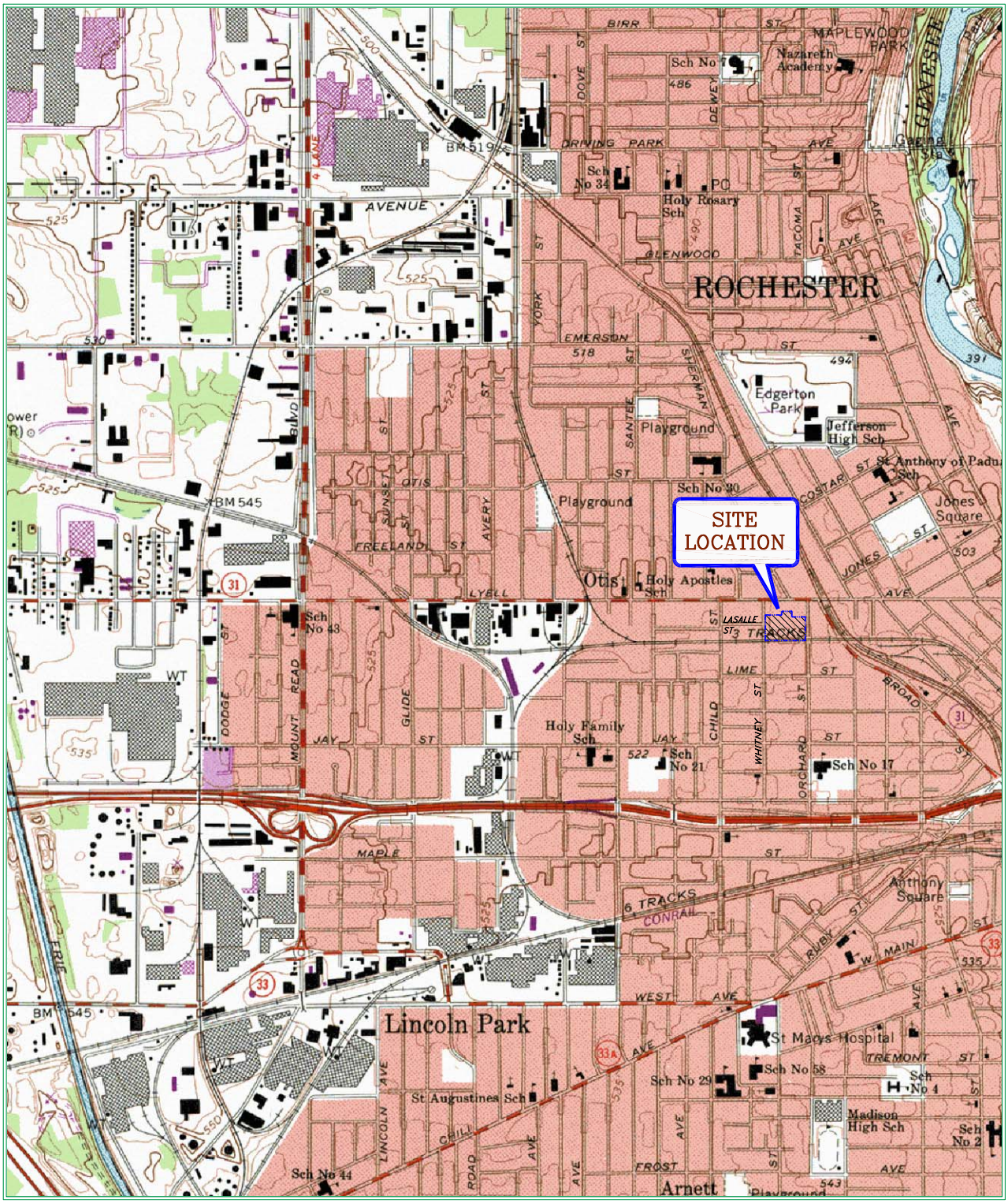
The Report will also include a detailed evaluation of possible remedial alternatives, their effectiveness, and estimated cleanup costs. In addition to the Report, Lu Engineers will provide technical support during the NYSDEC PRAP/ROD process.

The Report will carefully document all investigative activities and analytical results and will be supplemented with photographic documentation, subsurface soil logs and cross sections, study area plans that indicate groundwater flow direction and sub aerial contaminant distribution. Future use of the Site will be considered in remedies selected for evaluation.

6.0 Schedule

A detailed project schedule including all anticipated field work and report submission in included in Appendix E. From the time of project start-up, it is our professional estimate that the project will take approximately one year to complete. This takes program components of the ERP and associated NYSDEC review into consideration.

Figures



SCALE: 1" = 2000'

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Civil and Environmental

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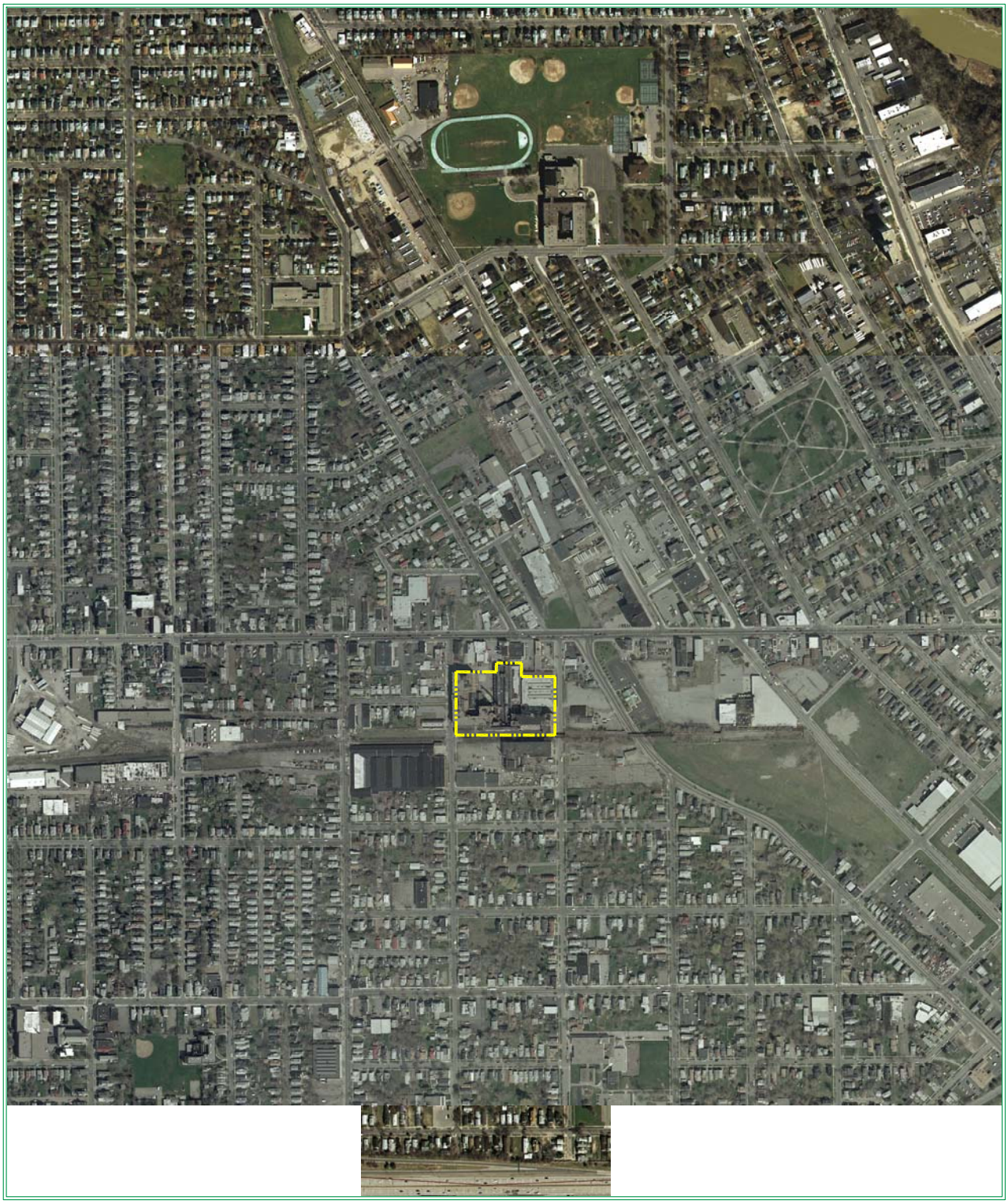
2230 PENFIELD ROAD PENFIELD, NEW YORK 14526
PHONE: 585.377.1450 FAX: 585.377.1266

FIGURE 1. SITE LOCATION MAP

CITY OF ROCHESTER
REMEDIAL INVESTIGATION
415 ORCHARD / 354 WHITNEY

DATE:	SEPTEMBER 2006
SCALE:	1:24,000
DRAWN BY:	DLS
MAP SOURCE:	ROCHESTER WEST QUADRANGLE NEW YORK – MONROE COUNTY 7.5 MINUTE SERIES (TOPOGRAPHIC) 1971; PHOTOREVISED 1978



SCALE: 1" = 800'

N

NEW YORK
QUADRANGLE LOCATION

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FIGURE 2.
SENSITIVE RECEPTORS & SPILL SITES

CITY OF ROCHESTER
REMEDIAL INVESTIGATION
415 ORCHARD / 354 WHITNEY

DATE:	SEPTEMBER 2006
SCALE:	1:24,000
DRAWN BY:	DLS
MAP SOURCE:	NYS GIS CLEARINGHOUSE – NY STATE STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, HIGH RESOLUTION IMAGERY 2000–2005

WHITNEY STREET

LYELL AVENUE

(OLD RR TRACKS)

ORCHARD STREET

LEGEND

MONITOR WELL

SOIL BORINGS

TEST TRENCHES

WASTE CHARACTERIZATION SAMPLES

N

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FIGURE 3. SAMPLE LOCATIONS

CITY OF ROCHESTER
REMEDIAL INVESTIGATION
415 ORCHARD / 354 WHITNEY

DATE:	AUGUST 2006
SCALE:	11x17 Scale: 1" = 60' 22x34 Scale: 1" = 30'
DRAWN BY:	DLS
MAP SOURCE:	NYS GIS CLEARINGHOUSE – NY STATE STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, HIGH RESOLUTION IMAGERY 2000–2005

J:\4216 Orchard-Whitney\Cadd\reportMaps.dwg

Appendix A – Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN

Remedial Investigation

City of Rochester
Environmental Restoration Project
415 Orchard Street and 354 Whitney Street
Monroe County, New York

Prepared For:

City of Rochester
Department of Environmental Services
Division of Environmental Quality
30 Church Street
Rochester, New York 14614

Prepared By:

Lu Engineers
2230 Penfield Road
Penfield, New York 14526

AUGUST 2006

Project No: 4216

Table of Contents

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1.0 Introduction

This Quality Assurance Project Plan (QAPP) was prepared as an integral part of the Remedial Investigation Work Plan for the Orchard/Whitney Site and is subject to the review and approval by the New York State Department of Environmental Conservation (NYSDEC). The project work will be performed by Lu Engineers, or conducted under their discretion by NYSDEC-approved contractors. Project-specific descriptions can be found in the Site Work Plan.

This QAPP presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities that will be implemented by Lu Engineers for this project. This QAPP is designed to ensure that all technical data generated by Lu Engineers is accurate, representative, and will ultimately withstand judicial scrutiny.

All QA/QC procedures are implemented in accordance with applicable professional technical standards, NYSDEC and EPA requirements, government regulations and guidelines, and specific project goals and requirements. This QAPP is prepared in accordance with all NYSDEC and EPA QAPP guidance documents.

This QAPP incorporates the following activities:

- Sample Management and chain of custody;
- Document control;
- Laboratory quality control; and
- Review of project deliverables.

Analytical samples will be collected in the field utilizing standard operating procedures (SOPs) and sent to the contracted NYSDOH ELAP CLP-certified laboratory for analysis. Field data compilation, tabulation, and analysis will be checked for accuracy. Calculations and other post-field tasks will be reviewed by field personnel and the project manager.

Equipment used to take field measurements will be maintained and calibrated in accordance with established procedures. Records of calibration and maintenance will be kept by assigned personnel. Field testing and data acquisition will be performed in standard fashion following strict guidelines.

Document control procedures will be used to coordinate the distribution, coding, storage, retrieval, and review of all data collected during all sampling tasks. These include, but are not limited to, the sampling of soil/sediment, groundwater, and wastes.

In addition, the laboratory has developed SOPs for individual analytical methods and internal QC procedures. These documents are an important aspect of their QA program and are available for review upon request.

2.0 Project Objectives

The intent of this project is to further delineate the nature and extent of contamination at the Orchard/Whitney Site. Sampling of soil and groundwater will be used to identify potential exposure pathways and evaluate the Site for future use. The identification of significant Site characteristics, extent of contamination, and exposure pathways (if completed exposure pathways are indicated) will provide the basis for developing remedial alternatives. The scope of work is described in the Remedial Investigation Work Plan Section 3.0.

A complete project description, including site history and background information, is given in Section 2 of the Remedial Investigation Work Plan.

3.0 Project Organization and Responsibility

In accordance with Lu Engineers' quality assurance (QA) program, experienced senior technical staff will be assigned to the project QA/QC functions. The management structure provides for direct and constant operational responsibility, clear lines of authority, and the integration of QA activities. The various QA functions are explained below.

QA contacts include Lu Engineers project manager and Quality Assurance Officer. Qualifications of key personnel are included in Appendix D.

Upstate Laboratories, a NYSDOH ELAP-CLP certified laboratory, will provide analytical services for the project. A list of their certifications and accreditations is attached in Appendix D.

Project Director
The project director for this project will be Robert Elliott, P.E. As project director, Mr. Elliott will have overall responsibility for ensuring that the project meets client objectives and Lu Engineers' quality standards. In addition, the project director will be responsible for technical quality control and project oversight and will provide the project manager with access to upper management.

Project Manager
The project manager for this project will be Steven Campbell, CHMM. As project manager, he will be responsible for implementing the project and will have the authority to commit the resources necessary to meet project objectives and requirements. The project manager's primary function is to ensure that technical, financial, and scheduling objectives are achieved. The project manager will provide the major point of contact and control for matters concerning the project. The project manager will:

- Work directly with the NYSDEC Regional Office to complete and implement a work plan for the project;
- Define project objectives and schedule;

- Establish project policy and procedures to address the specific needs of the project as a whole, as well as the objectives of each task;
- Acquire and apply technical managerial resources as needed to ensure performance within budget and schedule constraints;
- Orient all staff concerning the project's special considerations;
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product;
- Review the work performed on each task to ensure its quality, responsiveness, and timeliness;
- Review and analyze overall task performance with respect to planned requirements and authorizations;
- Approve all external reports (deliverables) before their submission to the client;
- Ultimately be responsible for the preparation and quality of interim and final reports; and
- Represent the project team at meetings.

Quality Assurance Officer (QAO)
The QA officer is Susan Hilton, P.E. She will be responsible for maintaining QA for a specific program and the projects within that program. Specific functions and duties include:

- Providing an external and, thereby, independent QA function to the project;
- Responsibility for field and sampling audits conducted by qualified QA personnel;
- Coordinating with client personnel, Lu Engineers' project manager, laboratory management, and staff to ensure that QA objectives appropriate to the project are set and that personnel are aware of these objectives;
- Coordinating with project management and personnel to ensure that QC procedures appropriate to demonstrating data validity sufficient to meet QA objectives are developed and in place;
- Interfacing with the data validator (if necessary) and development of a project specific data usability report;
- Coordinating with QA personnel to ensure that QC procedures are followed and documented;
- Requiring and/or reviewing corrective actions taken in the event of QC failures;
- Reporting non-conformance with QC criteria or QA objectives, including an assessment of the impact on data quality or project objectives, to the project manager.

Technical Staff
The technical staff (team members) for this project will be drawn from Lu Engineers pool of resources. The technical team staff will be utilized to gather and analyze data and to prepare various task reports and support materials. All of the designated technical team members are experienced professionals who possess the degree of specialization, training and technical competence required to effectively and efficiently perform the required work.

Data Validation and QA Staff
If necessary, data validation and QA staff will include data validation chemists, QA auditors, and other technical specialists who remain independent of the laboratory and project management. The staff will independently validate analytical data to assess and summarize their accuracy, precision, and reliability and determine their usability. The staff will also perform audits and document the historical record of project activities, including any factors affecting data usability, such as data discrepancies and deviations from standard practices. The staff will act under the direction of the QA officer and project manager in accordance with specific project requirements. A third party data validation staff is to be determined.

4.0 Sampling Procedures

4.1 Sampling Design

The sampling for this project is designed to fully delineate the nature and extent of contamination at the Site. Soil borings, test excavations, surface soil samples, asbestos sampling, and a full hazardous material inventory will be used to evaluate site conditions.

A PCB assessment is planned for all existing facility equipment, melt water in the Engine Room of 354 Whitney Street and liquid/sediment in floor drains and trenches.

A full hazardous material inventory will be conducted including waste characterization sampling for all materials requiring disposal prior to demolition.

A total of thirteen (13) test trenches will be completed across the site to further evaluate subsurface conditions. One (1) sample will be taken from each trench.

Surface soil samples and sub-slab samples will be collected from across the property, using a grid-based system to evaluate exposure routes and fulfill requirements of the New York State Department of Health (NYSDOH).

Fifteen (15) soil borings are planned; 12 will be completed onsite and 3 background soil borings are planned to be taken off-site to establish local background concentrations for metals and PAHs. All of these borings will be converted to groundwater monitoring wells. Samples will be taken from the six (6) existing NYSDEC wells, as well as from the 15 newly installed monitoring wells.

Soil and groundwater samples will be analyzed for TAL metals, TCL+30 volatiles and semi-volatiles, and PCBs using Contract Laboratory Protocol (CLP).

Continuous perimeter and work zone air monitoring for volatile organic compounds (VOCs) will also be conducted during all soil removal and staging activities using a PID to ensure health and safety of workers and the public.

A site map showing sample locations is provided as Figure 4.

4.2 QC Samples

Various types of field QC samples are used to check the cleanliness and effectiveness of field handling methods. They are analyzed in the laboratory as samples, and their purpose is to assess the sampling and transport procedures as possible sources of sample contamination and document overall sampling and analytical precision. Rigorous documentation of all field QC samples in the site logbooks is mandatory.

- **Trip Blanks** are similar to field blanks with the exception that they are not exposed to field conditions. Their analytical results give the overall level of contamination from everything except ambient field conditions. Trip blanks are prepared at the lab prior to the sampling event and shipped with the sample bottles. Trip blanks are prepared by adding organic-free water to a 40-ml VOA vial. One trip blank will be used with every batch of water samples shipped for volatile organic analysis. Each trip blank will be transported to the sampling location, handled like a sample, and returned to the laboratory for analysis without being opened in the field.
- **Field Equipment/Rinsate Blanks** are blank samples designed to demonstrate that sampling equipment has been properly prepared and cleaned before field use and that cleaning procedures between samples are sufficient to minimize cross-contamination. Rinsate blanks are prepared by passing analyte-free water over sampling equipment and analyzing the samples for all applicable parameters. If a sampling team is familiar with a particular site, its members may be able to predict which areas or samples are likely to have the highest concentration of contaminants. Unless other constraints apply, these samples should be taken last to avoid excessive contamination of sampling equipment. Rinsate blanks are not required if dedicated sampling equipment is used for sample collection.
- **Field Duplicates** consist of a set of two (2) samples collected independently at a sampling location during a single sampling event. Field duplicates can be sent to the laboratory so that they are indistinguishable from other analytical samples and personnel performing the analysis are not able to determine which of the samples are field duplicates. Field duplicates are designed to assess the consistency of the overall sampling and analytical system.

Field QC samples and the frequency of analysis for this project are summarized in Table 1 in Appendix A-1 and Table 3.3.1 of the Work Plan.

4.3 Decontamination Procedures

All decontamination will be performed in accordance with NYSDEC-approved procedures. Sampling methods and equipment have been chosen to minimize decontamination requirements and prevent the possibility of cross-contamination. All drilling equipment will be decontaminated prior to drilling, after drilling each boring/monitoring well, and after the completion of all drilling. Special attention will be given to the drilling assembly, augers, split-spoons, and PVC casing. Split-spoons will be decontaminated prior to and following each use.

Split-spoons and other non-disposable sampling equipment, and stainless steel spoons will be decontaminated using the following procedure:

- Initially cleaning equipment of all foreign matter;
- Scrubbing equipment with brushes in alconox solution;
- Rinsing equipment with distilled water; and
- Rinsing equipment with 10% nitric acid (when sampling for metals only);
- Triple-rinsing equipment with distilled water; and
- Allowing equipment to air dry.

All drill cuttings and water generated during drilling boring and monitoring well installation will remain on site. All waters generated by decontamination or by developing, purging, or pumping the monitoring wells will be stored in drums or an onsite holding tank.

A temporary decontamination pool will be established in a secure area on site using 6-mil polyethylene sheeting. The drill rig and associated tooling will be decontaminated using steam-cleaning methods at the designated location. Fluids generated during decontamination will be collected in the plastic-lined pool. All decontamination wastes will be transferred into drums or an onsite holding tank for appropriate staging and disposal. The City will be responsible for proper staging and disposal of all investigation-derived wastes. Final disposal of soils and water will be dependent on the results of the soil and groundwater analyses to be conducted during this investigation.

4.4 Sampling Methods

This section describes the sampling procedures to be utilized for each environmental medium that will be collected and analyzed in accordance with the site work plan and Tables 1 and 5.1 of this plan. All sampling procedures described are consistent with United States Environmental Protection Agency (USEPA) sampling procedures as described in SW-846, third edition and the NYSDEC Analytical Services Protocols (ASP), or equivalent.

4.4.1 PCB Sampling

Sample locations will be selected based on the potential for contamination in the area of concern. The general PCB sampling procedure is outlined below; however, methods may need to be tailored to suit the specific surface situations.

Destructive sampling will be performed on any porous surface as described in the site work plan. Sampling is generally accomplished using a chisel and hammer that have been precleaned and wrapped in aluminum foil.

- Measure off the designated sampling area. Total surface area will be determined based on the amount of sample requested by the analytical laboratory.
- Record surface area to be chipped in the field logbook.
- Wear a clean pair of disposable surgical gloves to open a pre-cleaned chisel or equivalent sampling device.

- Chip the sample area horizontally, then vertically to an even depth of approximately 1/8 inch.
- Place the sample in the laboratory-prepared sample container with a Teflon lined cap.
- Store samples out of direct sunlight to reduce photodegredation, and cool to 4^{o}C.
- Decontamination procedures will be followed for sampling equipment between sample locations.

Wipe sampling will be taken on any non-porous surfaces and conducted using the following procedure:

- Measure off the designated sampling area, using a 10 cm x 10 cm template (100 cm^2).
- Wear a clean pair of disposable rubber gloves.
- Prep a gauze pad with hexane and rub over the surface of the 100 cm^2 area.
- Place the gauze in a precleaned sample container with a Teflon lined cap.

Water samples will be collected using the following technique. Water may be sampled from the surface or from the bottom depending on what is observed. If a surface film is observed, or PCBs are dissolved in hydrocarbon oils the surface water should be sampled, otherwise a sample should be taken near the bottom of the body of water. Surface water sampling will be conducted using the following procedure:

- Wear a clean pair of disposable surgical gloves.
- Lower an open, pre-cleaned glass sample bottle horizontally into the water at the designated sample location so that it fills slowly without much agitation to avoid disturbing sediment.
- As the water begins to run into the bottle, slowly turn the bottle upright, keeping the lid just under the surface so that only surface water is collected.
- If water is too shallow to submerge sample containers, then larger containers may be filled by dipping aliquots with a smaller container.
- Lift the bottle out of the water, wipe the outside with a disposable cloth, and cap the bottle.

Sediment sampling will be conducted using the following procedure:

- Wear a clean pair of disposable surgical gloves.
- Lower a sealed sample bottle to the required depth, remove the bottle top, and allow the bottle to fill; remove the bottle from the water.
- Transfer the sample into a precleaned glass sample container with Teflon lined cap.
- Decontamination procedures will be followed for sampling equipment between sample locations.

All rubber gloves and wiping cloths should be discarded into a plastic bag and labeled as PCB contaminated wastes for disposal, unless sample results confirm otherwise.

4.4.2 Waste Sampling

Waste characterization samples will be taken as needed according to the results of the hazardous materials inventory as described in the work plan. Sampling procedures and precautions similar to those used for surface soil or test pit sampling may be used. Analytical requirements for waste samples include a full TCL analysis and RCRA characterization to determine disposal/reuse options.

In the event unidentified 55-gal drums are encountered during the hazardous material inventory, sampling may be required for disposal. Prior to sampling, the drums must be inventoried, staged and opened. Either manual or remote drum opening procedures will be employed. Manual opening should only be used when the drum appears structurally sound, their contents are known, and they are non-explosive. Manual drum opening can be done using a bung wrench, drum deheader, or hand pick or spike. Remote drum opening may be done using a backhoe spike, hydraulic or pneumatic device. After drum has been opened monitor headspace and atmosphere. Determine if bottom sludge is present by measuring the depth to bottom inside the drum and the height of the drum outside. A sample must be taken that represents the entire depth of the vessel. Two methods of sampling are generally employed, a glass thief sampler or a COLIWASA sampler. The glass thief is the preferred method because it is simple, quick and collects a sample without having to decontaminate.

