000699_NV13_01-B1256

Work Plan for Remedial Design for Fourth Street Inactive Hazardous Waste Site, Buffalo, Erie County, New York

Site Number 9-15-167

Toni Norfleet 11/7/03
APPROVED

November 2003

11/7/03
APPROVED

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Environmental Remediation
625 Broadway
Albany, New York 12233

ecology and environment engineering, p.c.

BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

Table of Contents

Table of Contents (cont.)

List of Tables

List of Figures

List of Abbreviations and Acronyms

ASC	Analytical Services Center
ASP	Analytical Services Protocol
DER	Division of Environmental Remediation
DNAPL	dense nonaqueous phase liquid
DUP