4.4.3 Surface Soil Sampling

Surface soil samples will be collected from grid-based sample locations across the property as indicated on the sample location map. Samples will be taken with a stainless steel hand auger or trowel and transferred to the appropriate clean glass containers. Sufficient sample volume (as specified by the laboratory) will be collected to fill the sample bottles. All tools to be used will be decontaminated according to procedures outlined in Section 4.3 prior to and between usages. A rinsate/equipment blank will be taken after the final decontamination of the sampling equipment.

Any observable physical characteristics of the soil as it is being sampled (e.g., color, odor, physical state) will be recorded. Samples will be screened using a PID as they are being collected.

4.4.4 Test Pit Investigations

Test pits will be excavated to bedrock, but not into groundwater, using a backhoe. All materials removed from the pit will be returned and the pit will be completely filled before the backhoe leaves the site. A PID will be used to continuously monitor gases exiting the test pits during excavation and sampling operations.

Prior to initiating excavation activities and between test pits, the backhoe will be cleaned and decontaminated according to procedures outlined in Section 4.3.

Soil samples will be obtained according to the site work plan using a stainless steel spoon or trowel. Samples can be collected from the walls of the test pit or from the backhoe bucket if appropriate. Soil samples will be placed in 8-ounce wide-mouth glass jars.

The sample exhibiting the highest levels of contamination from each test pit based on field screening will be submitted for laboratory analysis. One discreet sample from each test pit will be submitted.

A log of the test pit will be maintained similar to a borehole log, indicating such information as distinctive soil horizons, soil texture, color, groundwater, PID and OVA readings, and location of soil samples.

4.4.5 Subsurface Soil Samples

All soil samples will be screened for the presence of volatile organic compounds (VOCs) with a photoionization detector (PID). Screening will be performed by placing a representative soil sample into a Ziplock™ (or equivalent) plastic bag, sealing the bag, and then allowing the sample to volatilize for at least 15 minutes. The concentration of VOCs will then be measured by inserting the tip of the PID or equivalent device into the sample's headspace and taking a reading. VOC measurements will be entered on the boring log. All soil borings will be constructed into monitoring wells.

The field geologist will also evaluate soil samples for the presence of staining or other unusual observations. Samples noted to have these characteristics may require analysis even though no PID readings may have been observed.

4.4.6 Groundwater Investigation

The groundwater sampling plan outlined in this subsection has been prepared in general accordance with RCRA Groundwater Monitoring Technical Enforcement Guidance Document 9950.1 (September 1986), Office of Solid Waste and Emergency Response as modified by NYSDEC-specific request.

Well Installation

Prior to initiating drilling activities, the drilling rig, augers, rods, split spoons, pertinent equipment, well pipe and screens will be steam cleaned. These activities will be performed in a designated decontamination area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used. The drilling rig and all equipment will be steam cleaned upon completion of the investigation and prior to leaving the site.

Samples will be collected continuously in 2-foot intervals as the augers are advanced. The sampler will be decontaminated between sampling locations. Decontamination will be accomplished by disassembling the split spoons, removing gross debris, washing the parts in an alconox solution, and rinsing with distilled water. Each soil sample will be described at the time it is retrieved, and a subsurface log will be produced by an on-site geologist based upon visual examination and other field observations. Sample descriptions will be based on either the Unified or Burmister Soil Classification System.

Upon reaching competent bedrock, the borehole will be advanced using rotary drilling techniques and coring. HQ rock cores will be obtained from four (4) well bores in order to develop an accurate profile of site wide surface bedrock hydrology. All borings will be advanced ten feet (10 ft.) into bedrock where the groundwater monitoring wells will be installed.

Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative. During the drilling, a portable VOC monitor, and an O_2/explosimeter will be used to monitor the gases exiting the hole.

Well Casing (Riser)
The well riser shall consist of 2- or 3-inch diameter, threaded flush-joint polyvinyl chloride (PVC) pipe. All well risers will conform to the requirements of ASTM-D 1785 Schedule 40 pipe, and shall bear markings that will identify the material as that which is specified. All materials used to construct the wells will be NSF/ASTM approved.

Well Screen
Generally, wells will be constructed with 10-foot machine-slotted screens, unless otherwise specified in the work plan or dictated by field conditions (i.e., screens of less than 10-ft in length may be used, depending on the characteristics of the well). Screen and riser sections shall be joined by flush-threaded coupling to form watertight unions that retain 100% of the strength of the casing. Solvent PVC glues shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated cap or plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well.

All risers and screens shall be set round, plumb, and true to line.

Artificial Sand Pack
Granular backfill will be chemically and texturally clean inert, siliceous, and of appropriate grain size for the screen slot size and the host environment. The well screen and riser casing will be installed, and the sand pack placed around the screen and casing to a depth approximately 2 feet above the top of the well screen.

Bentonite Seal
A minimum 2-ft thick seal of bentonite pellets/chips and water slurry will be placed directly on top of the sand pack, and care will be taken to avoid bridging. The seal will be measured immediately after placement, without allowance for swelling.

Grout Mixture
Upon completion of the bentonite seal, the well will be grouted with a non-shrinking cement grout mix to be placed from the top of the bentonite seal to the ground surface. The cement grout shall consist of a mixture of Portland cement (ASTM C 150) and water, in the proportion of not more than 7 gallons of clean water per bag of cement (1 cubic foot or 94 pounds). Additionally, 3% by weight of bentonite powder shall be added, if permitted.

Surface Protection
At all times during the progress of the work, precautions shall be used to prevent tampering with or the entrance of foreign material into the well. Upon completion of the well, a suitable vented cap shall be installed to prevent material from entering the well. The PVC well riser shall be flush mount or surrounded by a steel casing rising 24 to 36 inches above ground level and set into a concrete pad. The steel casing shall be provided with a cap and lock. A concrete pad, sloped away from the well, shall be constructed around the well casing at ground level. The steel protective casing shall be painted with permanent high-visibility paint. The ground immediately around the top of the well shall be sloped away from the well. There shall be an opening in the protective casing wall at the top of the cement pad to allow for internal drainage.

Any well that is to be temporarily removed from service or left incomplete due to delay in construction, shall be capped with a watertight cap and equipped with a "vandal-proof" cover, satisfying applicable NYSDEC regulations or recommendations.

Surveying
Coordinates and elevations will be established by a New York State licensed land surveyor for each boring, monitoring well, sampling location, and other key contour points. A map of each site will be prepared for inclusion into the final report for each site.

Elevations (0.01') will be established for the ground surface at each boring, monitoring well, sampling location, the top of each monitoring well casing (T.C), and at least one other permanent object (i.e., property corner markers, corners of buildings, bridges, etc.) in the vicinity of the borings and wells. Elevations will be relative to a regional, local, or project specific datum. USGS benchmarks will be used if within ½ mile of the site being surveyed and will take precedence over the use of a project specific datum.

Unsurveyed data, (i.e., approximate site and property boundaries), developed through the use of current tax maps and initial site visits, also will be shown on the survey map. The location and extent of filled areas, buried tanks and drums, other items pertinent to site usage will be indicated on the survey maps based on the best available data.

Well Development
After completion of the well, but not sooner than 48 hours after grouting is completed, development will be accomplished using air surging, surge blocking, pumping, or bailing. The air-lift surge method may be supplemented with a bottom-filling bailer if a well has an extremely low yield. No dispersing agents, acids, disinfectants, or other additives will be used during development nor be introduced into the well at any other time. During development, water will be removed throughout the entire water column by periodically lowering and raising the pump intake (or bailer stopping point).

Well development will include washing the entire well cap and the interior of the well casing above the water table, using only water from the well itself. As a result of the operation, the well casing will be free of extraneous materials (grout, bentonite, and sand) inside the riser, well cap, and blank casing between top of the well casing and water table. This washing will be conducted before and/or during development; not after development. Development water will be properly contained and treated as waste until the results of chemical analysis of samples are obtained.

The development process will continue until a stabilization of pH, specific conductance, temperature, and clarity (goal of <50 NTUs) of the discharge is achieved or for a maximum of two hours. If, after two hours, substantial improvement has been noted through the development process but the goal of 50 NTUs has not been met, an additional one to two hours may be authorized by the NYSDEC on-site representative to achieve the 50 NTU goal. Prior to the commencement of this additional development, entries will be made detailing the request in the site project logbook and countersigned by both NYSDEC's on-site representative and Lu Engineers' field team leader.

Geologic Logging and Sampling

At each well location, the boring will be advanced through overburden using a drill rig and hollow-stem auger, and soils will be visually inspected for stains and monitored with a PID and OVA. Soil samples will be collected continuously over the entire depth of the well. The sampling device will be decontaminated according to procedures outlined in Section 4.3.

The split-spoon sampler will be driven into the soil using a 140-pound safety hammer and allowed to free-fall 30 inches, in accordance with ASTM-D 1586-84 specifications. The number of blows required to drive the sampler each 6 inches of penetration will be recorded. Soil samples will be screened in the field for volatile organic vapors using a PID, and will be classified in accordance with Unified Soil Classification System (ISCS) specifications, and logged. Samples will be stored in glass jars until they are needed for testing or the project is complete.

Information regarding analytical requirements for soil borings can be found in the Work Plan.

Monitoring well borings will be installed to a depth determined through the examination of boring logs and water levels encountered as well as on-site discussions and agreement between the NYSDEC representative and Lu Engineers' field team leader. All significant discrepancies between the prepared work plan and actual site conditions will be noted and countersigned by both parties in the project's on-site logbook.

If hydrogeologic conditions are favorable for well installation at a depth less than design, the well will be installed at the boring or coring termination depth. In the even that maximum design depth is reached and hydrogeologic conditions are not suitable for well installation, the maximum drilling depth will be revised. Hydrogeologic suitability for well emplacement will be determined by the supervising geologist in consultation with NYSDEC, based on thickness and estimated hydraulic conductivity to the saturated zone encountered. If necessary, the borehole will be advanced to water or abandoned.

Drilling logs will be prepared by an experienced geologist who will be present during all drilling operations. One copy of each field boring log, well construction log and groundwater data will be submitted as part of the report. Information provided in the logs shall include, but not be limited to, the following:

- Date, test hole identification, and project identification;
- Name of individual developing the log;
- Name of driller and assistant(s);
- Drill, make and model, auger size;
- Identification of alternative drilling methods used and justification thereof (e.g., rotary drilling with a specific bit type to remove material from within the hollow stem augers);
- Standard penetration test (ASTM D-1586) blow counts;
- Field diagram of each monitoring well installed with the depth to bottom of screen, top of screen, and pack, bentonite seal, etc.;
- Reference elevation for all depth measurements;
- Depth of each change of stratum;
- Thickness of each stratum;
- Identification of the material of which each stratum is composed, according to the USCS system or standard rock nomenclature, as appropriate;
- Depth interval from which each sample was taken;
- Depth at which hole diameters (bit sizes) change;
- Depth at which groundwater is encountered;
- Depth to static water level;
- Total depth of completed well;
- Depth or location of any loss of tools or equipment;
- Location of any fractures, joints, faults, cavities, or weathered zones;
- Depth of any grouting or sealing;
- Nominal hole diameters;
- Amount of cement used for grouting or sealing;
- Depth and type of well casing;
- Description of well screen (to include depth, length, location, diameter, slot sizes, material, and manufacturer);
- Any sealing-off of water-bearing strata;
- Static water level upon completion of the well and after development;
- Drilling date or dates;
- Construction details of well; and
- An explanation of any variations from the work plan.

Groundwater Sampling Procedures
Static water levels will be measured to within 0.01 foot prior to purging and sampling. Purging and sampling of each well will be accomplished using precleaned dedicated PVC bailers on new polypropylene line. All wells will be purged a minimum of three volumes of water standing in the casing or to dryness. Temperature, pH, conductivity, and turbidity will be measured and recorded during purging.

After purging, the turbidity of each well will be measured. If the well water exhibits turbidity above the 50 NTU limit, sampling of the well water for metals only will be delayed for 24 hours. Sample volumes for all other parameters will be collected immediately following purging, with the volatile sample collected first. Upon returning to the well, the turbidity will be remeasured and recorded. No additional purging will be performed.

Groundwater samples will be collected according to the following procedures.

- Water clarity will be quantified during sampling with a turbidity meter;
- When transferring water from the bailer or pump line to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Any observable physical characteristics of the groundwater (e.g., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

All groundwater samples and their accompanying QA/QC samples will be analyzed as specified in the work plan. A total of three complete rounds of groundwater sampling events will be performed throughout the site investigation.

4.5 Sample Documentation

4.5.1 Logbooks
All field activities will be documented in a field logbook. This logbook will provide a record of activities conducted at the site. All entries will be signed and dated at the end of each day of fieldwork. The field logbook will include the following: date and time of all entries; names of all personnel on site; weather conditions (temperature, precipitation, etc.); location of activity; and description of activity.

In addition, Lu Engineers will complete the following standard field forms as necessary:

- Test boring/probing log
- Groundwater elevations, development, sampling and conductivity logs
- Field sampling record
- Chain of custody for all analytical laboratory sampling.

As with any data logbooks, no pages will be removed for any reason. If corrections are necessary, these must be made by drawing a single line through the original entry (so that the original entry can still be read) and writing the corrected entry alongside it. The correction must be initialed and dated. Most corrected errors will require a footnote explaining the correction.

4.5.2 Sample Identification

All containers of samples collected by Lu Engineers from the project will be identified using a format identified in the field on a label affixed to the sample container (labels are to be covered with Mylar tape). Generally, the format will include two letters identifying the site (OW – Orchard Whitney), two letters identifying the type of sample (GW – Groundwater), two numbers identifying a sample location, 2-4 additional numbers identifying a sample depth if appropriate, additional letters identifying special parameters (MSMSD – Matrix Spike, Matrix Spike Duplicate).

Each sample will be labeled and sealed immediately after collection. To minimize handling of sample containers, labels will be filled out prior to sample collection. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers and protected with Mylar tape. The sample label will give the sample number, the date of the collection, analysis required, and pH and preservation, if appropriate.

The laboratory sample number will appear on a barcode label affixed to each sample, extract, or digestate.

4.6 Field Instrumentation

All instruments and equipment used during sampling and analysis will be operated, calibrated and maintained according to manufacture's guidelines and recommendations. Operation, calibration, and maintenance will be performed by personnel properly trained in these procedures. Documentation of calibration information will be maintained in the appropriate log book or reference file and will be available upon request. Instruments will be calibrated before each use.

5.0 Sample Handling and Custody

This section describes procedures for sample handling and chain-of-custody to be followed by Lu Engineers sampling personnel and the analytical laboratory. The purpose of these procedures is to ensure that the integrity of the samples is maintained during their collection, transportation, storage, and analysis. All chain-of-custody requirements comply with SOPs indicated in EPA sample-handling protocol.

Sample identification documents will be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include field notebooks, sample labels, custody seals, chain-of-custody records, and laboratory sample log-in and tracking forms.

The primary objective of the chain-of-custody procedures is to provide an accurate written record that can be used to trace the possession and handling of a sample from the moment of its collection through it analyses. A sample is in custody if it is:

- In someone's physical possession;
- In someone's view;
- Locked up; or
- Kept in a secured area that is restricted to authorized personnel.

5.1 Sample Containers and Preservation

For sampling performed by Lu Engineers, prewashed sample containers obtained from a reliable supplier will be provided by the analytical laboratory. All containers provided by the laboratory are precleaned (Level 1), with certificates of analysis available for each bottle type. Certifications of Analysis provided by the vendor are kept on file by the laboratory.

All samples will be stored on ice pending delivery to the laboratory. In addition, all water samples for volatile analysis will be preserved with HCl to a pH of less than 2. All water samples for metals analysis will be preserved by adding concentrated nitric acid until the sample pH is lowered to 2.0 standard units or less. Sample pH will be checked in the field using indicator paper. A list of preservatives and holding times for each type of analysis is included in the following Table.

Table 5.1
Sample Preservation and Holding Times

Sample Matrix	Analysis	Container Type and Size	Preservation	Holding Time
Soil	VOC	2-4 oz. wide mouth glass jar with Teflon-lined cap	Cool to 4°C; minimize headspace	14 days
	SVOC	2-4 oz. amber wide mouth glass jar with Teflon-lined cap	Cool to 4°C	14 days
	Metals	glass	Cool to 4°C	6 months
	PCBs	2-4 oz. glass jar with Teflon-lined cap	Cool to 4°C	14 days
Waste samples	TCLP-metals	1 L polyethylene or glass jar	Cool to 4°C; HNO_3 to pH<2	6 months
	TCLP- VOC	3 - 40-ml.glass vial with Teflon-lined cap	Cool to 4°C	14 days
	TCLP-SVOC	2 - ½ L Amber Jugs with Teflon-lined cap	Cool to 4°C	14 days
Groundwater	VOC	3 - 40-ml.glass vial with Teflon-lined cap	Cool to 4°C; minimize headspace	7 days, unpreserved 14 days, preserved
	SVOC	2 - ½ L Amber Jugs with Teflon-lined cap	Cool to 4°C;	7 days
	Metals	40-ml. polyethylene or glass	HNO_3 to a pH <2	6 months
	PCBs	2 - ½ L Amber Jugs	Cool to 4°C	7 days
Concrete Chips	PCBs	glass jar with Teflon-lined cap	Cool to 4°C	Extract within 10 days; analyze within 40 days
Oil	PCBs	40-ml glass vial with Teflon lined cap	Cool to 4°C	none

* Holding times are based on verified time of sample receipt

Sample preservation will be verified at the lab just prior to extraction, digestion, and/or analysis and the pH will be recorded in the extraction/digestion logbook. The pH may be checked upon arrival, if desired. If the samples are improperly preserved, a QA/QC discrepancy form will be submitted to the lab manager and QA coordinator for appropriate follow-up action (i.e., evaluation of the data during the data validation process and, if necessary, additional instruction of personnel regarding proper procedures).

5.2 Field Custody Procedures

- Sample bottles must be obtained precleaned from the laboratory or directly from an approved retail source. All containers will be prepared in a manner consistent with the NYSDEC ASP 1991 bottle-washing procedures. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.

- All containers will have assigned lot numbers to ensure traceability through the supplier.
- As few persons as possible should handle samples.
- The sample collector is personally responsible for the care and custody of samples collected until the samples are transferred to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in the field notebook.
- The project manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

5.2.1 Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. A custody seal is placed over the cap of individual sample bottles by the sampling technician. Sample shipping containers (coolers, cardboard boxed, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. Strapping tape should be placed around the lid to ensure that seals are not accidentally broken during shipment and in a manner that allows easy removal by laboratory personnel. On receipt at the laboratory, the custodian must check (and certify, by completing logbook entries) that seals on boxes and bottles are intact.

5.2.2 Chain-of-Custody Record

The chain-of-custody record must be fully completed in duplicate, using black carbon paper where possible, by the field technician who has been designated by the project manager as responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations, etc.), the person completing the chain-of-custody record should note these constraints in the "Remarks" section of the custody record.

5.3 Sample Handling, Packaging and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States Department of Transportation (DOT) in the Code of Federal Regulations, 49 CFR 171 through 177.

5.3.1 Sample Packaging

Samples must be packaged carefully to avoid breakage or contamination and must be shipped to the laboratory at proper temperatures. The following sample packaging requirements will be followed:

- Sample bottle lids must never be mixed. All sample lids must stay with the original containers.
- The sample bottle should never be completely filled except for VOA bottles. At a minimum, a 10% void space should be left in the bottle to allow for expansion. The sample volume level should be marked with a grease pencil or by placing the top of the label at the appropriate sample height.
- All sample bottles must be sealed around the neck or the jar lid with clear tape. Any custody seals should be affixed prior to sealing the bottle.
- All sample bottles shall be placed in plastic Zip-lock bags to minimize contact with inert packing material, unless foam inserts are used.
- Foam inserts should be used as inert packing material when shipping low hazard water samples via a common carrier to the laboratory.
- Low-hazard environmental samples are to be cooled. "Blue ice" or some other artificial icing material, or ice placed in plastic bags, may be used. Ice will not be used as a substitute for packing material.
- A duplicate custody record must be placed in a plastic bag and taped to the inside of the cooler lid. Custody seals are affixed to the sample cooler.
- The cooler will be labeled as containing a hazardous material if it contains medium or high-hazard samples. Labeling requirements differ depending on the type of material being shipped; the majority of soil samples may be shipped as a class "9" hazardous material with the proper shipping name "OTHER REGULATED SUBSTANCES (ENVIRONMENTAL SAMPLES)."
- A hazardous material shipping manifest will be completed for each cooler of medium to high-hazard samples and affixed to the lid of the cooler.
- Low-hazard environmental samples do not require a hazardous material shipping manifest. The words "LABORATORY SAMPLES" should be printed on the top of the cooler for low-hazard samples.
- Samples packaged and shipped as limited-quantity radioactive material must comply with DOT and shipper regulations for package contamination limits, surface exposure rate, and airbill completion.

5.3.2 Shipping Containers

Environmental samples will be properly packaged and labeled for transport and dispatched for analysis to the appropriate subcontracted laboratory for geotechnical analyses. A separate chain-of-custody record must be prepared for each container. The following requirements for marking and labeling of shipping containers will be observed:

- Use abbreviations only where specified;
- The words "This End Up" or "This Side Up" must be clearly printed on the top of the outer package. Upward-pointing arrows should be placed on the sides of the package. The words "Laboratory Samples" should also be printed on the top of the package; and
- After a container has been closed, two custody seals are placed on the container—one on the front and one on the back. The seals are protected from accidental damage by placing strapping tape over them.

Field personnel will make timely arrangements for transportation of samples to the laboratory. When custody is relinquished to a shipper, field personnel will telephone the laboratory custodian to inform him of the expected time of arrival of the sample shipment and to advise him of any time constraints on sample analysis.

5.3.3 Shipping Procedures

- The coolers in which the samples are packed must be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the record. This record documents sample custody transfer.
- Samples must be dispatched to the laboratory for analysis with a separate chain-of-custody record accompanying each shipment. Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information are entered in the "Remarks" section of the chain-of-custody record.
- All shipments must be accompanied by the chain-of-custody record identifying their contents. The original record accompanies the shipment, and the yellow copy is retained by the site team leader.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bills of lading are retained as part of the permanent documentation.
- Samples must be shipped to the analytical laboratory within 24 to 48 hours from the time of collection.

5.4 Laboratory Custody Procedures

The designated sample custodian at the laboratory will be responsible for maintaining the chain-of-custody for samples received at the lab. Among other things, the custodian must adhere to the following basic requirements:

- When the sample arrives at the lab, the custodian will complete a Cooler Receipt & Preservation Form for each cooler/package container.
- Upon receipt, the coolers are examined for the presence and condition of custody seals, locks, shipping papers, etc. Shipping labels are removed and placed on scrap paper and added to the receiving paper work. The custodian then completes the chain-of-custody record by signing and recording the date and time the package is opened.
- Acceptance criteria for cooler temperature is 0-6^{o}C. If a cooler exhibits a temperature outside this range, the anomalies are noted on the Cooler Receipt & Preservation Form.
- The custodian will then unload the samples from the cooler(s)/container(s), assign an identification number to each sample container, and affix a barcode label to each sample container for logging in and out of the LIMS system.

Adherence to this procedure will ensure that all samples can be referenced in the computer tracking system. All sample control and chain-of-custody procedures applicable to the analytical laboratory are presented in laboratory SOPs available for review.

6.0 Analytical Methods

All laboratory analyses will be performed by Upstate Laboratories, an accredited and appropriately (NYSDEC ELAP CLP) certified analytical laboratory. Inorganic, general analytical and organic methods to be performed by the laboratory for this project are listed in Table 1 of this QAPP.

6.1 Analytical Capabilities

The analytical laboratory is fully equipped for analysis of all types of water, air, and soil samples for chemical contaminants, bacteriological quality, and general characterization. Proven and approved analytical techniques are used, backed up by a rigorous system of QC and QA checks to ensure reliable and defensible data. All laboratory work is performed in accordance with guidelines established by EPA, the New York State Department of Health (NYSDOH), and the National Institute of Occupational Safety and Health (NIOSH).

Organic analysis is accomplished by gas chromatography (GC), high performance liquid chromatography (HPLC), and or GC/mass spectrometry (MS). Liquid, soil, and air samples are analyzed routinely for pesticides, polychlorinated biphenyls (PCBs), volatile organics, extractable organics, and other groups of compounds, as necessary. The laboratory uses two types of instruments for analysis of metals in various matrices: AAS and ICP.

Laboratory procedures to be utilized for sample preparation and analysis are referenced in the NYSDEC Analytical Services Protocol.

Method Detection Limits
Method detection limits are determined according to procedures outlined in 40 CFR Part 136, Appendix B or EPA Contract Laboratory Protocol. General analytical detection limits are usually determined by the lowest point on the curve. Detection limits are determined at least annually for all appropriate analytical methods. A listing of the laboratory's method detection limits is available upon request.

6.2 Quality Control Samples

Laboratory QC consists of analysis of laboratory blanks, duplicates, spikes, standards, and QC check samples as appropriate to the methodology. These laboratory QC samples are described below.

6.2.1 Laboratory Blanks

Three types of laboratory blanks, one or more of which will be utilized depending on the analysis are described below:

- Method blanks consist of analyte-free water and are subjected to every step of the analytical procedure to determine possible contamination.

- Reagent blanks are similar to method blanks but incorporate only one of the preparation reagents in the analysis. When a method blank indicates significant contamination, one or more reagent blanks are analyzed to determine the source.
- Calibration blanks consist of pure reagent matrix and are used to zero an instrument's response, thus establishing the baseline.

6.2.2 Calibration Standards

A calibration standard may be prepared in the laboratory by dissolving a known amount of a pure compound in an appropriate matrix. The final concentration calculated from the known quantities is the true value of the standard. The results obtained from these standards are used to generate a standard curve and thereby quantitate the compound in the environmental sample. A minimum of three calibration standards will be used to generate a standard curve for all analyses.

6.2.3 Reference Standard

A reference standard is prepared in the same manner as a calibration standard but from a different source. Reference standards may be obtained from the EPA. The final concentration calculated from the known quantities is the "true" value of the standard. The important difference in a reference standard is that it is not carried through the same process used for the environmental samples, but is analyzed without digestion or extraction. A reference standard result is used to validate an existing concentration calibration standard file or calibration curve.

6.2.4 Spike Sample

A sample spike is prepared by adding to an environmental sample (before extraction or digestion) a known amount of pure compound of the same type that is to be assayed for in the environmental sample. Spikes are added at one to 10 times the expected sample concentration or approximately 10 times the method detection limit. These spikes simulate the background and interferences found in the actual samples, and the calculated percent recovery of the spike is taken as a measure of the accuracy of the total analytical method.

A blank spike is the same as a spike sample except the spike is added to analyte-free water. The blank spike is used to determine whether the sample preparation and analysis are under control.

6.2.5 Surrogate Standard

A surrogate is prepared by adding a known amount of pure compound to the environmental sample; the compound selected is not one expected to be found in the sample, but is similar in nature to the compound of interest. Surrogate compounds are added to the sample prior to extraction or digestion. Surrogate spike concentrations indicate the percent recovery of the analytes and, therefore, the efficiency of the methodology.

6.2.6 Internal Standard

Internal standards are similar to surrogate standards in chemical composition but are used to quantify the concentration of analytes sampled based on the relative response factor. Internal standards are added to the environmental sample just prior to instrumental analysis.

6.2.7 Laboratory Duplicate or Matrix Spike Duplicate

Laboratory duplicates are aliquots of the same sample that are split prior to analysis and treated exactly the same throughout the analytical method. Spikes and duplicates for the batch are normally aliquots of the same sample. For organics, spikes are added at approximately 10 times the method detection limit. The RPD between the values of the matrix spike and matrix spike duplicate for organics or between the original and the duplicate for inorganics is taken as a measure of the precision of the analytical method.

In general, the tolerance limit for RPDs between laboratory duplicates should not exceed 20% for validation in homogeneous samples.

6.2.8 Check Standard/Samples

Inorganic and organic check standards or samples are prepared with reference standards or are available from the EPA. They are used as a means of evaluating analytical techniques of the analyst. Check standards or samples are subjected to the entire sample procedure, including extraction, digestion, etc., as appropriate for the analytical method utilized. The check standard or sample can provide information on the accuracy of the analytical method independent of various sample matrices.

6.3 Laboratory Instrumentation

Laboratory capabilities will be demonstrated initially for instrument and reagent/ standards performance as well as accuracy and precision of analytical methodology. A discussion of reagent/standard procedures and brief descriptions of calibration procedures for major instrument types follow.

All standards are obtained directly from EPA or through a reliable commercial supplier with a proven record for quality standards. All commercially supplied standards will be traceable to EPA or NIST reference standards and appropriate documentation will be obtained from the supplier. In cases where documentation is not available, the laboratory will analyze the standard and compare the results to a known EPA-supplied or previous NIST-traceable standard.

All sections of the laboratory will have SOP for standard and reagent procedures to document specific standard receipt, documentation, and preparation activities. In general, the individual SOPs incorporate the following items:

- Documentation and labeling of date received, lot number, date opened, and expiration date;
- Documentation of traceability;
- Preparation, storage, and labeling of stock and working solutions; and
- Establishing and documenting expiration dates and disposal of unusable standards.

Each laboratory instrument will be labeled clearly with a unique identifier that relates to all laboratory calibration documentation. Laboratory SOPs and calibration procedures are detailed in the laboratory's Quality Assurance Manual, available upon request.

7.0 Data Reporting and Validation

7.1 Deliverables

Once the contract laboratory has provided all analytical data and hydrogeologic information has been evaluated, Lu Engineers will develop a report on the findings of the investigation and remedial measures. The report will be prepared as indicated by the following outline:

1.0 SUMMARY OF FIELD ACTIVITIES
2.0 CONTAMINATION EVALUATION
  2.1 Findings
  2.2 Data Evaluation
  2.3 Regulatory Review
  2.4 Exposure Pathways
3.0 CONCLUSIONS AND RECOMMENDATIONS

The report will carefully document all findings of the investigation and will be supplemented with photographic documentation, subsurface soil logs, cross sections, and study area plans indicating groundwater flow direction and subaerial contaminant distribution.

7.1.1 Category B Data Package

All analytical data will be reported by the laboratory with NYSDEC ASP Category B deliverables. The Category B data package includes:

1. A detailed summary of the report contents and any quality control outliers or corrective actions taken.
2. Chain of Custody documentation
3. Sample Information including: date collected, date extracted, date analyzed, and analytical methods.
4. Data (including raw data) for:
   - samples
   - laboratory duplicates
   - method blanks
   - spikes and spike duplicates
   - surrogate recoveries
   - internal standard recoveries
   - calibrations
- any other applicable QC data
5. Method detection limits and/or instrument detection limits
6. Run logs, standard preparation logs, and sample preparation logs
7. Percent solids (where applicable).

7.1.2 Quality Assurance Reports

For the laboratory, a general QA report summarizing problems encountered throughout the laboratory effort, including sample custody, analyses, and reporting, is provided to Lu Engineers' project QA management by the QA coordinator. This report identifies areas of concern and possible resolutions in an effort to ensure data quality.

Upon completion of a project sampling effort, analytical and QC data will be included in a comprehensive report that summarizes the work and provides a data evaluation. A discussion of the validity of the results in the context of QA/QC procedures will be made, as well as a summation of all QA/QC activity.

Serious analytical or sampling problems will be reported to NYSDEC. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. Corrective actions may include altering procedures in the field, conducting an audit, or modifying laboratory protocol. All corrective actions will be implemented after notification and approval of NYSDEC.

In addition to the laboratory report narrative, QA data validation reports that include any contractual requirements will also be provided to NYSDEC. These QA reports will be submitted with the analytical data, on a monthly basis, or at the conclusion of the project.

7.2 Data Validation and Usability

Prior to the submission of the report to NYSDEC, all data will be evaluated for precision, accuracy, and completeness.

QA/QC requirements from both methodology and company protocols will be strictly adhered to during sampling and analytical work. All data generated will be reviewed by comparing and interpreting results from instrumental responses, retention time, determination of percent recovery of spiked samples or blanks, and reproducibility of duplicate sample results. All calculations and data manipulations are included in the appropriate methodology references. Control charts and calibration curves will be used to review the data and identify outlying results.

7.2.1 Data Validation

If necessary, a third-party validator will be responsible for an independent review of all analytical work performed under the NYSDEC ASP-CLP protocol. The functions will be to assess and summarize the quality and reliability of the data for the purpose of determining its usability and to document for the historical record of each site any factors affecting data usability, such as discrepancies, poor laboratory practices, and site locations that are difficult to analyze. The data validator will be responsible for determining completeness and compliance. Lu Engineers' QA officer will be responsible for determining data usability and overseeing the work of the data validator.

Information available to the data validator and the QA officer for performance of these functions include the NYSDEC ASP Category B data package, information from the sampling team regarding field conditions and field QA samples, chain-of-custody and shipping forms. The data package is designed to provide all necessary documentation to verify compliance with NYSDEC ASP CLP protocol and the accuracy and reliability of the reported results.

The laboratory will deliver the data package to the project QA coordinator for processing prior to submission to the data validator. The project QA coordinator will review the report for immediate problems, summarize the data for in-house use, and process the work order for the third-party data-validation subcontract within five working days.

In order to effectively review the data package, the data validator will obtain a general overview of each case. This includes the exact number of samples, their assigned numbers, and their matrix. The data validator will deliver the data validation report within 30 days of receipt of the data package.

If a problem arises between the data validator and the laboratory, the data validator must submit written questions to the laboratory. The laboratory will be required to respond in writing within 10 working days to correct any deficiencies. If the data validator does not receive a written response from the laboratory within the specified time period, the data in question shall be considered noncompliant.

Sampling locations will be obtained from the sampling records, such as the chain-of-custody forms. This information is necessary for preparation of the data summary, evaluation of adherence to sample holding times, discussion of matrix problems, and discussion of contaminants detected in the samples.

The following is a brief outline of the data validation process:

- Compilation of all samples with the dates of sampling, laboratory receipt, and analysis;
- Compilation of all QC samples, such as field blanks, field duplicates, MS/MSD samples, laboratory blanks, and laboratory replicates;
- Review of chain-of-custody documents for completeness and correctness;
- Review of laboratory analytical procedure and instrument performance criteria;
- Qualification of data outside acceptable QC criteria ranges;
- Preparation of a memorandum summarizing any problems encountered and the potential effects on data usability;
- Preparation of a data summary, including validated results, with sample matrix, location, and identification; and
- Tabulation of field duplicates, laboratory replicate, and blank results.

Copies of all data validation and usability reports, as well as all data summary packages, will be provided to the NYSDEC project manager. In addition, copies of all analytical raw data will be provided to NYSDEC upon request.

7.2.2 Data Usability

A Data Usability Summary Report (DUSR) will be provided after review and evaluation of the analytical data package. The DUSR will contain required elements listed in Appendix 2B of *DER-10 Technical Guidance for Site Investigation and Remediation*.

The DUSR will include a description of the samples and analytical procedures used. Any data deficiencies, protocol deviations, or quality control problems will be discussed as to their effect on data results. The report will also include any suggestions for resampling or reanalysis.

TABLE 1
SAMPLING AND ANALYSIS SUMMARY

Sample Type	Sample Location	Analytical Parameter	Analytical Method	Reporting Level	# Field Samples	Field Duplicates	Blanks		MS/MSD	Total
							Equip	Trip		
Subsurface Soils	12 onsite borings (for monitoring wells)	TCL VOC, SVOC TAL Metals PCBs	8260, 8270 6020 8082	Category B (Level IV)	**12**	**1**	**1**		**1/1**	**16**
	5 offsite borings (for monitoring wells)	TCL VOC, SVOC TAL Metals PCBs	8260, 8270 6020 8082		**5**					**5**
	13 test excavations	TCL VOC, SVOC TAL Metals PCBs	8260, 8270 6020 8082		**13**	**1**			**1/1**	**16**
Surface soils	Overall Site (grid based)	TCL VOC, SVOC TAL Metals PCBs	8260, 8270 6020 8082		**10**	**1**	**1**		**1/1**	**14**
	Subslab soils	TCL VOC, SVOC TAL Metals PCBs	8260, 8270 6020 8082		**5**					**5**
PCB	Equipment Oil/Residue	PCBs	8082		**15**	**1**			**1/1**	**18**
	Water/Sediment	PCBs	8082		**6**					**6**
	NYSDEC Recommended Sediment	PCBs	8082		**4**					**4**
	Wipe and Chip	PCBs	8082		**5**		**1**			**6**
Waste Characterization	Unknown Materials for haz mat inventory	TCLP/PCBs Ignitability % Solids	6010/7470/8082 SW 1010 Paint Filter Test		**TBD**					**TBD**
	Composite Drill Cuttings	TCLP/PCBs Ignitability % Solids	6010/7470/8082 SW 1010 Paint Filter Test		**1**					**1**
	Composite drilling/ development/ purge water	TCLP/PCBs Ignitability % Solids	6010/7470/8082 SW 1010 Paint Filter Test		**1**					**1**
Groundwater (3 rounds will be completed)	12 onsite / 3 offsite	TCL VOC, SVOC TAL Metals PCBs	8260, 8270 6020 8082		**15**	**1**	**1**	**3**	**1/1**	**22**
	NYSDEC Installed Wells	TCL VOC, SVOC TAL Metals PCBs	8260, 8270 6020 8082		**6**					**6**

Appendix B – Site Specific Health & Safety Plan

HEALTH AND SAFETY PLAN

Remedial Investigation

City of Rochester
Environmental Restoration Project
415 Orchard Street and 354 Whitney Street
Monroe County, New York

Prepared For:

City of Rochester
Department of Environmental Services
Division of Environmental Quality
30 Church Street
Rochester, New York 14614

Prepared By:

Lu Engineers
2230 Penfield Road
Penfield, New York 14526

JULY 2006

Project No. 4216

Table of Contents

LU ENGINEERS
SITE SAFETY PLAN

A. GENERAL INFORMATION

Project Title: Orchard/Whitney Site
City of Rochester
Environmental Restoration
Program Remedial Investigation

Lu Project No. 4216

Project Manager: Steven A. Campbell, CHMM

Project Director: Robert Elliott, P.E.

Location: 415 Orchard Street and 354 Whitney Street
City of Rochester, Monroe County, New York

Prepared by: Rebecca May

Date Prepared: July 2006

Date Revised:

Approved by:

Date Approved:

Site Safety Officer Review: Christine Davey

Date Reviewed:

Scope/Objective of Work: Remedial Investigation of Site. The following tasks will be included:

- Task 1: Pre-Demolition Asbestos Survey
- Task 2: PCB Sampling/Hazardous Materials Inventory
- Task 3: Asbestos Abatement/Building Demolition
- Task 4: Test Pits/Soil Borings/Well Installations
- Task 5: Groundwater Sampling
- Task 6: Site/Sample Location Survey

Proposed Date of Field Activities: August – October 2006

Background Information: [ ] Complete [X]* Preliminary (limited analytical data)
* Background information provided by NYSDEC and City of Rochester

Overall Chemical Hazard: [ ] Serious [X] Moderate
[ ] Low [ ] Unknown

Overall Physical Hazard: [ ] Serious [X] Moderate
[ ]Low [ ] Unknown

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

[X] Liquid [X] Solid [X] Sludge [ ] Gas/Vapor

Characteristic(s):

[ ] Flammable/Ignitable [X] Volatile [ ] Corrosive [ ] Acutely Toxic
[ ] Explosive (moderate) [ ] Reactive [X] Carcinogen [ ] Radioactive
Other: _____

Physical Hazards:

[X] Overhead [ ] Confined Space [ ] Below Grade [X] Trip/Fall
[X] Puncture [X] Burn [X] Cut [X] Splash
[X] Noise [X] Other: Heat Stress/Cold Stress

Site History/Description and Unusual Features:
The site has been used for various commercial and industrial uses since the early 1900s. From 1915 to 1922, the North East Electric Company operated on the site. General Motors occupied the site from 1930 to 1967. Industrial activities including the production of electrical equipment, heat treating, plating, coal storage, boiler operations, petroleum fuel storage and industrial wastewater treatment were performed on the site.

After General Motors closed operations, other industrial operations took place at the site including; metal finishing, synthetic foam production, printing, plastics manufacturing and warehousing. These operations took place at the site until the early 1990s.

The Orchard/Whitney site (Site) is located at 415 Orchard Street and 354 Whitney Street in the City of Rochester, New York (Figure 1). The Site has a combined area of 3.9 acres and is located near the intersection of Lyell Avenue and Broad Street. One multi-story structure of approximately 128,900 square feet remains on the Whitney Street property. This building is partially demolished due to damage sustained during a fire in 2003. There is also one multi-story structure of approximately 371,600 square feet located on the Orchard Street property.

Previous environmental investigations have revealed that volatile organic compounds (VOCs), several metals, and semi-volatile organic compounds (SVOCs) have been detected in subsurface soils and groundwater above NYSDEC Soil Guidance Values on the Whitney Street parcel. Information on the Orchard Street parcel is limited. There are no local private wells in the area of the Site and the surrounding community is on public water and sewer service.

Locations of Chemicals/Wastes: Soil, sediment, surface water and/or groundwater.

Estimated Volume of Chemicals/Wastes: Unknown.

Site Currently in Operation: [ ] Yes [X] No [ ] Not Applicable

C. HAZARD EVALUATION

PHYSICAL HAZARD EVALUATION:		
TASK	**HAZARD(S)**	**HAZARD PREVENTION**
Task 1 - 6	Contact with or inhalation of contaminants, potentially in high concentration in sampling media and/or fire and explosion.	To minimize exposure to chemical contaminants, a thorough review of suspected contaminants should be completed and implementation of an adequate protection program. Under-ground vaults to be ventilated during inspections. Field safety equipment will be used to minimize hazards.
Task 4	Standard Drilling Rig Hazards	Wear hard hat, keep back from drilling operations, only driller and helper are to be in "drilling zone"
Task 2	Drum opening/sampling	Proper protective equipment, drum opening techniques, equipment and the use of remote sampling when possible.
Task 1 - 4	Overhead Hazards/ Falling Objects	**See Appendix B**
Task 1 - 6	Back strain and muscle fatigue, ergonomic stress due to lifting.	Use proper lifting techniques and limit load to prevent back strain.
Task 1 - 6	Heat stress/ cold stress exposure.	Implement heat stress management techniques such as shifting work hours, increasing fluid intake, and monitoring employees**. See Appendix A.**
Task 1 - 6	Slip/ tripping/ fall.	Observe terrain and drilling equipment while walking to minimize slips and falls. Steel-toed boots provide additional support and stability. Use adequate lighting. Inspect Site and mark existing hazards.
Task 1 - 6	Medical Waste (Sharps)	Carefully observe terrain while walking and any onsite materials before handling. Gloves should be worn for any contact with onsite materials.
Task 1 - 6	Noise	**See Appendix B**
Task 1 - 6	Native wildlife presents the possibility of insect bites and associated diseases.	Avoid wildlife when possible.
Task 1 - 6	Sunburn.	Apply sunscreen, wear appropriate clothing.
Task 3 - 4	Utility Lines.	**See Appendix B**
Task 1 - 6	Weather Extremes.	Establish site-specific contingencies for severe weather situations. Discontinue work in severe weather.

Physical Hazard Evaluation: Basic health and safety protection (steel-toed boots, work clothes, and safety glasses or goggles) will be worn by all personnel at all times. Any allergies should be reported to the Site Safety Officer prior to the start of the project.

D. SITE SAFETY WORK PLAN

Site Control: Site perimeter is fenced and gated, though continued evidence of vandalism suggests Site is not fully secure.

Perimeter Identified? **[Y]** **Site Secured?** **[N]**

Work Areas Designated? **[Y]** **Zone(s) of contamination identified?** **[N]**

Anticipated Level of Protection (cross-reference task numbers in Section C):

	~~A~~	~~B~~	~~C~~	~~D~~
Task 1-6			Available	X

All Site work will be performed at Level D (steel-toed boots, work clothes, eye protection, gloves and hard hats) unless monitoring indicates otherwise. Gloves will be worn if contact with Site soil, sediment or water is anticipated, due to concerns of PCB contamination. Level C will be available, and used when indicated by PID of 1 ppm or greater above ambient air.

See Appendices A, B and C for specific site safety requirements.

Air Monitoring:
Lu Engineers will conduct air monitoring during the intrusive investigations. If action levels are exceeded during intrusive investigation, appropriate precautions will be taken.

Action Level:
PID readings of 1 to 5 ppm above background at breathing zone and sustained for 1 minute,
Action: Upgrade to Level C protection, continuous air monitoring.
PID readings of 5 to 300 ppm above background at breathing zone and sustained for 1 minute,
Action: Upgrade to Level B protection, continuous air monitoring.
PID readings of >300 ppm above background at breathing zone and sustained for 1 minute,
Action: Stop work, evacuate work zone and evaluate with continuous air monitoring.

O_2 readings must remain between 19.5% and 22.0%. Explosivity must be above 10% LEL. The area must be evacuated and ignition sources eliminated if levels are not within their standard. These atmosphere factors will be measured at a position that would give the earliest indication of a hazardous condition forming not at the breathing zone. Appropriate actions, initially evacuation of the immediate work area, will be taken if established action levels area exceeded.

If particulate levels exceed a level of 2.5 times background (upwind levels subtracted from downwind concentration) or a level of 150 mcg/m³, dust control measures will be initiated and the dust generating activity suspended until levels decrease below the action level. Perimeter monitoring will be conducted if the action level is obtained at the work area.

All air monitoring results as well as wind direction and speed (estimates) will be documented in the site specific log book.

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:
Disposable sampling equipment will be used where possible. If decon is necessary, distilled or deionized water and alconox will be used. A 10% nitric acid rinse will be added if metals sampling is to be conducted.

Personnel Decon Protocol:
Personal protective clothing will be removed in a manner that will minimize the potential of contaminant to skin contact. Visible contamination will be removed from protective clothing prior to the individual doffing the articles. Soap, water and paper towels will be available for all personnel and will be used before eating, drinking or leaving the Site. Personnel will shower upon return to home or hotel. Disposable PPE will be double-bagged and disposed of as non-hazardous waste unless PCBs are detected. If PCBs are detected, the PPE will be disposed of accordingly.

Decontamination Solution Monitoring Procedures, if Applicable:
All decontamination procedures will take place in a well ventilated area. Decontamination solutions will be collected and sampled for proper disposal.

Special Site Equipment, Facilities or Procedures
(Sanitary Facilities and Lighting Must Meet 29CFR 1910.120):
All personnel will be required to maintain the Buddy System at all times. A portable toilet and potable water will be available on Site. All parties will be required to attend an on-site briefing, which will identify the roles of each organization's personnel and will integrate emergency procedures for all Site participants.

Site Entry Procedures and Special Considerations:
The building will be inspected for structural integrity and presence of confined spaces. Any confined spaces will be marked and access restricted. The initial building inspection will be conducted by the site safety officer and the field team leader. All overhead hazards should be marked, tripping/floor hazards should be marked and barricaded if necessary, other sharp edges, drop offs, flooded areas or hazardous debris appropriately identified. Electrical hazards should be identified if power is activated. Ventilation will be provided to the extent necessary to reduce hazardous atmospheres.

Entry to the Site should be limited through the Whitney Street gate. The gate should be closed and locked when not in use both when personnel are on or off site in order to restrict unauthorized individuals. The Buddy System should be employed at all times onsite and entering and exiting the Site, along with the work zone areas.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:
All work will be completed during daylights hours. Severe inclement weather may be cause to suspend outdoor activities. Heat stress protocol will dictate work/rest regimen. Heavy equipment will not be used during electrical storms.

General Spill Control, if Applicable:
Absorbent material will be available to control spills during the collection of liquid samples (e.g. USTs, drums, floor drains, sumps).

Investigation Derived Material (i.e., Expendables, Decon Waste, Cuttings) Disposal:
Investigation derived waste soils and water will be collected in drums and/or an onsite tank and stored securely onsite prior to being sampled for disposal. Expendables such as disposable sampling equipment, gloves and towels, will be bagged for disposal. Expendables that have contacted PCB-containing oils will be bagged separately and labeled for appropriate disposal.

Sampling Handling Procedures Including Protective Wear:
Samples collected from drums, sumps, USTs and floor drains will be handled with neoprene outer gloves prior to decontamination. At minimum nitrile surgical gloves will be worn while handling all other samples during labeling, documentation and packaging.

Team Member*	Responsibility
Greg Andrus	Field Team Leader
Christine Davey	Site Safety Officer
Sue Hilton	Team Member
Eric Detweiler	Team Member
Roy Green	Team Member
Rebecca May	Team Member
Cliff Rigerman	Team Member-Survey

* All entries into the work zone require "Buddy System" use. All Lu Engineers' field staff participate in a medical monitoring program and have completed applicable training per 29CFR 1910.120. Respiratory protection program meets requirements of 29CFR 1910.134.

E. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance:	911
Hospital Emergency Room:	Strong Memorial Hospital (585) 275-4551
	601 Elmwood Avenue, Rochester, New York
Poison Control Center:	911
Police (include local, county sheriff, state):	911
Fire Department:	911
Airport:	N/A
Laboratory:	Upstate Labs (315) 437-0255
UPS/Federal Express:	N/A

SITE RESOURCES

Site Emergency Evaluation Alarm Method:	Sound vehicle horn.
Water Supply Source:	Gallons of water will be available in vehicles.
Telephone Location, Number:	None available
Cellular Phone, if Available:	TBD
Radio:	TBD
Other:	TBD

EMERGENCY CONTACTS

1.	Fire/Police:	911
2.	Lu Engineers, Safety Director:	(585) 377-1450, Ext. 235 (office)
3.	Lu Engineers, Steve Campbell	(585) 377-1450, Ext. 249 (office)

EMERGENCY ROUTES

Note: Field team must know route(s) prior to start of work.

Directions from the site to Strong Memorial Hospital (map on following page):
Turn right onto Whitney Street. Take a right onto Lyell Avenue. Turn right onto Broad Street (1 mile). Stay straight to go onto Ford Street. Turn slight right onto South Plymouth Avenue NY-383 (1.6 miles). Turn left on Elmwood Avenue, the hospital is at 601 Elmwood Avenue.

On-site Assembly Area: At site entry point at Whitney Street Gate.

Off-site Assembly Area: The intersection of Whitney Street and Lyell Avenue.

Emergency egress routes to get off-site: N/A .

E. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance:	911
Hospital Emergency Room:	Strong Memorial Hospital (585) 275-4551
	601 Elmwood Avenue, Rochester, New York
Poison Control Center:	911
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Site Emergency Evaluation Alarm Method:	Sound vehicle horn.
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Telephone Location, Number:	None available
Cellular Phone, if Available:	TBD
Radio:	TBD
Other:	TBD

APPENDIX A

HEAT STRESS AND COLD EXPOSURE

How to Protect Workers

- Learn the signs and symptoms of heat-induced illnesses and what to do to help the worker.
- Train the workforce about heat-induced illnesses.
- Perform the heaviest work in the coolest part of the day.
- Slowly build up tolerance to the heat and the work activity (usually takes up to 2 weeks).
- Use the buddy system (work in pairs).
- Drink plenty of cool water (one small cup every 15-20 minutes)
- Wear light, loose-fitting, breathable (like cotton) clothing.
- Take frequent short breaks in cool shaded areas (allow your body to cool down).
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages (these beverages make the body lose water and increase the risk for heat illnesses).

Workers Are at Increased Risk When

- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you when working in hot environments).
- They have had a heat-induced illness in the past.
- They wear personal protective equipment (like respirators or suits).

HEAT STROKE—A MEDICAL EMERGENCY

What Happens to the Body:

DRY PALE SKIN (no sweating), HOT RED SKIN (looks like a sunburn), MOOD CHANGES (irritable, confused/not making any sense), SEIZURES/FITS, and COLLAPSE/PASSED OUT (will not respond).

What Should Be Done:

- Call for emergency help (Ambulance or Call 911).
- Move the person to a cool shaded area. Don't leave the person alone. Lay them on their back and if the person is having seizures/fits remove any objects close to them so they won't strike against them. If the person is sick to their stomach lay them on their side.
- Remove any heavy and outer clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are alert enough to drink anything and not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water, wet cloth, or wet sheet.
- If ice is available, place ice packs under the arm pits and groin area.

HEAT EXHAUSTION

What Happens to the Body:

HEADACHES, DIZZINESS/LIGHT HEADEDNESS, WEAKNESS, MOOD CHANGES (irritable, or confused/can't think straight), FEELING SICK TO YOUR STOMACH, VOMITING/THROWING UP, DECREASED and DARK COLORED URINE, FAINTING/PASSING OUT, and PALE CLAMMY SKIN.

What Should Be Done:

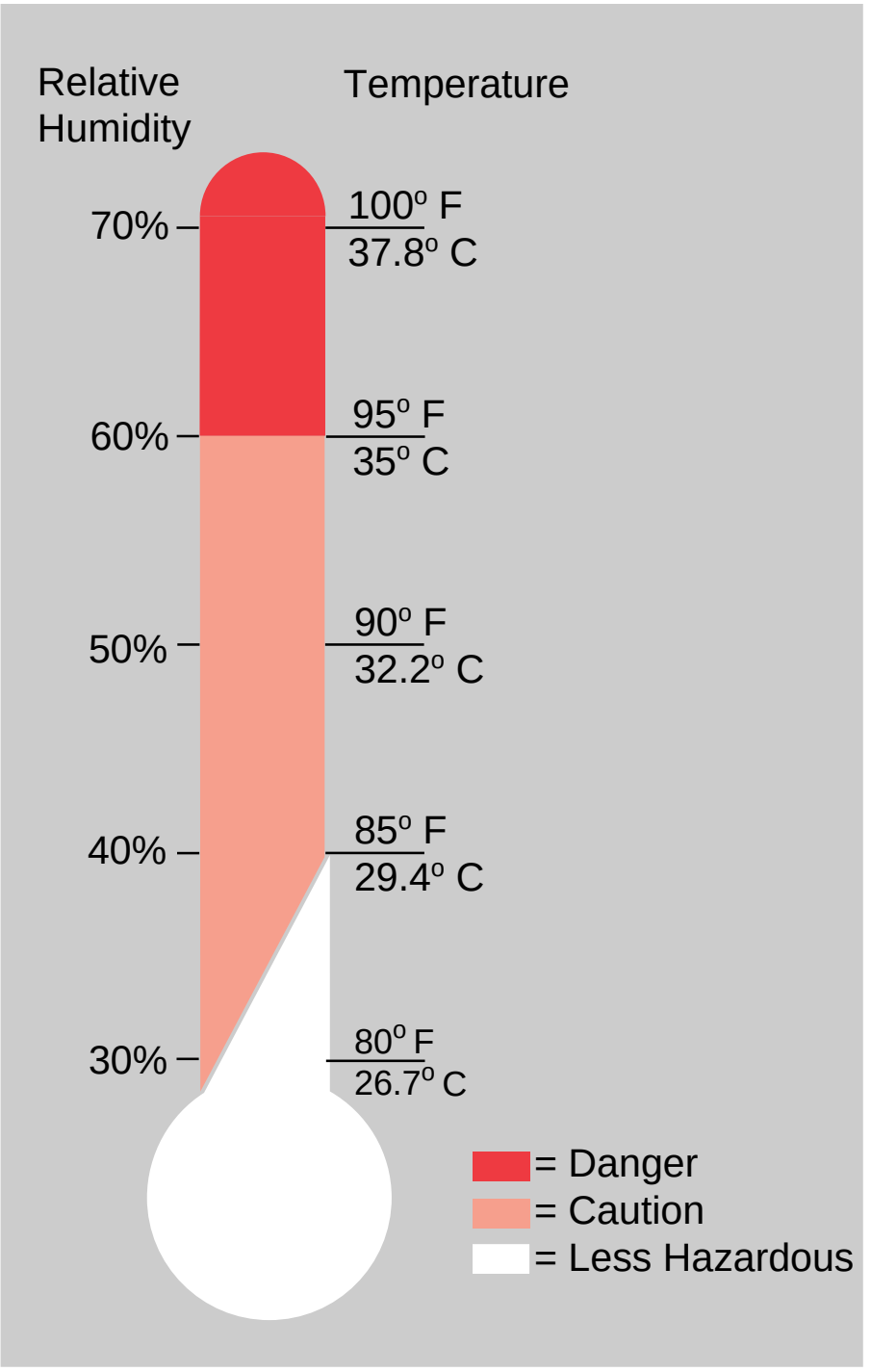
- Move the person to a cool shaded area to rest. Don't leave the person alone. If the person is dizzy or light headed, lay them on their back and raise their legs about 6-8 inches. If the person is sick to their stomach lay them on their side.
- Loosen and remove any heavy clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water or wet cloth.
- If the person does not feel better in a few minutes call for emergency help (Ambulance or Call 911).

(If heat exhaustion is not treated, the illness may advance to heat stroke.)

THE HEAT EQUATION

HIGH TEMPERATURE + HIGH HUMIDITY + PHYSICAL WORK = HEAT ILLNESS

When the body is unable to cool itself through sweating, **serious** heat illnesses may occur. The most severe heat-induced illnesses are **heat exhaustion** and **heat stroke**. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and possible **death**.



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How to Protect Workers

- Recognize the environmental and workplace conditions that lead to potential cold-induced illnesses and injuries.
- Learn the signs and symptoms of cold-induced illnesses/injuries and what to do to help the worker.
- Train the workforce about cold-induced illnesses and injuries.
- Select proper clothing for cold, wet, and windy conditions. Layer clothing to adjust to changing environmental temperatures. Wear a hat and gloves, in addition to underwear that will keep water away from the skin (polypropylene).
- Take frequent short breaks in warm dry shelters to allow the body to warm up.
- Perform work during the warmest part of the day.
- Avoid exhaustion or fatigue because energy is needed to keep muscles warm.
- Use the buddy system (work in pairs).
- Drink warm, sweet beverages (sugar water, sports-type drinks). Avoid drinks with caffeine (coffee, tea, or hot chocolate) or alcohol.
- Eat warm, high-calorie foods like hot pasta dishes.

Workers Are at Increased Risk When…

- They have predisposing health conditions such as cardiovascular disease, diabetes, and hypertension.
- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you while working in cold environments).
- They are in poor physical condition, have a poor diet, or are older.

HYPOTHERMIA - (Medical Emergency)

What Happens to the Body:

NORMAL BODY TEMPERATURE (98.6° F/37°C) DROPS TO OR BELOW 95°F (35^0 C); FATIGUE OR DROWSINESS; UNCONTROLLED SHIVERING; COOL BLUISH SKIN; SLURRED SPEECH; CLUMSY MOVEMENTS; IRRITABLE, IRRATIONAL OR CONFUSED BEHAVIOR.

What Should Be Done: (land temperatures)

- Call for emergency help (i.e., Ambulance or Call 911).
- Move the person to a warm, dry area. Don't leave the person alone. Remove any wet clothing and replace with warm, dry clothing or wrap the person in blankets.
- Have the person drink warm, sweet drinks (sugar water or sports-type drinks) if they are alert. **Avoid drinks with caffeine** (coffee, tea, or hot chocolate) or alcohol.
- Have the person move their arms and legs to create muscle heat. If they are unable to do this, place warm bottles or hot packs in the arm pits, groin, neck, and head areas. **DO NOT** rub the person's body or place them in warm water bath. This may stop their heart.

What Should Be Done: (water temperatures)

- Call for emergency help (Ambulance or Call 911). Body heat is lost up to 25 times faster in water.
- **DO NOT** remove any clothing. Button, buckle, zip, and tighten any collars, cuffs, shoes, and hoods because the layer of trapped water closest to the body provides a layer of insulation that slows the loss of heat. Keep the head out of the water and put on a hat or hood.
- Get out of the water as quickly as possible or climb on anything floating. **DO NOT** attempt to swim unless a floating object or another person can be reached because swimming or other physical activity uses the body's heat and reduces survival time by about 50 percent.
- If getting out of the water is not possible, wait quietly and conserve body heat by folding arms across the chest, keeping thighs together, bending knees, and crossing ankles. If another person is in the water, huddle together with chests held closely.

FROST BITE

What Happens to the Body:

FREEZING IN DEEP LAYERS OF SKIN AND TISSUE; PALE, WAXY-WHITE SKIN COLOR; SKIN BECOMES HARD and NUMB; USUALLY AFFECTS THE FINGERS, HANDS, TOES, FEET, EARS, and NOSE.

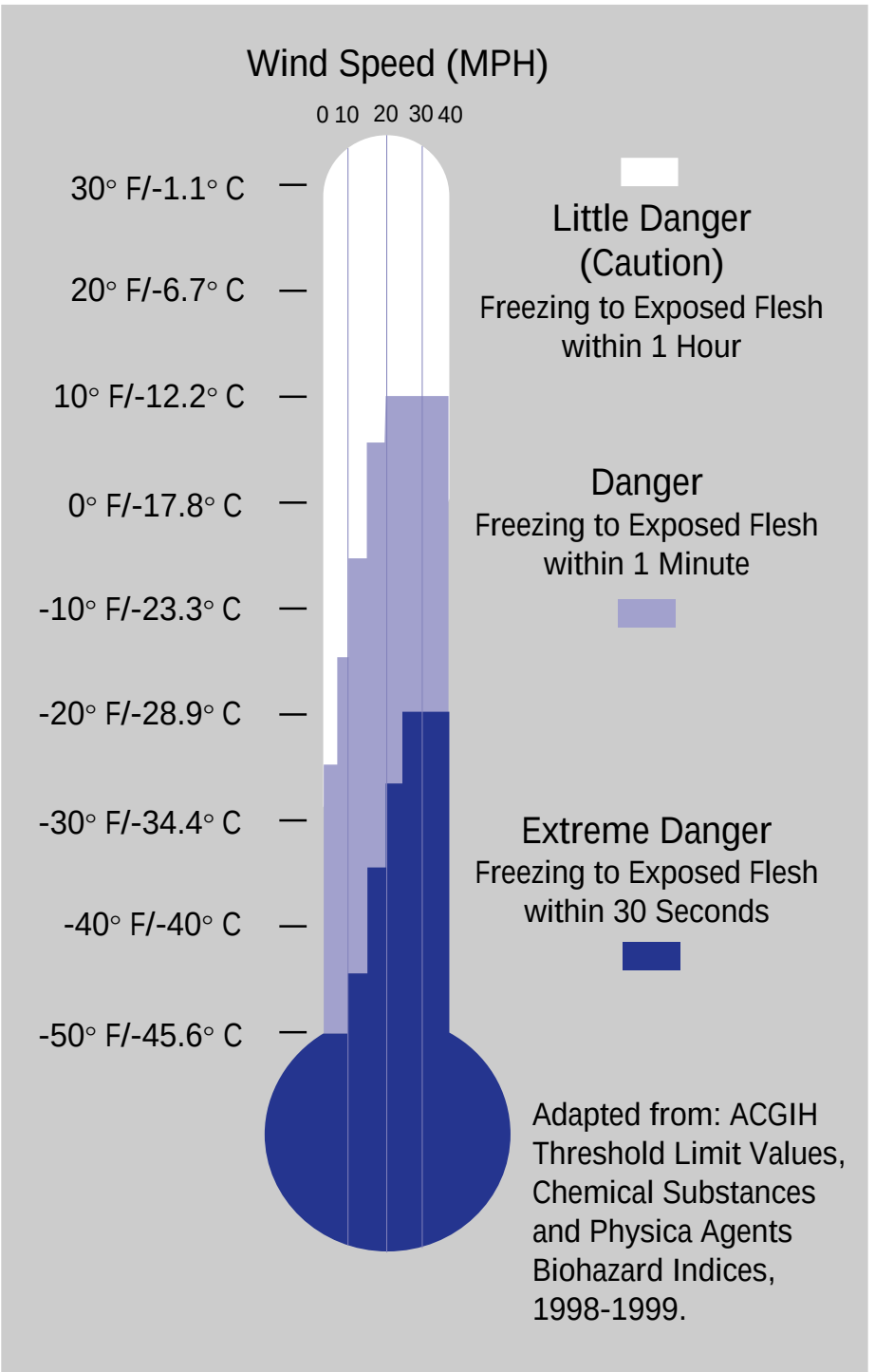
What Should Be Done: (land temperatures)

- Move the person to a warm dry area. Don't leave the person alone.
- Remove any wet or tight clothing that may cut off blood flow to the affected area.
- **DO NOT** rub the affected area, because rubbing causes damage to the skin and tissue.
- **Gently** place the affected area in a warm (105°F) water bath and monitor the water temperature to **slowly** warm the tissue. Don't pour warm water directly on the affected area because it will warm the tissue too fast causing tissue damage. Warming takes about 25-40 minutes.
- After the affected area has been warmed, it may become puffy and blister. The affected area may have a burning feeling or numbness. When normal feeling, movement, and skin color have returned, the affected area should be dried and wrapped to keep it warm. **NOTE:** If there is a chance the affected area may get cold again, do not warm the skin. If the skin is warmed and then becomes cold again, it will cause severe tissue damage.
- Seek medical attention as soon as possible.

THE COLD STRESS EQUATION

LOW TEMPERATURE + WIND SPEED + WETNESS = INJURIES & ILLNESS

When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result. **Hypothermia** can occur when *land temperatures* are **above** freezing or *water temperatures* are below 98.6°F/ 37°C. Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.



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APPENDIX B

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS	
POTENTIAL PHYSICAL HAZARDS	**CONTROL METHODS**
Overhead Hazards/Falling Objects	Overhead hazards will be identified prior to each task (i.e., inspecting drill rig mast, building structure). Hard hats will be required for each task that poses an overhead hazard.
Contact with Utilities	Prior to initiating site activities, all utilities will be located by the appropriate utility company and will be marked and/or barricaded to minimize the potential of accidental contact. A minimum distance of 25 feet between the derrick and overhead power lines must be maintained at all times.
Noise Exposure	Areas of potentially high sound pressure levels (>85 dBA) will be restricted to authorized personnel only. Engineering controls will be used to the extent possible. Hearing protection will be made available to all workers on site. Exposure to time-weighted average levels in excess of 85 dBA is not anticipated.
POTENTIAL CHEMICAL HAZARDS	**GENERAL CONTROL METHODS**
Contaminant Inhalation	Direct reading instruments will be used to monitor airborne contaminants. Established Lu Engineers' action levels will limit exposure to safe levels. Respiratory protection will be used as appropriate.
Contaminant Ingestion	Standard safety procedures such as restricting eating, drinking, and smoking to the support zone and utilizing proper personal decontamination procedures will minimize ingestion as a potential route of exposure.
Dermal Contaminant Contact	The proper selection and use of personal protective clothing and decontamination procedures will minimize dermal contaminant contact.
Potential contact with lower concentration waste and naturally occurring contaminants (i.e., methane)	Dermal contact with contaminants will be minimized by proper use of the following PPE: • Tyvex coveralls • Neoprene gloves • Booties (latex) or over-boots.

APPENDIX C

HAZARD EVALUATION SHEETS / MSDS

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1 - 6	Aroclor 1254 Polychlorinated biphenyl (PCB)*	0.5 ^{sk} mg/m^3	---	0.5 ^{sk} mg/m^3	Y	Abs, Inh, Ing	Irritation to eyes and skin; dermatitis, liver damage	Mild hydrocarbon odor	---	---
1 - 6	Aroclor 1242 Polychlorinated biphenyl (PCB)*	1.0 ^{sk} mg/m^3	---	1.0 ^{sk} mg/m^3	Y	Abs, Inh, Ing	Irritation to eyes and skin; dermatitis, liver damage	Mild hydrocarbon odor	---	---
1 - 6	Aroclor 1260 Polychlorinated biphenyl (PCB)*	0.5 ^{sk} mg/m^3	---	0.5 ^{sk} mg/m^3	Y	Abs, Inh, Ing	Irritation to eyes and skin; dermatitis, liver damage	---	---	---
1 - 6	Benzene*	1 ppm	---	10 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, nose, respiratory system; headache, nausea, dizziness, drowsiness, unconsciousness, harmful, fatal if aspirated into lungs	Colorless to light yellow liquid, sweet aromatic odor	0.5	9.25
1 - 6	Ethylbenzene	100 ppm	---	100 ppm	Y	Inh, Ing, Con	Irritation to eyes, skin, mucous membranes; dermatitis, narcosis, , trouble breathing, paralysis, headache, nausea, headache, dizziness, coma	Colorless liquid, aromatic odor	0.5	8.77

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1-6	Mercury	0.1 ^{sk} mg/m^3 ceiling	0.1 mg/m^3 ceiling 0.05 mg/m^3 ceiling	0.025 ^{sk} mg/m^3	Y	Inh, Abs, Ing, Con	Severe respiratory tract damage, sore throat, coughing, pain, tightness in chest, breathing difficulties, headache, muscle weakness, anorexia, GI disturbances, ringing in ear, liver changes fever, bronchitis, pneumonitis, burning in mouth, abdominal pain, vomiting, corrosive ulceration, bloody diarrhea, weak & rapid pulse, paleness, exhaustion, tremors, collapse, thirst, burns and irritates skin, eyes, blurred vision, pain in eyes	Silver-white, heavy, odorless liquid metal	---	N/A
1 - 6	Trichloroethene*(TCE)	100 ppm (per 6/97 NIOSH Pocket Guide)			Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, sometimes dyed blue, chloroform odor	---	9.45
1 - 6	Toluene	200 ppm	---	50 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, nose; upper respiratory tract, fatigue, weak, confusion, dizziness, headache, drowsiness, abdominal spasms, dilated pupils, euphoria	Colorless liquid, sweet pungent, benzene like odor	0.5	8.82

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1 - 6	Xylene(s)	100 ppm	---	100 ppm	Y	Inh, Ing, Abs, Con	Irritation to eyes, nose, throat, skin; nausea, vomiting, headache, ringing in ears, severe breathing difficulties (that may be delayed in onset), substernal pain, coughing hoarseness, dizziness, excited, burning in mouth, stomach, dermatitis (removes oils from skin), corneal burns	Colorless liquid, aromatic odor (solid below 56 F	.5	8.44

KEY:

PEL = Permissible Exposure Limit
REL = Recommended Exposure Limit
--- = Information not available
TLV = Threshold Limit Value(ACGIH)

Inh = Inhalation
Ing = Ingestion
mg/m^3 = Milligrams per cubic meter
* = Chemical is a known or suspected carcinogen

Abs = Skin Absorption
Con = Skin and/or eye Contact
ppm = Parts per million
sk = Skin notation

APPENDIX D

EQUIPMENT CHECKLIST

EQUIPMENT CHECKLIST

PROTECTIVE GEAR			
LEVEL A	**N/A**	**LEVEL B**	**N/A**
SCBA		SCBA	
SPARE AIR TANKS		SPARE AIR TANKS	
ENCAPSULATING SUITE (Type)		PROTECTIVE COVERALL (Type)	
SURGICAL GLOVES		RAIN SUIT	
NEOPRENE SAFETY BOOTS		BUTYL APRON	
BOOTIES		SURGICAL GLOVES	
GLOVES (Type)		GLOVES (Type)	
OUTER WORK GLOVES		OUTER WORK GLOVES	
HARD HAT		NEOPRENE SAFETY BOOTS	
CASCADE SYSTEM		BOOTIES	
5-MINUTE COOLING VEST		HARD HAT WITH FACE SHIELD	
		CASCADE SYSTEM	
		MANIFOLD SYSTEM	
LEVEL C		**LEVEL D**	
ULTRA-TWIN RESPIRATOR	X	ULTRA-TWIN RESPIRATOR (available)	X
POWER AIR PURIFYING RESPIRATOR		CARTRIDGES (Type GMC-H)(available)	X
CARTRIDGES (Type GMC-H)	X	5-MINUTE ESCAPE MASK (available)	
5-MINUTE ESCAPE MASK		PROTECTIVE COVERALL (Type Tyvek/Saranax)	X
PROTECTIVE COVERALL (Type Tyvek/Saranax)	X	RAIN SUIT (available)	X
RAIN SUIT		NEOPRENE SAFETY BOOTS	
BUTYL APRON		BOOTIES (available)	X
SURGICAL GLOVES	X	NITRILE	
GLOVES (Type: Nitrite/Neoprene)	X	HARD HAT WITH FACE SHIELD (available)	X
OUTER WORK GLOVES		SAFETY GLASSES	X
NEOPRENE SAFETY BOOTS		GLOVES (Type: Surgical)	X
HARD HAT WITH FACE SHIELD	X	WORK GLOVES (Type: Neoprene/Nitrile)(available)	X
BOOTIES	X	SAFETY BOOTS	X
HARD HAT		BLAZE ORANGE VEST	X

EQUIPMENT CHECKLIST

INSTRUMENTATION	NO.	FIRST AID EQUIPMENT	NO.
OVA		FIRST AID KIT	X
THERMAL DESORBER		OXYGEN ADMINISTRATOR	
O_2/EXPLOSIMETER W/CAL.KIT (Drilling)	X	STRETCHER	
PHOTOVAC TIP		PORTABLE EYE WASH	
PID	X	BLOOD PRESSURE MONITOR	
MAGNETOMETER		FIRE EXTINGUISHER	X
PIPE LOCATOR			
WEATHER STATION		**DECON EQUIPMENT**	
DRAEGER PUMP, TUBES ( )		WASH TUBS	
BRUNTON COMPASS		BUCKETS	X
MONITOX CYANIDE		SCRUB BRUSHES	X
HEAT STRESS MONITOR		PRESSURIZED SPRAYER	
NOISE EQUIPMENT		DETERGENT (Type: Alconox) = TSP	X
PERSONAL SAMPLING PUMPS		SOLVENT (HEXANE)	
MINI-RAM (Particulates) (Drilling)	X	PLASTIC SHEETING	X
		TARPS AND POLES	
		TRASH BAGS	X
RADIATION EQUIPMENT		TRASH CANS	
DOCUMENTATION FORMS		MASKING TAPE	
PORTABLE RATEMETER		DUCT TAPE	X
SCALER/RATEMETER		PAPER TOWELS	X
NaI Probe		FACE MASK	
ZnS Probe		FACE MASK SANITIZER	
GM Pancake Probe		FOLDING CHAIRS	
GM Side Window Probe		STEP LADDERS	
MICRO R METER		DISTILLED WATER	X
ION CHAMBER			
ALERT DOSIMETER			
MINI-RAD			

EQUIPMENT CHECKLIST

SAMPLING EQUIPMENT	NO.	MISCELLANEOUS (cont.)	NO.
4-OZ BOTTLES	X	BUNG WRENCH	X
1 LITER AMBER BOTTLES	X	SOIL AUGER	X
VOA BOTTLES	X	PICK	
SOIL SAMPLING (CORING) TOOL	X	SHOVEL	X
SOIL VAPOR PROBE		CATALYTIC HEATER	
THIEVING RODS WITH BULBS	X	PROPANE GAS	
SPOONS	X	BANNER TAPE	X
GENERAL TOOL KIT	X	SURVEYING METER STICK	X
FILTER PAPER		CHAINING PINS AND RING	
PERSONAL SAMPLING PUMP SUPPLIES		TABLES	
4-OZ JARS	X	WEATHER RADIO	
		BINOCULARS	
VAN EQUIPMENT		MEGAPHONE	
TOOL KIT		PORTABLE RADIOS (4)	X
HYDRAULIC JACK		CELL PHONE	X
LUG WRENCH		CAMERA	X
TOW CHAIN		HEARING PROTECTION	X
VAN CHECK OUT			
GAS		**SHIPPING EQUIPMENT**	
OIL		COOLERS	X
ANTIFREEZE		PAINT CANS WITH LIDS, 7 CMIPS EACH	
BATTERY		VERMICULITE	
WINDSHIELD WASH		SHIPPING LABELS	X
TIRE PRESSURE		DOT LABELS: “DANGER”, “UP”;	
		“INSIDE CONTAINER COMPLIES...”;	
MISCELLANEOUS		“HAZARD GROUP”	
PITCHER PUMP		STRAPPING TAPE	X
SURVEYOR’S TAPE	X	BOTTLE LABELS	X
100 FIBERGLASS TAPE	X	BAGGIES	X
300 NYLON ROPE		CUSTODY SEALS	X
NYLON STRING	X	CHAIN-OF-CUSTODY FORMS	X
SURVEYING FLAGS	X	FEDERAL EXPRESS FORMS	X
FILM		CLEAR PACKING TAPE	X
WHEEL BARROW			

Appendix C – Community Air Monitoring Plan

City of Rochester
Environmental Restoration Project
Orchard-Whitney Site
415 Orchard Street and 354 Whitney Street
City of Rochester
Monroe County, New York

COMMUNITY AIR MONITORING PLAN

Remedial Investigation

Prepared For:

City of Rochester
Department of Environmental Services
Division Environmental Quality
30 Church Street
Rochester, New York 14614

Prepared By:

LU ENGINEERS
Civil and Environmental
2230 Penfield Road
Penfield, New York 14526

July 2006

Project No: 4216

Table of Contents

1.0 Introduction

This Community Air Monitoring Plan (CAMP) has been prepared by Lu Engineers on behalf of the City of Rochester. This CAMP addresses potential volatile organic compound (VOC) and particulate air quality issues which may arise during planned Remedial Investigation activities at the Orchard/Whitney Site located at 415 Orchard Street and 354 Whitney Street, Rochester, New York.

The investigation activities planned during the portion of the project covered by this CAMP include soil borings, groundwater monitoring well installations, test pit completion, tank removals, and soil and groundwater sampling. Air monitoring during the demolition portion of this project will be the responsibility of the demolition contractor.

Based on previous studies completed at the Site and the Site's history, the primary chemicals of concern at the subject site are various volatile organic compounds (VOCs) and metals. Disturbance of soils and/or groundwater could result in volatilization of the organic compounds and fugitive dust releases to the ambient air creating possible nuisance or health threats to the neighborhood.

This CAMP details real-time monitoring activities to be carried out during the remedial investigation activities, to minimize the potential for neighborhood exposure to airborne hazards resulting from fugitive emissions during field work.

Air monitoring and response actions for VOCs and particulates are included in this CAMP. VOC and particulate monitoring of the work areas will also be conducted as part of the Health and Safety Plan (HASP) that will be implemented during Remedial Investigation activities by Lu Engineers. The following monitoring, response levels and actions are adapted from DER-10 NYSDOH Generic Community Air Monitoring Plan.

2.0 Methodology

The Remedial Investigation activities at the Site will consist primarily of soil borings, well installations, test pit completion, and groundwater sampling. The following programs will be implemented to monitor and, if necessary, control the potential migration of fugitive VOCs and particulates on the property.

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 wells. Periodic monitoring during sampling may reasonably consist of taking a reading upon

arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location.

2.1 Perimeter Monitoring

For each day of intrusive field work, a wind sock or flag will be used to monitor wind direction in the area of the work zone. Based upon the daily wind direction, two temporary monitoring points will be identified, one upwind and one downwind of the work area, at the perimeter of the site or field work location.

VOC monitoring will be done with a photoionization detector (PID-MiniRAE Model 2000 or its equivalent) fitted with a 10.6 eV lamp. Prior to the commencement of field work each day, background measurements of VOC concentrations will be logged at the upwind and downwind locations with the drill rig engine and any other gas/diesel engines operation on site. Thereafter, readings will be recorded at approximate 15-minute intervals. These readings will be used to observe the difference between upwind and downwind VOC levels. If at any time, the downwind VOC levels exceed upwind levels (adjusted for engine exhaust) by 5 ppm(sustained), the work will be temporarily halted. The Contractor will then be required to implement the means necessary to control VOCs and explosive gases, similar to those discussed in Section 2.3.

Monitoring for explosivity using an explosive gas meter will be routinely conducted during site activities as a precautionary measure to ensure site personnel are not subjected to any dangerous conditions.

Particulate monitoring will be done with a real time particulate meter (Mini Ram) capable of monitoring particulate matter less than 10 microns in size (PM-10). Prior to the commencement of field work each day, background measurements of particulate levels will be logged at the upwind and downwind locations. Thereafter, readings and visual observations will be recorded at approximate 15-minute intervals. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) 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 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

2.2 Work Area Monitoring

In addition to perimeter monitoring, monitoring for VOCs, particulates and explosive gases will be carried out continuously within the work area to monitor personal exposures and to compare work area readings with downwind and upwind readings. The first readings of the day will be

obtained prior to the commencement of work to obtain daily background readings. Readings will be logged along with the perimeter measurements. Specific monitoring procedures to be used in the work zone can be found in the Health and Safety Plan (HASP) prepared for this site.

2.3 Minor Vapor Emissions Response Plan

If the ambient air concentration of total organic vapors exceeds 5 ppm(sustained) above the background at the perimeter of the work area, activities will be halted and monitoring continued.

If the total organic vapor level decreases below 5 ppm above background, work activities can resume, with emphasis given to observing spikes in levels. If the total organic vapor levels are greater than 5 ppm over background but less that 25 ppm over background at the perimeter of the work area, activities can resume provided the organic level 200 ft. downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over the background. (The locations of structures in the subject neighborhood may not allow the 200 ft. buffer zone to be used).

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to evaluate if the vapor emission levels exceed those specified in Section 2.4, Major Vapor Emission Response Plan.

2.4 Major Vapor Emission Response Plan

If total organic vapor levels greater than 5 ppm over background are identified 200 ft. downwind from the work area or half the distance to the nearest residential or commercial structure, whichever is less, all work activities must be halted.

If, following the cessation of the work activities, or as the result of an emergency, total organic vapor levels greater than 5 ppm above background persist 200 ft. downwind or half the distance to the nearest residential or commercial structure, then the air quality must be monitored within 20 ft. of the perimeter of the nearest residential or commercial structure (20-foot zone).

If efforts to abate the emission source area are unsuccessful and if the organic vapor levels continue to persist at or near 5 ppm above background for more than 30 minutes in the 20-foot zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

The Major Vapor Emission Response Plan shall also be immediately placed into effect if organic vapor levels are greater than 10 ppm above background at the 20-foot zone.

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in the Health and Safety Plan will be contacted.
2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation. Evacuation or neighborhood notification plans can be discussed at that time.

3. Air monitoring will be conducted at 30-minute intervals within the 20-foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

3.0 Record Keeping and Quality Control

For the duration of the field activities, a monitoring log book will be kept to record calibration, operational notes and monitoring readings. All readings must be recorded and available for State review. Instantaneous readings, if any, used for decision purposes should also be recorded. The results of the Community Air Monitoring Program will be incorporated by Lu Engineers into required reports.

Instrumentation will be calibrated and/or operationally checked, either daily or at intervals recommended by the manufacturer. Only approved calibration gases will be used. All operators will have been trained in the proper use, maintenance, limitation, and interpretation of results of the monitoring equipment.

Appendix D – Qualifications

ROBERT J. ELLIOTT, P.E. Lu Engineers

Vice President / Senior Project Manager

-EDUCATION-

B.S.C.T., Civil Engineering, 1976
Rochester Institute of Technology, Rochester, NY

-REGISTRATION-

Professional Engineer
State of New York
State of Pennsylvania

-PROJECT EXPERIENCE-

ENVIRONMENTAL ENGINEERING

Mr. Elliott has worked for Lu Engineers since it was first established in 1980 and has 30 years of civil and environmental engineering experience. For over 20 years, he has functioned as a project manager. As project manager, Mr. Elliott develops a thorough and detailed understanding of each project he manages. The majority of his experience involves project engineering and management duties for hazardous wastes, petroleum, and water and wastewater related projects. Mr. Elliott, a NYSDOL certified asbestos project designer, has managed asbestos-related projects involving assessment, removal design and monitoring. He heads the environmental department, supervising over 30 engineers, technicians and inspectors.

Mr. Elliott has also managed and developed Phase I and Phase II Environmental Audit Reports for various municipal, commercial, residential, industrial and institutional clients. He has conducted environmental audits and trained environmental personnel in the proper procedures for conducting environmental audits.

REMEDIAL AND BROWNFIELD REDEVELOPMENT

City of Rochester, Brownfield Assistance Program, Term Contract, Rochester, NY
Principal-in-Charge of providing environmental investigation services through the City of Rochester's Brownfield Assistance Program (BAP). This is for a 3 year term contract (2004-2007). The BAP provides significant technical and financial assistance to private parties that need to investigate environmental conditions on brownfield properties. This program is part of the City of Rochester's 2003 Brownfield Assessment grant from the United States Environmental Protection Agency (EPA). Therefore, all work performed by Lu Engineers meets the EPA standards.

Former Frink America Site, Clayton, NY
Senior Project Manager for NYS Environmental Restoration Program services on this waterfront brownfield site. The project involved the identification of the vertical and horizontal extent of contamination, surface soil sampling, borings, removal of underground storage tanks, PCB sampling, an RI/FS report and development of a Work Plan to address known impacted soils.

Karenlee Drive, Henrietta, NY
Principal-in-Charge of implementing a Work Plan for the former wastewater treatment plant at 100 Karenlee Drive in the Town of Henrietta in accordance with the New York State Department of Environmental Conservation Brownfield Program. Lu Engineers provided oversight of installation of seven monitoring wells, the collection of subsurface soil samples during the well installation, the collection of water samples from the installed wells and the collection of surface soil samples. We provided coordination between NYSDEC and Town of Henrietta. A report describing the findings of the investigation was prepared for the Town of Henrietta. The information from this project was utilized to determine the extent and concentration of suspected site contamination and its impact on proposed future site improvements. We also provided engineering services for building demolition for the at the former sewage treatment plant. Specifications for the demolition of the former administration building, former digester building and garage building were developed.

Almor Voluntary Cleanup Plan, Warsaw, NY
Senior Project Manager responsible for assisting the Wyoming County Industrial Development Agency by providing environmental services for the voluntary cleanup of the former Almor manufacturing plant. Extensive research was conducted during the remedial investigation in order to determine the nature and extent of the wastes and contamination associated with the property. Services provided included a geoprobe investigation of the site, stream sampling, groundwater sampling, limited soil removal and testing on an underground storage tank found on the site.

Abe Cooper Superfund Site, Watertown, NY
Project Manager responsible for the design of a RiverBank Protection System along the Black River for the NYSDEC to prevent contaminated soils from leaching into the river. The system included remediation and stabilization of 700 linear feet of riverbank. A US Army Corps of Engineers Section 10 permit was completed for the excavation of approximately 6,000 cubic yards of existing soil at the riverbank and 2,575 c.y. of heavy stone fill for slope protection. A hazardous waste site remediation was also performed.

XLI Corp, Brownfield Redevelopment, Rochester, NY
Mr. Elliott was the Project Manager for the Brownfield redevelopment project for this property listed on the New York State List of Inactive Hazardous Waste Disposal Sites. The project included: engineering design with site layout for parking, pedestrian access, site access, building location, vehicular traffic, utilities, and storm water collection and conveyance along with storm water retention/detention facility; surveying services including base mapping; health and safety plan; and developing a plan for the removal and relocation of landfill materials present on the site. Worked closely with the City of Rochester and client to provide site development alternatives that satisfy the requirements of the City's Brownfield Pilot Program.

ROBERT J. ELLIOTT, P.E.

Vice President / Senior Project Manager *...Continued*

Watertown International Airport, Phase I & II Environmental Site Assessments, Watertown, Jefferson County, NY

Principal-in-Charge responsible for Phase I and II Environmental Site Assessments for Jefferson County at the Watertown International Airport. Geoprobe soil samples were taken in areas by former fuel tanks with documented petroleum spills, the former fire fighting training area, the PCB-containing electrical transformers area, and the floor drain system of the vehicle maintenance area. Soils were screened in the field using a photoionization detector to ascertain which ones needed to be sent to an accredited analytical lab for analysis. Water samples were also collected from the facility's water supply well to determine if petroleum spills had impacted the groundwater. A report detailed all the findings and included recommendations.

Davis Howland Oil Co. Site, Remedial Design and Construction Oversight, Rochester, NY

Principal-In-Charge responsible for the construction oversight of remediation work and shop drawing review for remediation equipment at the Davis Howland Oil Corporation inactive hazardous waste disposal site in Rochester, NY. This $2 million NYSDEC Superfund project involves the implementation of remedial activities including a trailer mounted remediation system that treats the shallow groundwater, soil, and fractured bedrock beneath the site. We also continue to provide oversight and support the O&M subcontractor in the operations and maintenance and documentation associated with the continued remediation of this site. The remediation of the soil and groundwater included Air Sparging (AS) and Soil Vapor Extraction (SVE), groundwater pumping and treatment system and catalytic oxidation treatment (CatOX). In 2004, a soil vapor survey on properties in residential/commercial surrounding this site was conducted, as well as interior and basement air sampling.

Ultralife Batteries Inc., Newark, NY

Project Manager for a Site Investigation at a large manufacturing facility under the NYSDEC's Voluntary Cleanup Program. This work determined the nature and extent of documented organic and inorganic subsurface contamination at the facility associated with past site operations. The project included the installation of 15 soil borings and monitoring wells. Sampling and testing was used to determine surface and subsurface soil, surface water, and groundwater conditions at the site to allow determinations to be made as to appropriate remedial actions. Aquifer testing was conducted to develop data for hydrogeologic modeling. Contaminant transport analyses were also used to develop and evaluate remedial alternatives.

City of Rochester, Term Contract, NY

Principal-in-Charge of currently providing environmental site assessments and remedial services for property transactions under a three-year term contract (2006-2009) for the City of Rochester.

Perfection Plating, Watervliet, NY

Perfection Plating was a NYSDEC Superfund site that needed a Phase I Remedial Investigation/Feasibility Study. Mr. Elliott was the Project Manager for all subsurface investigation, sampling and survey at the site. Services included drilling and installation of groundwater monitoring wells, conducting surface and subsurface soil and groundwater sampling, performing aquifer testing, conducting site survey and preparing the field program report entailing the methodology and results of the investigation.

Brownfield site, Wetland Delineation, Driving Park Ave., Rochester, NY

Principal-in-Charge of a federal wetland delineation on a 12.7 acre brownfield industrial site located in the City of Rochester. The field delineation was done on approximately three acres of a wooded wetland. Hand-held global positioning system (GPS) was used to flag the boundary. Sampling was required to characterize the soils, hydrology and vegetation, and to support the boundary determination. A formal wetland delineation report suitable for submission to the U.S. Army Corps of Engineers was prepared and field visit with a representative of the U.S. Army Corps of Engineers was coordinated for concurrence on the boundary.

Globalsoft Environmental, Expanded Phase II ESA, Rochester, NY

Principal-in-Charge responsible for both the Phase II Environmental Site Assessment and an expanded Phase II at the Globalsoft Environmental property in Rochester, NY. The objective of the expanded work was to delineate the area of impacted soil encountered during the previous subsurface investigation of the former tank excavation and hydraulic lift areas. We evaluated the discharge points of the floor drain to determine the source of contamination and continued delineation of contamination to the north and west of the impacted area.

Akron Oil Site, Hydrogeologic Analysis, Akron, NY

Project Manager for a hydrogeologic analysis at the former Akron Oil site in Akron, NY. Existing information and current soil and analytical data was reviewed and on-site oversight of subsurface sampling and monitoring well installation was provided. Soil profiles and fence diagrams to evaluate subsurface contaminant migration pathways were prepared. A report which included a conclusion as to the origin and significance of the off site "hot spot" was developed.

ROBERT J. ELLIOTT, P.E.

Vice President / Senior Project Manager *...Continued*

HAZARDOUS MATERIALS / WASTE HANDLING

Hazardous Materials/Waste Handling, Department of Veterans Affairs Medical Center (DVAMC), Canandaigua, NY
Mr. Elliott managed on open-ended hazardous abatement service contract with the DVAMC. He supervised asbestos surveys, abatement design and inspection for each removal contract.

Rochester-Genesee Regional Transportation Authority, Rochester, NY
Mr. Elliott has managed over 40 environmental and facility related projects during the past 17 years. Several projects involved remediation of petroleum, glycol and VOC spills. Bioremediation was utilized for a large clean up resulting in significant savings over landfill disposal.

NYS Hazardous Waste Site Investigations
Project Manager for nine inactive hazardous waste sites investigations. These sites include Parma, Dix, Macedon, Formso, Lyndonville, Salina, Brighton Avenue, Erwin and 3M/Dynacolor landfills. This NYSDEC term contract has led us to be involved in investigation and cleanup phases of several industrial hazardous waste contaminated sites. Supervised all investigative tasks including, test borings, well installation monitoring, permeability testing, environmental sampling and analysis of soils and wastes, coordination of survey and mapping, geophysical surveys, analysis of data, report preparation, remediation design and remediation monitoring.

Rome Research Site, Building 119 Demolition, Rome, NY
Principal-In-Charge for the demolition project at Building 119 at the Rome Research Site for the U.S. Air Force. Demolition design and associated hazardous materials abatement design services are being prepared. Also site design work for expansion of the parking lot immediately west of B-119 property line will be provided. Subsurface sampling for environmental contamination will be concurrent with the geotechnical investigation process.

American Valve Manufacturing Site, Coxsackie, NY
Senior Project Manager for a feasibility study for the decontamination and demolition options at the former American Valve Manufacturing Facility in Coxsackie, NY. A site inspection was conducted to identify asbestos materials, lead based paint and building construction. The study evaluated the options of decontaminating the building and allowing it to remain, demolishing the building and disposing of the construction/demolition debris off site, or demolishing the building and disposing of the material in the on-site landfill. Test pits were dug using a backhoe to determine the boundary of the foundry sand. A cost estimate was constructed for the various options.

Ludlow Landfill, Paris, Oneida County, NY
Principal-in-Charge of field support with a landfill inspection at the NYSDEC site, Ludlow Landfill in Paris, New York in Oneida County. Groundwater sampling and other sampling/testing was performed.

Rome Labs/Griffiss Air Force Base, Environmental Engineering and Investigation Term Contract, Rome, NY
Project Manager for 16 environmental projects involving asbestos assessment and abatement, PCB soil remediation, hazardous waste management, pollution prevention planning, groundwater monitoring and well decommissioning, airport fire training, wastewater treatment and miscellaneous environmental sampling, laboratory analysis and data analysis.

NYS Hazardous Waste Site Investigations, Towns of Parma, Dix, Macedon, and the Formso Landfill
Project Manager for the Phase II site investigations on four inactive hazardous waste sites in Western New York. Supervised all investigative tasks including test borings, well installation monitoring, permeability testing, environmental sampling and analysis of soils and wastes, and coordination of survey and mapping.

PCB Sampling, Tenneco Oil Company, New York, Kentucky and Pennsylvania
Supervised sampling of suspected PCB contamination sites.

ASBESTOS AND LEAD

Watertown Correctional Facility, Watertown, NY
Principal-In-Charge responsible for asbestos assessment and abatement design for NYS Office of General Services (OGS) at the Watertown Correctional Facility in Watertown, NY. The OGS was planning a window replacement project in eleven buildings at the facility. Inspection, bulk sampling, technical memorandum with cost estimate, construction documents with drawings and specifications, along with the final construction cost estimate were provided.

Roswell Park Biological Laboratory, Springville, NY
Principal-In-Charge of asbestos survey and hazardous materials assessment (PCBs, lead and radon), for 12 abandoned laboratory buildings at Roswell Park Memorial Institute in Springville, NY in 2001. The site was being considered for demolition screening and was considered an "emergency" project that needed to be completed quickly. Site investigation, assessment, sampling and analysis of suspected Asbestos Containing Materials were performed. In 2003, services for asbestos removal in ten of the buildings was provided. Scope of work included asbestos inspection, sampling, design, preparation of letters of condemnation for demolition, and construction administration services.

GREGORY L. ANDRUS, CHMM Lu Engineers

Project Manager

-EDUCATION-

B.S., Geology, 1987
Washington & Lee University, Lexington, VA

Hydrogeology, Graduate Level Studies
SUNY at Brockport, Brockport, NY

-TRAINING, CERTIFICATIONS & ASSOCIATIONS-

2003/4 Air Program Information Management Systema
2002 -2007 Society of American Military Engineers
2000-2002 ACHMM Finger Lakes Chapter, President
2000-2007 Joint Services Pollution Prevention and Hazardous Waste Management Conference, San Antonio, TX
1998 PC Application in Risk Assessment, Modeling and GIS,
1998-2007 Air and Waste Management Association
1997-2007 Certified Hazardous Materials Manager
1989-2005 OSHA 40-Hour Training and Refresher Courses
2002 OSHA Confined Space Entry Training
1995-2007 Buffalo Association of Professional Geologists
1995-2007 New York State Council of Professional Geologists
1989-2007 National Groundwater Association

-PROJECT EXPERIENCE-

Mr. Andrus' 20 years of experience includes a diverse range of geological and environmental engineering projects. Areas of specialization include remedial investigation/site characterization, site remediation, site assessment, regulatory compliance and permitting. His experience also includes noise impact analysis, wetland studies, asbestos building surveys, abatement design and air contaminant impact analysis.

BROWNFIELDS

Phase I ESA & Brownfield Application, Leyden, NY
Project Manager responsible for a Phase I Environmental Site Assessment for the Town of Leyden at a vacant former Mobil Service Station. Also assisted the Town with preparing a Brownfield application. This site has become an ERP Brownfield project.

Brownfield Assistance Program 2004-2007, Term Contract, City of Rochester, NY
Lu Engineers is providing environmental investigation services through the City of Rochester's Brownfield Assistance Program (BAP). The BAP provides technical and financial assistance to private parties that need to investigate environmental conditions on Brownfield properties. Mr. Andrus is the Project Scientist for this program.

Westinghouse property, Attica, NY
Prepared a Federal Brownfield Grant Application for the former Westinghouse property in Attica for the Wyoming County Industrial Development Agency in Perry, NY.

Orchard-Whitney Brownfield Investigation, City of Rochester, NY
Lu Engineers is currently providing environmental services for the Orchard-Whitney Brownfield site for the City of Rochester under the NYSDEC Environmental Restoration Program. The 3.9 acres site is located in a strategic economic development area of the City. The goal of this project is to generate a NYSDEC approved Site Investigation/Remedial Alternatives Report (SI/RAR). Mr. Andrus is the Project Scientist involved in the initial task of waste characterization and an asbestos, hazardous waste and lead pre-demolition survey. He will assist with tasks such as tank and sensitive equipment removals and unforeseen environmental conditions. Subsurface investigation will begin after demolition is complete. The subsurface investigation will be used to further define the horizontal and vertical extent and concentrations of contaminants in the soil and groundwater. When the extent of contamination and hydrogeologic soils information has been analyzed, potential environmental exposure pathways will be examined. All of this will provide a basis for developing remedial alternatives that are based on conceptual future uses.

Karenlee Drive, Henrietta, NY
Lu Engineers completed and implemented a Work Plan for the former wastewater treatment plant at 100 Karenlee Drive in the Town of Henrietta in accordance with the NYSDEC Voluntary Cleanup Program. Mr. Andrus provided oversight of installation of seven monitoring wells, the collection of subsurface soil samples during the well installation, the collection of water samples from the installed wells and the collection of eight surface soil samples. The information from this project was utilized to determine the extent and concentration of suspected site contamination and its impact on proposed future site improvements.

Regional Traffic Operations Center (RTOC), Rochester, NY
The RTOC facility was constructed on lands previously used as an asphalt plant and above ground fuel storage depot. The work tasks included establishment of a sample grid and performance of an electromagnetic survey to determine the location of buried features; soil-vapor surveys; laboratory analysis; construction abatement drawings; coordination with NYSDEC; and monitoring of the construction activities. Mr. Andrus scoped the initial budget and designed the in-situ subsurface remediation systems. Assisted with periodic biocell evaluation of petroleum contaminated soils. Long-term biocell monitoring services and soil sampling were necessary to satisfy NYSDEC requirements.

Former Motel/Restaurant, Medina, NY
Acted as regulatory liaison and conducted information review for "Brownfield" site redevelopment at a gasoline station.

Steel Plant, Latrobe, Pennsylvania
Conducted Phase I and II involving extensive sampling and monitoring well installation and soil gas assessment for "Brownfield" site redevelopment.

GREGORY L. ANDRUS, CHMM

Geologist / Environmental Scientist I *...Continued*

SUBSURFACE INVESTIGATION

Conduct and manage subsurface investigations for major oil companies, industrial clients, NYSDEC and NYSDOT. Projects involve work plan development, on-site drilling supervision, sample logging, sampling coordination, and preparation of reports. Additional responsibilities include aquifer testing, modeling monitoring, and preparing site status reports for NYSDEC and other regulatory entities.

Watertown International Airport, Jefferson County, NY
Performed a Phase II Environmental Site Assessment at the Watertown International Airport. Geoprobe soil samples were taken in areas by former fuel tanks with documented petroleum spills, the former fire fighting training area, the PCB-containing electrical transformers area, and the floor drain system of the vehicle maintenance area. Soils were screened in the field using a photoionization detector. Water samples were collected from the facility's water supply well to determine if petroleum spills had impacted the groundwater. A report detailed findings and included recommendations.

Rochester-Genesee Regional Transportation Authority, Bus Facility Subsurface Investigation, Rochester, NY
Mr. Andrus conducted a subsurface investigation of PBS facilities in Service Building area of R-GRTA's Main Street bus facility. It was necessary to characterize soil type, the horizontal and vertical extent of soil and groundwater contamination, and the type and chemical characteristics of the spill. Installed submersible oil recovery pump system as interim remedial measure. Throughout the process of conducting subsurface investigation work, development of remedial alternatives and preparation of the project report, Mr. Andrus served as Technical Liaison to NYSDEC.

64 & 70 N. Washington St., City of Rochester, NY
Project Engineer for a Phase II Environmental Site Assessment (ESA) for the City of Rochester at 64 and 70 North Washington Street. This ESA included a geophysical survey to determine where the underground storage tanks were located; soil borings to determine if contaminated soils and/or groundwater are there from the former UST system; evaluation of the integrity and discharge location of the floor sump located in the garage building of 64 N. Washington Street. Based on the findings of the subsurface investigation, a preliminary plan for necessary remediation, along with cost estimates, was developed.

71 and 80 North Main Street, Fairport, NY
Geologist for Phase II Environmental Site Assessments of properties in Fairport, NY. Geophysical investigation determined whether underground storage tanks or other significant underground metallic features such as piping, hydraulic lifts and reservoirs were present at the site. A geophysical survey was completed. Ten locations of subsurface soil sampling were conducted concurrently with the geophysical survey. Soils were screened for the presence of volatile and semi-volatile organic contaminants.

Akron Oil Site, Hydrogeologic Analysis, Akron, NY
Mr. Andrus performed a hydrogeologic analysis at the former Akron Oil site in Akron, NY. He reviewed existing information and current soil and analytical data and provided on-site oversight of subsurface sampling and monitoring well installation. He prepared soil profiles and fence diagrams to evaluate subsurface contaminant migration pathways and developed a report which included a conclusion as to the origin and significance of the off site "hot spot".

Bulk Terminal, Carthage, NY
Conducted contaminated bedrock aquifer investigation.

Gasoline Station, Gang Mills, NY
Installation of 18 monitoring wells and 4 recovery wells for gasoline spill investigation.

Trucking Facility, Mohawk, NY
Performed petroleum spill investigation in Mohawk River Valley.

Gasoline Station, Geneva, NY
Determined gasoline spill cause and evaluated impacts via characterization of complex glacial hydrogeologic setting.

NYSDEC SUPERFUND PROJECTS

Hidden Valley Electronics Site, Vestal, NY
Project Manager for design/build environmental remediation services at the former Hidden Valley Electronics in Vestal, NY, a NYSDEC Inactive Hazardous Waste Site. We installed a sub-slab ventilation/soil vapor extraction (SVE) system to draw contaminated soil vapor from under the slab-on-grade floor of the main building. We are currently conducting regular operation and maintenance of the SVE system.

Smith-Corona Site, Vapor Intrusion, Cortlandville, NY
Project Manager responsible for site assistance to help complete a vapor intrusion study associated with the Smith-Corona NYSDEC IHWS located in Cortlandville, NY.

Stuart-Olver-Holtz Site, Henrietta, NY
Project Manager for inspection services for the demolition of a former auto dealership (Stuart-Olver-Holtz), which is an Inactive Hazardous Waste Site. Lu Engineers was on site for all contractor activities.

Preferred Electric Motors site, Rochester, NY
Project Manager who provided assistance with Remedial Investigation/Feasibility Study (RI/FS) at a NYSDEC Inactive Hazardous Waste Site, Preferred Electric Motors site located on Fernwood Avenue in Rochester, NY. Tasks included preparation of a site-specific Health and Safety Plan, boundary and well survey, geophysical (magnetic and GPR) surveys, Geoprobe sampling, sediment/soil/water sampling, soil/gas sampling, indoor air/ sub-slab sampling, utility stakeout, and other work as was needed.

GREGORY L. ANDRUS, CHMM

Geologist / Environmental Scientist I *...Continued*

SITE ASSESSMENTS

Perform ASTM and specialized Phase I and II environmental site assessments for banks, law firms, oil companies, manufacturing companies, municipalities, NYSDEC, NYSDOT, and the NYS Thruway Authority.Phase II assessments have included intrusive and non-intrusive methods. Non-intrusive project experience has ranged from ground penetrating radar surveys to conductivity and magnetometer studies. The following projects are examples of this experience:

Longway's Diner, Pamelia, NY
Project Geologist involved in the Phase II Environmental Site Assessment (ESA) in Pamelia, NY. Provided oversight of the second set of borings, coordinated lab analysis, interpreted analytical results, and prepared a report on the findings. Due to the findings of the Phase II ESA, Mr. Andrus then assisted in the development of the Remediation Work Plan to address the petroleum contamination that was discovered on the site.

399 Gregory Street, City of Rochester, NY
Project Scientist for an asbestos pre-demolition survey and sampling and a hazardous waste inventory and sampling for property that is an abandoned collision shop in the City of Rochester, NY. Services included asbestos abatement and demolition design, development of a NYSDOL asbestos variance, construction cost estimates for asbestos abatement and disposal and building demolition, construction administration services and construction inspection services with project/air monitoring.

Tank Removal Oversight, 649 S. Plymouth Ave., Rochester, NY
Project Manager for the removal of two underground storage tanks at 649 South Plymouth Avenue in Rochester, NY. Oversight included excavation, tank removal and purging/cleaning, backfilling and site restoration. Soil sampling was conducted and a photoionization detector was used to screen soils and breathing zones for the presence of volatile organic vapors. A report was prepared to provide all documentation to the City of Rochester.

Former Automobile Dealership, Henrietta, NY
Completed Phase I and II environmental site assessment on large former automobile dealership site. Followed Phase II assessment with remediation of petroleum-contaminated soil and groundwater and continued long-term monitoring.

900 East Main St., City of Rochester, NY
Project Manager responsible for a Phase II Environmental Site Assessment for the City of Rochester to determine if subsurface contamination and/or buried tanks or other features were present on the property. Field activities included a geophysical survey, subsurface soil investigation at 16 locations, surface soil sampling, and dye testing of drainage features. A preliminary plan for necessary remediation of contaminated areas with cost estimates for asbestos hazards and environmental contamination was also developed.

ENVIRONMENTAL REMEDIATION

Coordinate and design remediation projects employing various technologies, including vapor extraction, air injection, groundwater pump and treat, air stripping/sparging, various free product recovery methods, and bioremediation. Responsibilities include design and field implementation of systems for industry and NYSDEC.

Voluntary Cleanup Program Investigation, Ford site, Churchville, NY
Project Manager responsible for conducting an environmental subsurface investigation to identify the nature and extent of contamination for a Voluntary Cleanup Program at the Churchville Ford NYSDEC site as a follow up to previous work performed by other consultants. An updated Work Plan was developed. Field services included storm water drainage system investigation, groundwater investigation, residential well survey, and a topographic survey. A remedial alternatives report (RAR) was developed and included an analysis of remedial strategies and recommendations.

R-GRTA Subsurface Investigation & Remediation, Rochester, NY
Project Manager who for subsurface investigation and remediation at the R-GRTA facility in Rochester, NY. A Subsurface Investigation Work Plan was developed for review and approval by NYSDEC prior to commencement of field activities. The direct push soil sampling method was used to obtain fifteen soil core samples. Remedial activities included the use of a petroleum hydrocarbon well pump system. Lu Engineers installed the well pump and trained R-GRTA staff in the operation and maintenance of this pump system.

Transit Bus/DPW Storage and Maintenance Facility, Watertown, NY
Lu Engineers provided special inspection and structural testing services for the construction of three buildings at the City of Watertown Transit Bus/DPW Storage and Maintenance facility. We also provided oversight of the building of trenches and advised on the removal of the petroleum contaminated soils. As Project Geologist, Mr. Andrus assisted with background information review and performed site sampling and testing.

Newport Research Facility, Building 1605, Tanner Hill, Herkimer County, NY
Project Manager/Engineer who conducted a Phase I & II Environmental Baseline Survey with subsurface investigation and environmental remediation at Building 1605. Testing indicated the existence of elevated levels of petroleum soil contamination in the area of a former underground storage tank. A Work Plan and remedial design was developed.. A total fluids extraction type remediation system was installed on site for three months. Off-site transportation and disposal of wastewater was necessary. The remediation system was maintained, data collected and a No Further Response Action Planned report completed.

STEVEN A. CAMPBELL, CHMM Lu Engineers

Project Manager

-EDUCATION-

MS Environmental Health and Safety (In-progress)
Brockport State University, BS 1987
Corning Community College, AAS 1985

-CERTIFICATIONS-

Certified Hazardous Materials Manager (CHMM)
Hazardous Waste Operations and Emergency Response

- 40 Hour Site Worker- Supervisor Level
- Emergency Spill Response-Hazmat Technician and Incident Commander

US DOT Hazardous Materials -Transport

-PROJECT EXPERIENCE-

Mr. Campbell has worked in the field of environmental health and safety for 19 years. During his career, he has worked as an environmental scientist and a Project Manager in the governmental, consulting, and private sectors.

Regulatory Compliance and Environmental Planning
Mr. Campbell has extensive experience in the field of environmental regulatory compliance and planning. He started his career at EPA headquarters in Washington, DC assisting industry and governmental agencies with hazardous waste compliance and clean-up programs in accordance with RCRA and Superfund. While in Washington, he also worked closely with experts from programs such as SARA Title III, the Safe Drinking Water Act, the Toxic Substances Control Act, and the Clean Water Act.

USEPA RCRA/Superfund Industrial Assistance Hotline Program, **EPA Headquarters, Washington, DC**
Experience includes: program development and research for the EPA Office of Emergency & Remedial Response, research and clarification of RCRA and CERCLA regulations/policy for industry, and conducting training sessions for USEPA RCRA/Superfund Hotline staff, USEPA Headquarters personnel, and State/Regional RCRA Enforcement Officers.

Brownfield and Hazardous Waste
Mr. Campbell has been a Project Manager for Hazardous Waste Site and Brownfield Investigations for over 15 years. During this time he has directed Phase II investigations and remedial projects under the Inactive Hazardous Waste Disposal Site (IHWDS), Voluntary Cleanup (VCP), Brownfield Cleanup (BCP), Petroleum Spills and Environmental Restoration Programs (ERP). These projects have involved comprehensive subsurface and structural investigations for all types of hazardous substances and in many cases designing and implementing agency required cleanup programs. He is extremely familiar with all facets of state and federal environmental investigation and cleanup programs.

-PROJECTS-

BROWNFIELDS

City of Rochester, Brownfield Assistance Program, Term Contract, Rochester, NY
Project Manager responsible for providing environmental investigation services through the City of Rochester's Brownfield Assistance Program (BAP). This is for a 3 year term contract. The BAP provides significant technical and financial assistance to private parties that need to investigate environmental conditions on Brownfield properties. This program is part of the City of Rochester's 2003 Brownfield Assessment grant from the United States Environmental Protection Agency (EPA). Therefore, all work performed by Lu Engineers meets the EPA standards.

Orchard-Whitney Brownfield Investigation, Rochester, NY
Project Manager responsible for providing environmental services for the Orchard-Whitney Brownfield site for the City of Rochester under the NYSDEC Environmental Restoration Program. The 3.9 acres site is located in a strategic economic development area of the City. The goal of this project is to generate a NYSDEC approved Site Investigation/Remedial Alternatives Report (SI/RAR). The initial task is waste characterization and an asbestos, hazardous waste and lead pre-demolition survey. After this is complete, we will provide demolition oversight of the buildings. Lu Engineers staff will assist with tasks such as tank and sensitive equipment removals and unforeseen environmental conditions. Subsurface investigation will begin after demolition is complete. The subsurface investigation will be used to further define the horizontal and vertical extent and concentrations of contaminants in the soil and groundwater. When the extent of contamination and hydrogeologic soils information has been analyzed, potential environmental exposure pathways will be examined. All of this will provide a basis for developing remedial alternatives that are based on conceptual future uses. Survey and GIS mapping and citizens participation planning will be provided as necessary.

Former Frink America property, NYSDEC Voluntary Cleanup Work Plan, Clayton, NY
Project Manager for a NYS Environmental Restoration Program (ERP) on this waterfront Brownfield site. The project involved the identification of the vertical and horizontal extent of contamination, surface soil sampling, borings, removal of underground storage tanks, PCB sampling, an RI/FS report and development of a Work Plan to address known impacted soils. Also prepared ERP grant application. The newly developed property after remediation will house residences, public boat docks, a riverwalk, a small inn, office space and a marina while creating new park areas and enhanced deep water port space along the St. Lawrence River.

STEVEN A. CAMPBELL, CHMM

Project Manager *...Continued*

XLI Corp, Brownfield Redevelopment, Rochester, NY
Mr. Campbell was Project Manager for a Brownfield redevelopment project for property located within the boundaries of a landfill listed on the NYS List of Inactive Hazardous Waste Disposal Sites. The project included: engineering design with site layout, storm water collection and conveyance along with storm water retention/detention facility; surveying services including base mapping; review of site specific environmental investigations; health and safety plan; and developing a plan for the removal and relocation of landfill materials present. Worked closely with the City of Rochester and the client to provide site development alternatives that satisfy the requirements of the City of Rochester's Brownfield Pilot Program.

REMEDIAL INVESTIGATION / FEASIBILITY STUDIES

Responsible for designing and implementing hazardous waste site preliminary assessments and remedial investigation/ feasibility studies. Has written investigation work plans, negotiated terms for Administrative Consent Orders, and worked as environmental scientist on field investigationa.

OGS Environmental Remediation 3 Year Term Contract, Statewide
Lu Engineers, as a subconsultant to Earth Tech, is providing professional engineering services for the NYS Office of General Services for a three year term contract for environmental remediation design and project management throughout New York State. Mr. Campbell is the Project Manager for the projects under this term contract. Services include, but are not limited to: 1) Oversight of petroleum tank removals and installations; 2) Remediation system designs; 3) DEC required reporting to include tank closure reports, spill investigations, remediation option and work plans, O&M reports and SPCC plans; 4) Installation oversight and operations and maintenance of mechanical, biological, and chemical remediation systems. Interaction and correspondence is required with OGS, DEC, tank owner staff and private contractors. The main objective of these services is to provide the State with cost effective environmental clean up and professional design/oversight of construction projects related to petroleum bulk storage.

Remediation at State Police Barracks, Warsaw, NY
Project Manager responsible for remediation work and providing recommendations for the property on the NYS Police Troop 2 Barracks on Buffalo Road in Warsaw, NY. Tasks included a utility stakeout, test excavations, excavation and staging of impacted soils, and oversight of removal and disposal of excavated soils. Impacted soils in those areas remain in place to avoid damage to the existing structure, and remedial alternatives were evaluated.

Medina Gas Station, Medina, NY
As Project Manager, provided oversight for this spill remediation at a gasoline station in Medina, NY.

Phase II ESA/Remediation, 71 and 80 N. Main Street, Fairport, NY
Project Manager for Phase II Environmental Site Assessments and remediation services at 71 and 80 North Main Street in Fairport, which was a former petroleum storage facility. The geophysical investigation determined whether underground storage tanks or other significant underground metallic features such as piping, hydraulic lifts and reservoirs were present at the site. Ten locations of subsurface soil sampling were conducted concurrently with the geophysical survey. Soils were screened for the presence of volatile and semi-volatile organic contaminants. A Remediation Work Plan was prepared (including a detailed design of a bio-venting system), installation of the system was completed, and oversight of the operation and maintenance of soil venting system was provided. Once soil concentrations reached acceptable NYSDEC levels, the system was decommissioned.

DPW Garage, Monroe County, NY
Project Manager for this remedial investigation and corrective measures project at a Town Department of Public Works (DPW) site. The DPW garage formerly housed three large underground storage tanks that were noted to be leaking upon their removal. Both soils and groundwater were impacted. A bio-sparging system was designed for the property and was reviewed and approved by the NYSDEC.

Trucking Headquarters/Maintenance Garage, Monroe County, NY
As Project Manager, designed and implemented investigation of an on-site fill area through the use of test pits; investigated former location of underground storage tanks; removal of asbestos from shop building and demolition of structure; investigation and closure of wastewater disposal systems, excavation of over 5,000 tons of contaminated soil, designed an on-site soil treatment system; investigation of groundwater quality and preparation of report. This facility now houses a medical services building.

Manufacturing Facility, Ontario County, NY
Project Manager for multi-phase site characterization (RI/FS) to determine the extent of soil and groundwater TCE contamination. The project was completed under an Administrative Consent Order negotiated between the client and the NYSDEC. Mr. Campbell developed a site specific Health & Safety and Remedial Investigation Work Plan approved by NYSDEC, reviewed TCE storage locations, performed soil gas surveys, and completed test borings, groundwater monitoring well installation/monitoring and residential well sampling. Mr. Campbell was also responsible for generating hydraulic conductivity and flow data from groundwater monitoring wells. Information from this project was used to identify a remedial alternative (soil vapor extraction) for the site.

STEVEN A. CAMPBELL, CHMM

Project Manager *...Continued*

SITE ASSESSMENTS AND ENVIRONMENTAL INVESTIGATIONS

Mr. Campbell has investigated and inspected properties ranging from low environmental concerns to major Superfund sites. He has performed hundreds of site assessments for banks, attorneys, realtors and private clients.

Town of Leyden, Phase I ESA & Brownfield Application, Leyden, NY
Project Manager for a Phase I Environmental Site Assessment for the Town of Leyden at a vacant former Mobil Service Station. Also assisted the Town with preparing a Brownfield application.

Phase I &II ESA, 192 & 204 Chestnut Ridge, Chili, NY
Project Manager for Phase I & II Environmental Site Assessments (ESA) for two parcels on Chestnut Ridge in Chili. Services included soil borings, floor drain sampling and groundwater sampling. The objective of the Phase II was to determine whether hazardous substances have been discharged to the floor drain in the former manufacturing area; whether soil and/or groundwater has been impacted by past applications of used oil onto the ground surface; whether storage of petroleum products in aboveground storage tanks (ASTs) throughout history has impacted soil and/or groundwater; and to determine the contents of the AST located north of the shop. We also provided oversight for the removal of an abandoned AST.

Globalsoft Environmental, Rochester, NY
Project Manager responsible for both Phase II Environmental Site Assessment and an expanded Phase II at the Globalsoft Environmental property in Rochester, NY. The objective of the expanded work was to delineate the area of impacted soil encountered during the previous subsurface investigation of the former tank excavation and hydraulic lift areas. We evaluated the discharge points of the floor drain to determine the source of contamination and continued delineation of contamination to the north and west of the impacted area. Drain testing of the garage floor drain was completed using a concentrated environmentally inert dye. Eight subsurface soil sampling points were completed. A report with document-tation, conclusions and recommendations was completed.

3-9 Trinidad Street, City of Rochester, NY
Project Manager for a Phase I / Phase II Environmental Site Assessment for the City of Rochester consisting of a 2 acre parcel containing a 6,000 square foot building and parking lot. The site had been previously used by an asphalt paving company, a coal company, a lumber yard and as a grocery store. The Phase I uncovered the presence of construction debris, drums, tires and other hazardous materials. The Phase II portion of the project included a geophysical survey, subsurface soil borings, asbestos survey, preliminary hazardous and non-hazardous waste evaluation with air monitoring, and report preparation with cost estimates for cleanup.

Pittsford Highway Garage, Oversight & Soil Sampling, Pittsford, NY
Project Manager for oversight during the removal of hydraulic lifts at the Town of Pittsford Highway Garage. Soil sampling was performed to confirm a clean closure. A report detailing the findings and recommendations was developed. We also collected soil samples to determine if the material is clean fill for potential off-site use. Representative samples were taken from throughout the pile and they were analyzed for volatile organic compounds, semi-volatile organic compounds and total RCRA metals.

Longway's Diner, Pamelia, NY
Project Manager for a Phase II Environmental Site Assessment in Pamelia, NY (near Watertown). Lu Engineers provided oversight of the borings completed by subcontractor, coordinated lab analysis, interpreted analytical results, and prepared a report on the findings. Due to the findings of the Phase II ESA, a Remediation Work Plan to address the petroleum contamination that was discovered on the site was written.

Transit Bus/DPW Storage & Maintenance Facility, Watertown, NY
Lu Engineers provided special inspection and structural testing services for the construction of three buildings at the City of Watertown Transit Bus/DPW Storage and Maintenance facility. The Transit Bus Garage and DPW Storage and Maintenance Facility Project involved the construction of an 8,000-square foot building north of Newell Street and an 18,000-square foot building south of Newell Street in the City of Watertown. Mr. Campbell provided oversight of the building of trenches (for installing new utility lines) and advised them on the removal of the petroleum contaminated soils.

Sugar Creek/Truck Stop, Rochester, NY
Project Manager responsible for an Environmental Site Assessment on a Sugar Creek/Truck Stop in Rochester, NY. There are several areas on the property (existing storage tank location and the oil water separator) where known releases have occurred from petroleum storage tanks. Analytical results from subsurface soils indicated petroleum hydrocarbons above NYSDEC Guidance Values. This project oversaw the completion a Phase II Environmental Site Assessment and the GeoProbe soil borings to determine the vertical and horizontal extent of petroleum contamination. A projected cost for cleanup was provided in the report.

Former Westinghouse Plant, Attica, NY
Project Manager for a Phase I Site Assessment and oversight during an EPA Targeted Brownfield Assessment project at the former Westinghouse plant in the Village of Attica, NY. The site contained a former landfill that was used by Westinghouse, a transformer rebuilding area that impacted soils with PCBs, numerous buildings requiring asbestos removal and demolition, and several underground petroleum storage tanks. Lu Engineers also prepared state and federal brownfield grant applications for this site.

STEVEN A. CAMPBELL, CHMM

Project Manager *...Continued*

Highway Garage, Town of Urbana, Hammondsport, NY
Project Manager responsible for a Phase II Environmental Site Assessment for the Town of Urbana on the old highway garage in Hammondsport, NY. Three soil borings were completed on site to determine whether previous site operations that utilized hazardous substances and/or petroleum had impacted soils or groundwater. Groundwater monitoring wells were installed within the three soil borings and sampling was performed.

Hometown Energy, Spill Investigation, Middleport, NY
Project Manager for a spill investigation for Hometown Energy for a site in Middleport, NY in 2002. A Phase II Site Assessment review was performed and NYSDEC was contacted seeking closure for spill files. A Remediation Work Plan for the soil and groundwater contamination was prepared. In 2005, we provided oversight of petroleum contaminated soil removal and sampling.

Regional Traffic Operations Center, Rochester, NY
Project Manager for the hazardous substance and remedial investigations, including abatement design, for the proposed facility located at the Greater Rochester International Airport. The $10 million facility was constructed on lands previously used, in part, as an electroplating facility and an above Major Oil Storage Facility. Work tasks include a geophysical survey to determine the location of buried features; soil-vapor surveys; completion of over 60 soil borings, installation of groundwater monitoring wells, sampling, recommendations for design abatement; development of construction abatement drawings; coordination with NYDEC; and environmental construction monitoring.

Investigation and Cleanup Under Stipulation Agreement, Livingston County, NY
Mr. Campbell was the project manager for a Phase I ESA that was completed to facilitate the development of a former automobile service facility and gasoline station in Conesus, New York. Phase I findings indicated the presence of four underground storage tanks and an on-site drywell that received waste oil. A Phase II Investigation was completed to determine potential impacts on site soils and groundwater. Mr. Campbell's project responsibilities included:

- Removal of four underground gasoline and diesel fuel tanks that were determined to be leaking.
- Closure of an on-site drywell.
- Delineation of the horizontal and vertical extent of subsurface petroleum migration.
- Evaluation of numerous remediation alternatives for removing semi-volatiles and volatile organic compounds from soils and groundwater.
- Preparation of a work plan approved by the NYSDEC for the on-site bio-remediation of 1,000 tons of petroleum contaminated soils.
- Operation and maintenance of the bio-cells.

After the work plan was approved and a stipulation agreement was negotiated, the bio-remediation system was designed and two large bio-piles were constructed on the property. The construction included the installation of double liners, a soil ventilation system, and soil nitrate enhancement. Over time the bio-piles were turned and additional nitrates were added to facilitate hydrocarbon breakdown. The piles were approved for closure by the NYSDEC and a no further action letter has been issued.

STORAGE TANK EVALUATIONS / REMOVALS

Mr. Campbell has an extensive knowledge of the underground storage tank (UST) operating, upgrade and closure requirements. While at EPA he provided editorial comments and guidance to the Office of Underground Storage Tanks on the UST regulations that became final in the fall of 1988. Hw also has extensive experience in the field, removing and evaluating tanks to determine environmental impacts.

Karenlee Drive, Henrietta, NY
Project Manager for an environmental site assessment and soil sampling for removal of three fuel oil tanks for the Town of Henrietta at the former wastewater treatment plant on Karenlee Drive. Provided oversight of the removal of tank contents, the disposal of contents, excavation of tanks and staging of contaminated soils. An Environmental Closure Assessment was prepared.

Oil Removal at Finger Lakes DDSO, Newark, NY
Project Manager for the removal of approximately 37,750 gallons of #6 fuel oil from two of four underground storage tanks (USTs) at the Finger Lakes Developmental Disabilities Service Office (DDSO) facility located Newark, New York. Following the oil removal, a subsurface investigation of existing soil and groundwater conditions in the area surrounding the USTs was performed. The subsurface investigation included 13 soil probe locations and installation of one temporary groundwater monitoring well. An evaluation of the soil around the tanks after all removal was completed.

935 West Broad Street Tank Removal, Rochester, NY
Project Engineer involved in the coordination and oversight of the removal of three underground gasoline storage tanks (USTs) from property on West Broad Street in the City of Rochester, NY. Lu Engineers provided oversight of all field activities including excavation, tank removal and purging/ cleaning, backfilling and site restoration. Two gasoline dispenser pumps and associated underground piping we also removed. Soil sampling was conducted in accordance with applicable NYSDEC protocols. A photoionization detector was used to screen soils and work area breathing zones for presence of volatile organic vapors.

Sully Library, Tank Removal, Rochester, NY
Project Engineer involved in oversight of the removal of a 2,000 gallon underground storage tank at the Sully Library in Rochester, NY. Oversaw all field activities including excavation, tank removal, purging/ cleaning and site restoration. A photoionization detector was used to screen soils and work area breathing zones for the presence of volatile organic vapors. A report was completed that provided all appropriate documentation to the City of Rochester.

ERIC R. DETWEILER

Lu Engineers

Geologist

-EDUCATION-

B.S., Geology, 1994
St. Lawrence University
Canton, New York

-CERTIFICATIONS & ASSOCIATIONS-

1994-2005 OSHA 40-Hour Health and Safety Training for Hazardous Waste Site Operations & Refresher Training
1994 OSHA Confined Space Entry Training
1998 IT Corporation Supervisory Training Class
2000 DOH 2832 Asbestos Building Inspector
2001 RMD SRF Manufacturers Training
New York State Council of Professional Geologists

-PROJECT EXPERIENCE-

Mr. Detweiler's experience includes a diverse range of geological and environmental engineering projects. Areas of specialization include site assessment, remedial investigation/site characterization, site remediation, and regulatory compliance. He has also provided asbestos and lead inspections, surveying services, and wetland delineations.

ENVIRONMENTAL REMEDIATION

Coordinate and conduct remediation projects. Technologies include vapor extraction, air injection, groundwater pump and treat, air stripping/sparging, various free product recovery methods, and bioremediation. Responsibilities include design and field implementation of systems for industry and NYSDEC.

Orchard-Whitney Brownfield Investigation, City of Rochester, NY
Lu Engineers is currently providing environmental services for the Orchard-Whitney Brownfield site for the City of Rochester under the NYSDEC Environmental Restoration Program. The goal of this project is to generate a NYSDEC approved Site Investigation/Remedial Alternatives Report (SI/RAR). Mr. Detweiler has performed sampling from the boiler stake to determine if there is hazardous waste.

Smith-Corona Site, Vapor Intrusion Study, Cortlandville, NY
Lu Engineers conducted site assistance to help complete a vapor intrusion study associated with the Smith-Corona NYSDEC IHWS located in Cortlandville, NY. Mr. Detweiler performed home inventories as part of this project.

Ludlow Landfill Site Assistance, Paris, NY
Provided field support with a landfill inspection at the NYSDEC site, Ludlow Landfill in Paris, New York in Oneida County. Mr. Detweiler was involved in groundwater sampling and landfill inspection.

Voluntary Cleanup Program Investigation, Ford site, Churchville, NY
Conducting an environmental subsurface investigation to identify the nature and extent of contamination for a Voluntary Cleanup Program at the Churchville Ford NYSDEC site. Developed an updated Work Plan which specified all investigation, sampling and testing methods to be used and will serve as a guide to personnel during completion of the field portions of this project. Field services have included storm water drainage system investigation, groundwater investigation, residential well survey, and a topographic survey. Installation of three new wells, sediment/soil sampling, and testing of all site wells has begun. Aquifer testing, groundwater modeling and development of a cleanup plan as well as on-going liaison with NYSDEC Division of Hazardous Waste Remediation will be performed. Once the investigation work has been completed and analytical results made available, a remedial alternatives report (RAR) will be developed and will include an analysis of available remedial strategies along with a recommendation for a remedial approach.

Davis Howland Site Operations & Maintenance, Rochester, NY
Provided oversight and supported the O&M subcontractor in the operations and maintenance and documentation associated with the continued remediation of the Davis Howland Oil Company Inactive Hazardous Waste Site in Rochester, NY. The remediation of the soil and groundwater included Air Sparging (AS) and Soil Vapor Extraction (SVE), groundwater pumping and treatment system and catalytic oxidation treatment (CatOX). Treated air was sampled, monitored and discharged in accordance with NYS guidelines. Contaminant levels were monitored and reported to NYSDEC and NYSDOH.

Former Frink America property, NYSDEC Voluntary Cleanup Work Plan, Clayton, NY
The former Frink America property in Clayton, New York underwent a Site Investigation under the NYSDEC Environmental Restoration Program. One goal of the project was to identify the vertical and horizontal extent of contamination located on site in order to establish an appropriate cleanup alternative for the property. As a result of the information from previous environmental investigations, discussions with NYSDEC Region 6 staff in Watertown, NY and client objectives, a two-phased approach was developed to satisfy NYSDEC Environmental Restoration Program requirements. Mr. Detweiler completed borings to delineate the horizontal extent of migration. During the borings, samples were taken for waste profiles to confirm the waste was non-hazardous. He took samples of the on-site cinders and black ash to determine appropriate disposal options. He installed three monitoring wells and eight test pits were dug. A report (RI/FS) identifying the vertical/horizontal extent of contaminant migration and evaluating appropriate remedial alternatives were completed.

ERIC R. DETWEILER

Geologist *...Continued*

Stuart-Olver-Holtz Site Inspection, Henrietta, NY
Provided inspection services for the demolition of a former metal finishing facility (Stuart-Olver-Holtz), which was an Inactive Hazardous Waste Site. Mr. Detweiler was on site for all contractor activities.

Voluntary Cleanup Program, Karenlee Drive, Henrietta, NY
Provided oversight of the installation of seven monitoring wells, the collection of subsurface soil samples during the well installation, the collection of water samples from the installed wells and the collection of surface soil samples. Also provided coordination between NYSDEC and Town of Henrietta for this former waste water treatment plant.

Parcel 1, Building 240, Rome Research Site, NY
Performed building inspection and sampling to identify two areas of concern on Parcel 1 at Building 240 that needed to be brought into compliance with applicable regulations.

Rte 104, N. Greece Road to the Veteran's Memorial Bridge, City of Rochester & Town of Greece, NY
Performed four hazardous materials building inspections on West Ridge Road in an attempt to identify any past or current concerns associated with hazardous materials (i.e. tanks, chemicals, contamination) at each building location prior to NYS acquiring these properties to reconstruct Route 104. Also helped write the latest version of the DSI (Detailed Site Investigation) Report (Hazardous Materials Assessment) to summarize our findings.

Route 17 Conversion to I-86, Exit 87 to Sullivan County Line, NY
Collected EDR Hazardous Reports for a section of Route 17 (Exit 86 to Sullivan County Line) to gather hazardous data and spill search for that stretch of Route 17. EDR Reports are database searches for all types of hazardous waste and/or spills in area.

Sweden-Chapman Landfill, Sweden, NY
As field geologist, provided assistance with drilling oversight, well development, sampling and testing, and general field assistance for penetration of the existing landfill synthetic cover for well installations.

Hometown Energy, Middleport, NY
Provided a spill investigation for Hometown Energy for a site in Middleport, NY in 2002. Performed a Phase II Site Assessment and provided oversight of contaminated soil removal and sampling for a spill investigation. Also assisted with preparation of Remedial Work Plan. In 2005, Mr. Detweiler provided oversight of petroleum contaminated soil removal and sampling.

Specialized Printed Forms, Caledonia, NY
Collected water samples from newly installed wells that were part of environmental remediation services for the soil and groundwater contamination in the area where a waste oil tank was previously located.

SUBSURFACE INVESTIGATION

Conduct subsurface investigations for a variety of private and public clients. Projects involve contractor oversight duties, work plan development, on-site drilling excavation supervision, sample classification, sampling coordination, and preparation of reports. Additional responsibilities include aquifer testing, monitoring, and preparing site status reports for NYSDEC and other regulatory entities.

Seneca Foods, Newark, NY
Conducted field work for a Phase II Environmental Site Assessment at the Seneca Foods property in Newark, NY. The site investigation included four soil borings for subsurface soil sampling and one mini-well installation for groundwater quality monitoring and sampling.

Mumford Fire Hall, Mumford, NY
Lu Engineers provided emergency tank removal and soils removal consulting for the Mumford Fire Hall in Mumford, NY. Mr. Detweiler was involved in project coordination, sample collection, excavation oversight, and analytical findings.

Rome Research Site, Griffiss Air Force Base, Rome, NY
As Project Geologist, responsibilities include conducting an on-going Environmental Baseline Survey of numerous buildings and parcels, including project design, subsurface investigation, building inspections, sampling of various matrices, aerial photo review, and generation of Work Plans and Final Reports.

Oil Removal at Finger Lakes DDSO, Newark, NY
Lu Engineers provided oversight for the removal of approximately 37,750 gallons of #6 fuel oil from two of four underground storage tanks (USTs) at the Finger Lakes Developmental Disabilities Service Office (DDSO) facility located at 703 East Maple Avenue in Newark, NY. Following the oil removal, Mr. Detweiler performed a subsurface investigation of existing soil and groundwater conditions in the area surrounding the USTs and Power House building. The subsurface investigation included 13 soil probe locations and installation of one temporary groundwater monitoring well. He also evaluated the soil around the tanks after all removal was completed.

Pittsford Highway Garage, Pittsford, NY
Collected soil samples at the Town of Pittsford Highway Garage to determine if the material is clean fill for potential off-site use. Representative samples were taken from throughout the pile and were analyzed for volatile organic compounds, semi-volatile organic compounds and total RCRA metals.

South Yards Industrial Park Expansion, Hornellsville, Steuben County, NY
Conducted Phase II Environmental Assessment, including tests pits and sampling, for the South Yards Industrial Park Expansion project in the Town of Hornellsville, NY.

ERIC R. DETWEILER

Geologist *...Continued*

Penn Can Asphalt Materials, Tank 61, Lyons, NY
Lu Engineers provided engineering services to Penn Can Asphalt Materials for construction of Tank 61 at Lyons facility. Mr. Detweiler provided oversight for the decommissioning of two monitoring wells where tank now sits.

Hidden Valley Electronics Site, Soil Vapor Extraction System, Vestal, NY
Lu Engineers provided design/build environmental remediation services at the former Hidden Valley Electronics in Vestal, NY, a NYSDEC Inactive Hazardous Waste Site, now occupied by American Family Fitness Center. The property consists of a 13,215 square foot manufacturing building and a paved/gravel parking lot. Mr. Detweiler installed a sub-slab ventilation/soil vapor extraction system at the referenced site to draw contaminated soil vapor from beneath the slab-on-grade floor of the main site building. During installation of the vacuum wells, a groundwater sample was obtained using the Geoprobe "PRT System". Four monitoring wells and four temporary vacuum monitoring points were installed to verify radial vacuum influence. The SVE system was installed at rear of building with vent piping connected to interior draw points. Floor penetrations were checked with a Dwyer Inc. manometer.

River Road 100 acres, Tonawanda, NY
Lu Engineers provided environmental engineering services for 100 acres on River Road in Tonawanda, NY. The Phase I and II Environmental Site Assessments were performed concurrently to expedite the process. Mr. Detweiler provided oversight of drilling activities of twenty soil borings which were required to establish subsurface conditions and evaluate the geotechnical characteristics of site soils.

70 & 81 N. Main St., Fairport, NY
Provided Phase II and environmental remediation services for property on Main Street which was a former petroleum storage facility in Fairport, NY. A Remediation Work Plan was prepared, installation of a SVE system was completed, and oversight of the operation and maintenance of soil venting system was provided by Mr. Detweiler. Once soil concentrations reached acceptable NYSDEC levels, the system was decommissioned.

USACE Immediate Response Project, Northeastern Industrial Park, Albany, NY
As project coordinator, Mr. Detweiler was responsible for all mobilization activities, test pit installations, soil classifications, soil sampling, as well as the coordination and oversight of transportation and disposal activities and submittal of the final report.

Bus Facility Subsurface Investigation, Rochester, NY
Conducted a subsurface investigation of PBS facilities in Service Building area of R-GRTA's Main Street bus facility. It was necessary to characterize soil type, the horizontal and vertical extent of soil and groundwater contamination, and the type and chemical characteristics of the spill. Activities were scheduled in close coordination with RTS personnel in order to prevent unnecessary interference with routine activities such as bus maintenance and placement.

Route 252 (Jefferson Road), Henrietta, Brighton and Chili, Monroe County, NY
Installed GeoProbe borings for Ballantyne Bridge replacement. Borings were installed in an effort to determine whether or not any soil contamination was present at former gas station and at boat launch location prior to roadwork.

Route I-490 from the Erie Canal to the Genesee River and Bridges, Rochester, NY
Provided oversight during soil boring program for Troup-Howell Bridge replacement, I-490 reconstruction. Oversaw GeoProbe boring installations, sampled soil analyzed, oversaw geophysical survey. Also provided drilling (geoprobing) oversight for earlier phases of boring installations along I-490 (at Valeo, near Inner Loop). All boring activities were developed in an attempt to identify potentially hazardous/contaminated soils prior to construction.

Sugar Creek Store, Rochester, NY
Performed a Phase II Environmental Site Assessment at a Sugar Creek store in Rochester, NY with several areas on the property where known releases had occurred from petroleum storage tanks. Mr. Detweiler's investigation included using GeoProbe borings and soil sampling so that the subsurface conditions could be evaluated to determine the presence of petroleum hydrocarbons and to define the vertical and horizontal extent of impact of any identified material. He also installed a SVE system and completed remediation of subsurface volatile organic contamination.

Regional Traffic Operations Center, Rochester, NY
Project Geologist for the facility located at the Greater Rochester International Airport. As on-site geologist, tasks consisted of the monitoring of cleanup activities, the collection of samples, air monitoring, as well as oversight of the construction of a remedial bio-cell. Mr. Detweiler was the Chief Health and Safety Officer at the site during construction.

NYSDEC LeHigh Valley Railroad Spill Site. Rochester, NY
As Project Geologist/Health & Safety Officer, responsibilities included installation of open bedrock extraction wells, vapor extraction pilot studies, Geoprobe and conventional drill rig and rock coring activities. As the project coordinator, he was also responsible for soil and rock classification and logging, bedrock and soil sampling, test boring locations and map generation.

LAURA M. SMITH

Environmental Specialist

Lu Engineers

-EDUCATION-

B.S., Environmental Management Technology, 2005
Rochester Institute of Technology, Rochester, NY GPA: 4.0

-REGISTRATION-

OSHA 40-hour Health and Safety Training for Hazardous Waste Site Operations Certification
OSHA Confined Space Entry Training
ISO 14001 Internal Auditor Certification
Attended OSHA 501 Trainer's Course

-PROJECTS-

Ms. Smith has worked on a variety of projects in her career including environmental site assessments, site investigations, environmental compliance and management systems, pollution prevention, and remediation project monitoring. Ms. Smith has performed the following projects:

BROWNFIELD

Former Frink America Site, Clayton, NY
Lu Engineers obtained a NYSDEC Environmental Restoration Program grant for investigation and remediation activities at the Former Frink America property, on behalf of the Clayton Local Development Corporation. Ms. Smith created a Quality Assurance Project Plan (QAPP), Citizen Participation Plan (CPP), and assisted with preparation of the Remedial Investigation Work Plan, RI Report, and Interim Remedial Measures Work Plan for approval by the NYSDEC. Also conducted sub-slab vapor sampling and indoor air sampling for the NYSDOH.

Town of Leyden, Phase I ESA & Brownfield Application, Leyden, NY
Ms. Smith performed a Phase I Environmental Site Assessment for the Town of Leyden at a vacant former Mobil Service Station. She also assisted the Town by preparing an application for the Environmental Restoration Program.

REMEDIATION

Diamond Cleaners Site, Elmira, NY
Provided environmental assistance with a Remedial Investigation/ Feasibility Study (RI/FS) at Diamond Cleaners and four other dry cleaner sites for a NYSDEC project in Elmira, NY. Ms. Smith assisted with indoor air and sub-slab vapor sampling at the Diamond Cleaners site, soil borings, groundwater well and piezometer installation and sampling, and soil vapor sampling.

Hidden Valley Electronics Site, Vestal, NY
Assisted with installation of a sub-slab vapor extraction system at the former Hidden Valley Electronics, a NYSDEC Inactive Hazardous Waste Site, now occupied by American Family Fitness Center. Ms. Smith conducts continuing operations and maintenance activities to optimize system performance.

Oil Removal at Finger Lakes DDSO, Newark, NY
Lu Engineers provided oversight for the removal of approx. 37,750 gallons of #6 fuel oil from two of the four underground storage tanks at the Finger Lakes Developmental Disabilities Office (DDSO) facility located in Newark, NY. Following the oil removal, Lu Engineers performed a subsurface investigation of existing soil and groundwater conditions in the area of the USTs. Ms. Smith assisted with the subsurface investigation and oil removal report. She also assisted with a pre-demolition asbestos survey for the tanks and associated piping.

Rochester-Genesee Regional Transportation Authority, Rochester, NY
Assisted with subsurface investigation and remediation at the R-GRTA facility. Designed and installed a petroleum product recovery well pump system as part of interim remedial activities. Also assisted with monitoring well development and preparation of the project report.

Regional Traffic Operations Center, Rochester, NY
Lu Engineers provided engineering services for the remediation of petroleum contaminated soils as part of the RTOC project at the Greater Rochester International Airport. Ms. Smith prepared a Summary of Site Investigation and Remedial Actions/ Risk Assessment Report to gain petroleum spill site inactivation status for the former Webaco Oil parcel on Scottsville Road.

Phase II/Remediation, 70 & 81 N. Main St., Fairport, NY
Lu Engineers provided Phase II and environmental remediation services for property on Main Street which was a former petroleum storage facility in Fairport, NY. Ms. Smith provided oversight of the tank removal.

Davis Howland Site, Rochester, NY
Conducted indoor air and sub-slab vapor sampling in residences surrounding the former Davis Howland Oil Company site. Also performed a vacuum survey to assess effectiveness of the soil vapor extraction system in-place. Performs on-going operations and maintenance for remedial systems.

Former Smith-Corona Site, Cortland, NY
Provided assistance with indoor air and sub-slab vapor surveys and sampling for a large number of residences located near the former Smith-Corona site in Cortland, NY.

Preferred Electric Motors site, Rochester, NY
Lu Engineers provided assistance with Remedial Investigation/ Feasibility Study at the Preferred Electric Motors (PEM) NYSDEC Inactive Hazardous Waste Site on Fernwood Avenue. Ms. Smith prepared the site-specific Health and Safety Plan and conducted indoor ambient air and sub-slab vapor sampling in residences surrounding the site.

Rush Landfill, Rush, NY
Provides project oversight of pumping and discharge of the leachate collection system, as well as landfill inspection. Prepared a Health and Safety Plan for the project in 2005.

LAURA M. SMITH

Environmental Specialist *...Continued*

ENVIRONMENTAL SITE ASSESSMENTS

192 & 204 Chestnut Ridge, Phase I & II ESA, Chili, NY
Ms. Smith performed a Phase I and Phase II Environmental Site Assessment (ESA) for two parcels, including a former metal shop, on Chestnut Ridge in Chili. The Phase II work was based upon the findings of the Phase I ESA. Services included soil borings, floor drain sampling, and groundwater sampling. The objective of the Phase II was to determine whether hazardous substances have been discharged to the floor drain in the former manufacturing area; whether soil and/or groundwater has been impacted by past applications of used oil onto the ground surface; whether storage of petroleum products in aboveground storage tanks (ASTs) throughout history has impacted soil and/or groundwater; and to determine the contents of the AST located north of the shop.

Schlegel Road Culvert Replacement, Webster, NY
Lu Engineers is providing design services for replacement of a box culvert on Schlegel Road in Webster for Monroe County Department of Transportation. During preliminary design phase, Ms. Smith assisted with the Hazardous Waste/ Contaminated Materials Assessment to identify environmental concerns in the project area.

Canastota Central School District, Phase I & II ESA, Canastota, NY
Ms. Smith performed a Phase I Environmental Site Assessment on three vacant parcels for the Canastota Central School District in Canastota, NY. The project was expanded to include a Phase II Environmental Site Assessment including soil borings and groundwater sampling.

Binghamton Government Center Parking Garage, Binghamton, NY
Ms. Smith conducted a Phase I Non-ASTM Hazardous Materials Assessment for a large, three floor underground parking garage to identify hazardous materials for further analysis as part of a rehabilitation project.

I-490 from Erie Canal to Exchange Blvd., Rochester, NY
Ms. Smith prepared a Hazardous Waste/Contaminated Materials Assessment update and a Phase II Detailed Site Investigation (DSI) of the NYSDOT I-490 project corridor from the Erie Canal to Exchange Blvd. under Contract 4 of the project. The DSI work included soil borings, well installations, and groundwater sampling.

Route 76, Town of Ripley, Chautaugua County, NY
Prepared a Contaminated Materials Assessment of the NYSDOT project corridor for the Ripley grade separation project, which included ten railroad crossings. Ms. Smith also assisted with preparation of a NEPA checklist for the project.

Seneca Foods, Phase II ESA, Newark , NY
Performed a Phase II Environmental Site Assessment including installation of soil borings, subsurface soil sampling, and installation and sampling of a temporary groundwater mini-well at the former Seneca Foods property in Newark, NY. Ms. Smith then prepared the Phase II report with conclusions and recommendations.

Renaissance Square, Rochester, NY
Assisted in preparation of a Phase I Environmental Site Assessment for the Renaissance Square Project in downtown Rochester. The project will impact sixteen structures and one surface parking lot.

Town Hall Building, Hammondsport, NY
Completed a Phase II Environmental Site Assessment at 41 Lake Street in Hammondsport, NY. Phase II activities included subsurface soil sampling, surface soil sampling for wood preservatives in playground areas, a building assessment and sampling for the presence of mold and radon.

Globalsoft Environmental, Rochester, NY
Lu Engineers performed a Phase II Environmental Site Assessment at the Globalsoft Environmental property on Mt. Read Blvd. Ms. Smith conducted a geophysical survey as well as drain testing using concentrated environmentally inert dye and smoke to evaluate floor drain discharge points.

Trinidad Street, City of Rochester, NY
Performed a Phase I & II Environmental Site Assessment (ESA) for the City of Rochester on a former grocery store with at least one tank. Ms. Smith performed the Phase I ESA, geophysical survey, assisted with an asbestos survey, and oversight of test pits.

Northeast Trail, City of Rochester, NY
Performed a Phase I Environmental Site Assessment for the City of Rochester on a 2.4-mile rail bed, purchased by the City, to be converted into a trail.

Hickey Freeman, Rochester, NY
Performed a Phase I Environmental Site Assessment on the historic Hickey Freeman property in Rochester, NY.

River Road, 100 acres, Tonawanda, NY
Lu Engineers provided environmental engineering services for 100 acres on River Road in Tonawanda, NY. An Environmental Assessment Form (EAF) was prepared to address environmental issues for proposed development of commercial business. Ms. Smith assisted in the preparation of a Long EAF and a wildlife impact assessment for review by the Town of Tonawanda. Ms. Smith also assisted with traffic analysis.

2005: Watertown International Airport, Watertown, Jefferson County, NY
Ms. Smith conducted a site inspection and performed historical research for a Phase I Environmental Site Assessment at the Watertown International Airport.

LAURA M. SMITH

Environmental Specialist *...Continued*

Other Phase I Environmental Site Assessments:

- 77 Main St., Brockport, NY
- Hudson Ave., Rochester, NY
- Wyoming County IDA, Route 98 North, Arcade, NY
- Hillyard, Rawson Road, Victor, NY
- Ultrafab, Hopewell, NY
- Middle Road, Henrietta, NY
- Route 21 N., Hopewell, NY
- Mason Road, Fairport, NY
- 4 Lake Avenue, Rochester, NY
- Former K-Mart, Henrietta, NY

COMPLIANCE & ENVIRONMENTAL MANAGEMENT

Apex Oil, Glenmont, NY
Provided engineering assistance with preparation of a CBS Spill Prevention Report and a NYSDEC Air Permit Application for the Glenmont, NY MOSF. Reviewed emissions information, performed calculations, and documentation for facility air permit application. Also addressed NYSDEC comments and questions.

MKS ENI Technology, Rochester, NY
Updated environmental management plan as part of ISO 14001 registration process. Created compliance plans and documentation for hazardous waste, EPCRA, OSHA evacuation plans, emergency action plan, and hazard communication. Ms. Smith also completed a TRI report for the facility.

Supreme Energy, Cold Springs, NY
Provided assistance with updating the Facility Response Plan and SPCC Plan for Supreme Energy Corporation at their Cold Springs MOSF terminal.

Apex Oil, Lyell Ave., Rochester, NY
Lu Engineers is providing on-going environmental engineering assistance to Apex Oil for the MOSF on Lyell Avenue. Ms. Smith assisted with development of a Facility Response Plan and SPCC Plan. Also created a Spill Prevention Report for CBS requirements.

United Refining, Rochester, NY
Assisted with a Secondary Containment Evaluation for United Refining at their Chili Avenue MOSF terminal in Rochester, NY.

AIR MONITORING / MOLD

Meat Processing Center, New York State
Assists with completing Indoor Air Quality evaluations and bacteria testing at a major meat processing site in New York State. The presence of organic growth (fungi, molds, mildew, etc.) and microscopic bacteria are evaluated. The sampling plans recommend sampling locations, analysis types and methods. Considerations for sampling are based on worker health and safety and protection of product quality. Both airborne and surficial samples are taken. Written reports with the findings are prepared. In 2006 the client requested that we resample and compare results on a quarterly basis.

City Hall, City of Rochester, NY
Performed indoor air mold sampling in the Mayor's Office and surrounding rooms in response to odor complaints. Conducted a moisture evaluation of building materials using a handheld moisture meter and a Videoscope to obtain images from behind walls with minimal disturbance of dry wall. Wrote an Indoor Air Assessment report including recommendations for eliminating moisture sources and odors.

West Avenue Facility, City of Rochester, NY
Ms. Smith performed an indoor air quality assessment and air monitoring for the City of Rochester at the temporary Water and Lighting Facility on West Avenue. Sampling included molds, particulates, and total metals. In 2006, conducted subsequent personal air monitoring on four employees to evaluate metals exposure for comparison to OSHA standards. Additional mold sampling was conducted in 2006 with abatement recommenddations developed for the City of Rochester.

Street Maintenance Operations, City of Rochester, NY
Ms. Smith provided air testing for the City of Rochester to evaluate Permissible Exposure Limits (PELs) for employees that heat asphalt.

GEOGRAPIC INFORMATION SYSTEMS (GIS)

Wayne County Traffic Sign Inventory and Evaluation, NY
Located, evaluated, and inventoried traffic signs along Wayne County highways. Data was collected with handheld GPS units and uploaded into a GIS sign database, which can be shared with other County GIS information.

Appendix E – Estimated Project Schedule

Appendix F – Citizen Participation Plan

CITIZEN PARTICIPATION PLAN

Remedial Investigation

City of Rochester
Environmental Restoration Project
415 Orchard Street and 354 Whitney Street
Monroe County, New York

Prepared For:

City of Rochester
Department of Environmental Services
Division of Environmental Quality
30 Church Street
Rochester, New York 14614-1278

Prepared By:

Lu Engineers
2230 Penfield Road
Penfield, New York 14526

AUGUST 2006

Lu Project No. 4216

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APPENDIX

1.0 Introduction

The adjoining properties located at 415 Orchard Street and 354 Whitney Street in the City of Rochester together, are considered a single Brownfield site. Brownfields are abandoned, idled, or under-used properties where expansion or redevelopment is complicated by real or perceived environmental contamination. Brownfield sites are typically former industrial or commercial properties where past activities may have resulted in the presence of environmental contamination. Such sites often pose environmental, legal and financial burdens on communities and may represent a risk to public health and safety.

The City of Rochester provides several opportunities for citizen involvement during the investigation and cleanup of Brownfield sites. A Citizen Participation Plan (CPP) provides interested citizens with an overview of public involvement opportunities during the investigation and possible cleanup of a Brownfield site. The CPP also provides:

- Information about the site's history, planned site investigations and/or cleanup activities
- A description of planned CPP activities and a tentative schedule of when they will occur
- A glossary of terms and acronyms you may encounter while learning about the site
- A list of project contacts knowledgeable about the project.

The CPP also aids municipal officials in evaluating public involvement activities to ensure they fulfill NYSDEC's requirements for citizen participation. The CPP is developed by the applicant conducting the investigation or remediation, in consultation with the NYSDEC. The CPP is considered a "living document" and is periodically updated to include new fact sheets, additions to the mailing list, and any changes in planned citizen involvement activities.

The objective of this CPP is to encourage communication among all parties involved or affected by contaminant investigation and cleanup activities at the Orchard/Whitney site in Rochester, New York. A major goal of citizen participation is to provide opportunities for gathering public knowledge and input needed to make informed decisions about remedial actions. This will help to create a site restoration plan with strong support from local residents and community groups.

This CPP provides information regarding site history and background, project objectives, opportunities for public participation, contacts, and availability of documents. It has been prepared in accordance with ECL 27-1417 and the NYSDEC *Draft* Brownfields Cleanup Program Guide.

2.0 Site Background

The site has been used for various commercial and industrial uses since the early 1900s. From 1915 to 1922 the North East Electric Company operated on the site. General Motors occupied the site from 1930 to 1967. Industrial activities including the production of electrical equipment, heat treating, plating, coal storage, boiler operations, petroleum fuel storage and industrial wastewater treatment were performed on the site.

After General Motors closed operations, other industrial operations took place at the site including, metal finishing, synthetic foam production, printing, plastics manufacturing and warehousing. These operations took place at the site until the early 1990s. The current site owners have been non-responsive, and although the City has offered the parcels at tax delinquent auctions, no viable developers have shown interest.

Since 2000, the site has undergone a series of environmental investigations. These investigations include:

- December 2000: Phase I Environmental Site Assessment; 354 Whitney Street, 415 Orchard Street, and surrounding properties at 367, 370, and 406 Orchard Street
- August 2003: Pre-demolition Asbestos Inspection of 354 Whitney Street Building 1A
- August 2003: Pre-demolition Asbestos Inspection of 354 Whitney Street Building 2/2A/Brick Mill
- 2005: Phase II Site Investigation completed by NYSDEC on the 354 Whitney Street parcel as part of a USEPA Targeted Brownfield Assessment.

The environmental site assessment performed in 2000 identified a number of environmental concerns including:

- Past use of the facility for industrial and manufacturing purposes
- The presence of aboveground and underground storage tanks and associated piping
- Suspect asbestos containing materials (ACM)
- Former coal storage piles and visible leachate
- Floor drains
- Containers with unknown contents
- Suspect PCB containing equipment
- Stained flooring
- A potential on-site wastewater treatment system
- Petroleum and several hazardous substances above NYSDEC groundwater quality standards in on-site groundwater monitoring wells (installation date, construction details unknown).

Based on their findings, Day Environmental recommended additional investigation to further characterize the site. Additional work completed includes:

Asbestos Pre-demolition Surveys 2003
The asbestos pre-demolition surveys completed on the Whitney Street site will be sufficient to proceed to building demolition on that parcel. A pre-demolition survey for the Orchard Street site will be completed as part of this project and is discussed in more detail later in this plan.

NYSDEC Investigation, 2005
The NYSDEC completed an environmental investigation on the Whitney Street parcel under the USEPA Targeted Brownfield Assessment Program. According to Mr. Todd Caffoe of the NYSDEC, the data from this investigation is not yet available in written form. Mr. Caffoe did tell Lu Engineers that surface soil sampling results indicated trace amounts of PCBs and groundwater sample results did not show significant amounts of hazardous substances or petroleum. Mr. Caffoe suggested that an additional round of groundwater sampling be incorporated into this investigation for wells installed by the NYSDEC.

3.0 Project Description

3.1 Technical Objectives

The goal of this investigation is to delineate the nature and extent of contamination at the site and use the information to develop appropriate remediation technologies for the site. Specific project objectives include:

- Characterization and quantification of sources of contamination which may impact on and off-site properties.
- Identification of potential routes of exposure and the populations and environmental receptors potentially at risk.
- Characterization of the site hydrogeology.
- Characterization of surface water hydrology and identification of surface water classifications, existing use designations and private wells in the area.
- Completion of an exposure assessment to describe the extent to which the property's contaminants pose an unacceptable risk to the air, land, water, and/or public health.
- Completion of a pre-demolition asbestos survey on the 415 Orchard Street parcel.
- Completion of a full hazardous materials inventory for the property and provide cost estimates for appropriate disposal.
- Produce a NYSDEC approved SI/RAR for use in remedy selection.

To ensure that suitable and verifiable data results are obtained from the information collected at the site, quality assurance procedures are detailed in a site specific Quality Assurance Project Plan (QAPP). The QAPP further details the activities in the Work Plan and how they are designed to achieve data quality objectives.

3.2 Hazardous Materials Inventory (Waste Characterization)

Lu Engineers will conduct research regarding past uses of hazardous materials on the site and a room by room inventory in all buildings to identify the type and quantity of suspected hazardous materials. The inspection will include fluorescent light ballasts, electrical/mechanical equipment and other items previously specified by the City. Lu Engineers will also sample and measure the existing tanks with a dipstick and water paste to determine volume and type of any liquid contents present in the tanks.

3.3 PCB Assessment

A total of approximately 27 samples will be obtained for PCB analysis for this project. PCB sampling will consist of collecting liquid samples from transformers, electrical equipment, elevators, etc. Sediment samples and liquid samples will be collected from the flood water area below the engine room. Either wipe samples or concrete chip samples will be collected from areas of concrete with obvious staining. The decision on which method to use will be at the discretion of the field team leader and recommendations of the City.

3.4 Asbestos-Related Work

A pre-demolition survey will be conducted on the property at 415 Orchard Street to identify and quantify materials and debris to be considered a suspect asbestos containing material. The survey will identify homogeneous areas for asbestos sampling. Lu Engineers will collect bulk samples of all suspect Asbestos Containing Materials (ACMs) identified during the pre-demolition survey. Sampling will be performed in accordance with AHERA regulations, 40 CFR Part 763.86 and 763.87 and NYS Code Rule 56-5.1. It is assumed that a total of two hundred (200) samples will be collected and analyzed. Asbestos bulk sampling will be conducted by a NYSDOL certified Asbestos Inspector.

A preliminary pre-demolition asbestos abatement cost estimate for the structure(s) on 415 Orchard Street will be provided along with the survey report. The survey report will include all survey findings including the location and extent of asbestos containing materials within the subject property.

Lu Engineers' asbestos-related activities relative to 354 Whitney Street will include a review of available asbestos investigations and record plans for the site. A preliminary pre-demolition asbestos abatement cost estimate for the structures on 354 Whitney Street will also be provided.

3.5 Lead Risk Assessment

An EPA certified Lead Risk Assessor will conduct a limited lead inspection concurrently with the asbestos pre-demolition survey of both 415 Orchard Street and 354 Whitney Street. Paint chip samples of representative homogenous components, damaged or intact, shall be sampled for total lead content. Lead wipe samples will be collected in a few representative rooms containing damaged paint and dust at the discretion of the certified risk assessor. It is assumed that thirty (30) paint or dust wipe samples will be collected and analyzed. A limited lead inspection report for this property will be developed.

3.6 Demolition Inspection and Sampling

While the demolition process is underway, Lu Engineers will be on site for inspection with respect to potential discovery of information relating to subsurface environmental conditions. Particular attention will be paid to the closure and removal of the site hydraulic systems, drainage features and foundation slab.

A minimum of five (5) soil samples will be collected from under the existing building slabs during their removal. The on-site representative from Lu Engineers will have the discretion

(with City authorization) to take additional samples as necessary to more completely assess any potential environmental concerns that may be found during the demolition.

3.7 Subsurface Investigation

3.7.1 Test Trenches

After the buildings are removed on the Whitney Street site and a UFPO utilities stake out has been completed, Lu Engineers will complete a test trench investigation to further evaluate subsurface conditions across the site. Test trenches will be completed at the site to evaluate the nature and extent of the contamination associated with identified areas of concern. These areas include the location of known former petroleum or chemical storage and handling, locations of reported surface spills or staining, floor drains, sumps, trench drains and areas containing electrical equipment and hydraulic lifts.

Trenches will be excavated using a conventional backhoe or excavator with the capability to reach bedrock, approximately 10 to 15 feet below ground surface. Trench depth will vary depending on location intent and characteristics observed, with some completed to bedrock. Excavated material will be returned to the appropriate trench after field screening and sampling is complete.

Suspect areas that have been identified as possible sources of contamination will be addressed with the test trenches as follows:

- Former boiler room equipment
- Above and below ground petroleum storage tanks
- In-ground hydraulic lifts
- Floor and trench drains
- Unknown pipes
- Former electrical equipment
- Possible wastewater treatment system

Soil samples will be collected from each trench and field screened. Visual observations, characterization of subsurface materials, and field measurements of volatile organic compounds (VOCs) for initial determinations of contamination will be recorded. Headspace screening will be performed using a portable PID meter.

One discreet sample from each test trench will be submitted for analysis, for a total of 13 samples. The sample exhibiting the highest apparent evidence of contamination from each test trench, based on field screening, will be submitted for laboratory analysis. The NYSDEC will be given the opportunity to review and approve submitted samples.

3.7.2 Monitoring Well Installation

Monitoring wells will be located in areas of known former petroleum or chemical storage and handling, locations of reported surface spills or staining, floor drains, sumps or trench drains, areas containing electrical equipment or hydraulic lifts, and areas of concern identified or incompletely characterized during trenching or building demolition.

The installation of fifteen (15) groundwater monitoring wells has been proposed for the investigation at this site. Twelve (12) of these borings will be completed on site and an estimated three (3) additional wells will be located at hydraulically up- and down-gradient locations.

Each boring will be advanced using hollow-stem augers. Continuous split spoon samples will be collected at each boring and logged by a geologist using the Unified Soil Classification System. Field headspace measurements of volatile organic compounds from soil split-spoon samples will be performed using a portable PID meter. A single representative soil sample from each boring (15 total) will be obtained for appropriate laboratory analysis.

Based on known bedrock depths in the immediate vicinity of the site, the depth to bedrock is estimated to range from 10 to 15 feet below ground surface. Upon reaching competent bedrock, the borehole will be advanced using rotary techniques and coring. Rock cores will be obtained from four well bores to assist in the development of an accurate picture of site-wide near surface bedrock hydrogeology. All borings will be advanced ten feet into bedrock where groundwater monitoring wells will be installed.

All groundwater monitoring wells will be constructed using Schedule 40 polyvinyl chloride (PVC) machine-slotted screen (0.010-inch slot) installed from the bottom of the boring up to 5 feet above the top of the water table. The wells will be completed flush to grade and fitted with locking, protective steel casings set in concrete drainage pads.

Drill cuttings and water generated during drilling will be handled in accordance will all applicable protocols. The City will be responsible for proper staging and disposal of all investigation-derived wastes. Final disposal of soils and water will also be dependent on the results of the soil and groundwater analyses to be conducted during this investigation.

The drill rig and associated tooling will be decontaminated using steam-cleaning methods at a designated location. All decontamination residues will be transferred into drums or a site holding tank for appropriate staging and disposal.

After construction of each well is complete, the well will be developed until pH, specific conductivity and temperature have stabilized and turbidity of the discharge is 50 nephelometric turbidity units (NTU) or less. All field instrument measurement made during development will be recorded. The wells will initially be surged in order to draw sediments out of the sand pack and into the well for removal. If significant effort does not attain the proposed goal of 50 NTU, the well will be considered as developed if all other parameters have stabilized. Development will occur no sooner than 48 hours after well installation. Development wastewater will also be stored in drums or a site holding tank.

3.7.3 Groundwater Sampling

Prior to sampling, the water level at each well will be measured with reference to the casing elevation and recorded. The static volume of water will be determined for each location. At a minimum, three volumes will be purged from each well.

The wells will be sampled and analyzed for semivolatiles, TCL volatiles and MTBE, PCBs, and TAL Metals following ASP 2000 (CLP) methods. If turbidity is greater than 50 NTU, low flow sampling methods will be utilized to sample the wells for heavy metals. All monitoring wells will be checked for the presence of free phase light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL). Once obtained, all samples will be immediately labeled and placed on ice in a cooler in preparation for delivery to the contract laboratory.

A total of three (3) complete groundwater sampling events will be performed throughout the site investigation in order to determine the local groundwater hydraulic gradient, to establish baseline groundwater parameters, and to define the horizontal and vertical extent of groundwater contamination at the site. The NYSDEC wells installed on the Whitney Street parcel will be included in this sampling. The exact number of NYSDEC wells is not known, but it is estimated that four (4) additional samples will be required.

3.7.4 Background Soil Borings

An estimated five (5) soil borings will be advanced at off-site properties to be determined in order to establish local background concentration levels of metals and PAHs. It is estimated that borings will be advanced to approximately 15 feet below ground surface or until bedrock is reached. Subsurface soil samples will be collected continuously via split-spoon in accordance with ASTM Method D-1586 and characterized according to the Unified Soil Classification System. Field headspace measurements of volatile organic compounds from soil split-spoon samples will be performed using a portable PID meter. One soil sample will be collected from each location for submission for laboratory analysis for constituents of concern. As with the monitoring well installations, a drilling log will be kept documenting soil characteristics, headspace concentrations, water table depth, sample recovery, blow counts and other pertinent information.

3.7.5 Surface Soil Sampling

In order to address potential land use restrictions, surface soil samples will be collected from across the Orchard Street parcel using a grid-based system to provide a representative sample batch. The samples will be collected from a depth of 0 to 2 inches below the ground surface using a dedicated pre-cleaned, stainless steel spoon or trowel to transfer the soil into the appropriate sample containers.

It is estimated that ten (10) samples will be collected as part of the surface soil sampling. Samples will be analyzed for the presence of TCL VOCs, SVOC, TAL metals and PCBs. In the event that a suspected background contaminant is found in excess of the applicable standards, criteria, and guidance for surface soils at the site, Section 3.6 of DER-10 will be followed to demonstrate to the DER that the contaminant concentration is due to background.

3.7.6 Survey and GIS Services

Monitoring well locations will be instrument surveyed and the top of casing determined to 0.010 foot accuracy to mean sea level by Lu Engineers' survey department. GPS coordinates will be collected to determine each monitoring well location to 0.010 foot accuracy. Groundwater depths, laboratory analytical data, site survey data and GPS data will be used to prepare a groundwater flow model illustrating depth to groundwater and local hydraulic gradient as well as to prepare contaminant concentration plume maps.

Lu Engineers will use aerial photography provided by New York State GIS website as a base for establishing appropriate site features. Lu Engineers will use Trimble GeoXT GPS unit to confirm existing locations and establish new points of reference. A portion of the site GIS data collection will be completed prior to building demolition. It is understood that this is important to the establishment of a historical reference for building footprints, sampling points, and internal appurtenances.

4.0 Citizen Participation Activities

This section describes citizen participation activities that have been completed or are planned to be conducted during remedial investigation work at the Site.

4.1 Document Repository

A document repository has been established at the City of Rochester to provide the public with convenient access to important project documents. Documents related to this project are located at:

Lyell Avenue NET Office
492 Lyell Avenue
Rochester, New York 14606

Complete project records will also be kept at the following locations:

NYS Department of Environmental Conservation
Region 8
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, New York 14414

4.2 Public Comment Periods

A 30-day comment period will also be provided before final approval of the Remedial Investigation/Alternatives Analysis report submitted upon completion of remedial investigation activities.

4.3 Public Meetings

If requested, public meetings will be held to explain the proposed work plan and offer an opportunity for comments.

5.0 Project Contacts

For additional information about the project at the Orchard/Whitney Site, the public is encouraged to contact any of the following project staff:

New York State Department of Environmental Conservation-Region 8
Todd Caffoe
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, New York 14414
(585) 226-5350

Linda Vera
NYSDEC Regional Citizen Participation Specialist
6274 East Avon-Lima Road
Avon, New York 14414
(585) 226-2466

Monroe County Department of Health
Joe Albert
111 Westfall Road – Room 976
P.O. Box 92832
Rochester, New York 14692-8932
(585) 274-6904
jalbert@mc.rochester.lib.ny.us

City of Rochester
Mark Gregor, Manager
Department of Environmental Services
Division of Environmental Quality
30 Church Street, Room 300-B
Rochester, New York 14614-1278
mgregor@cityofrochester.gov

Jane Forbes, Environmental Specialist – Remediation
Department of Environmental Services
Division of Environmental Quality
30 Church Street, Room 300-B
Rochester, New York 14614-1278
forbesj@cityofrochester.gov

6.0 Available Documents

The City of Rochester Department of Environmental Services has a complete inventory of all documents related to the Orchard/Whitney site.

Additional documents will be developed during the course of the remedial investigation and cleanup. These documents will be available in the repository. Their availability will be announced through fact sheets and public meetings.

7.0 Public Contact List

The City of Rochester has developed a list of interested and affected parties to aid in keeping the community informed and involved during all investigation and cleanup activities at the Orchard/Whitney site. The list includes neighboring property owners; citizens groups; local news media; local, state and federal officials; civic, business and environmental organizations. The contact list will be reviewed periodically and updated as appropriate. The list will be used for all mailings, notices and fact sheets. Any interested and/or affected parties are encouraged to ask to be included on the contact list.

The Public Contact List is included as Appendix A.

Appendix A
Public Contact List for Orchard/Whitney Site

Contact Person	Organization	Address	Phone #	E-Mail
Lya Theodoratos	USEPA Region 2	290 Broadway, 18th Floor New York, NY 10007	(212) 637-3260	theodoratos.lya@epa.gov
Department of Environmental Exposure Investigation	NYSDOH	Flanigan Square 547 River Street Troy, NY 12180-2216		
Phil Banks	City, Economic Development	30 Church St Rochester, NY 14614	428- 6965	banksp@cityofrochester.gov
Bob Barrows	City, Housing	30 Church St Rochester, NY 14614	428- 6150	barrowsb@cityofrochester.gov
Doug Benson	City, Planning	30 Church St Rochester, NY 14614	428- 6824	bensond@cityofrochester.gov
Molly Clifford	City, NET	30 Church St Rochester, NY 14614	428- 6524	Molly.clifford@cityofrochester.gov
Jose Cruz	City, NET B	492 Lyell Avenue Rochester, NY 14608	428- 7620	jcruz@cityofrochester.gov
David Dworkin	Falls District Business Association	415 Park Avenue Rochester, NY 14607	244- 3575 x-301	david@lldenterprises.com
Matt Ford	Rhino's Soccer	1 Morrie Silver Way Rochester, NY 14608	454-5425	
Lucille Illi	Brown Square Association	77 Saratoga Avenue Rochester, NY 14606	254- 5844	
Elliott Landsman	Landsman Development Corp.	3 Townline Cir. Rochester, NY 14623	427- 7570	Elliott!landsman.com
John Lippa	Lyell Avenue Business Association	476 Lyell Avenue Rochester, NY 14606	458- 2462	wfranny48@aol.com
James Muscatella	Sector 3 Chair	612 Maple St Rochester, NY 14611	328- 2819	nojimmy@rochester.rr.com
Carla Palumbo	County Legislature	1002 Glide St Rochester, NY 14606	647- 4072	carly1002@aol.com
Bob Stevenson	City Council	77 Albemarle St Rochester, NY 14613	428- 5982 254- 8845	Bob.Stevenson@cityofrochester.gov
Bob Van Sice	Lyell-Otis Neighborhood Assoc.	14 Canton St Rochester, NY 14606	458 3784	rgvse@frontiernet.net
Marion Walker	JOSANA	188 Whitney St Rochester, NY 14606	967-5403	JOSANA14606@AOL.com
Orchard Street Community Health Center		158 Orchard Street Rochester, NY 14611	368-4500	
Karyn Herman	Action for a Better Community	550 East Main St Rochester, NY 14604	295- 1738	KHerman@abcinfo.org
Frank DuRoss	Rhinos Soccer (President)	116 Business Park Drive Utica, NY 13502		fbduross@aol.com
Charles Stagnitto, Jr.	Commercial Building Owner	299 Whitney Street Rochester, NY 14606		
Richard Lotta	Residential Building Owner	359 Whitney Street Rochester, NY 14606		
Richard Lotta	Commercial Building Owner	365 Whitney Street Rochester, NY 14606		

Appendix A
Public Contact List for Orchard/Whitney Site
continued

Contact Person	Organization	Address	Phone #	E-Mail
Harry C. Coates	Commercial Building Owner	377 Whitney Street Rochester, NY 14606		
Joseph A. Lancaster	Commercial Building Owner	405 Lyell Avenue Rochester, NY 14606		
Joshua Greenspan	Commercial Building Owner	391 Lyell Avenue Rochester, NY 14606		
Philip C. Palumbo	Commercial Building Owner	375-379 Lyell Avenue Rochester, NY 14606		
Bruno J. Coccia	Commercial Building Owner	367 Lyell Avenue Rochester, NY 14606		
Nikel Properties, Inc.	Commercial Building Owner	361 Lyell Avenue Rochester, NY 14606		
Frank Loverde	Commercial Building Owner	339-341 Lyell Avenue Rochester, NY 14606		
Clyde Development Corporation	Commercial Property Owner	426 Orchard Street Rochester, NY 14606		
New York Central Lines, LLC (c/o) Conrail	Owner 378 Orchard Street, 0 Lyell Avenue et al.	Conrail Real Estate 1000 Howard Blvd, 4th Floor Mt. Laurel. NJ 08054	(856) 231-7201	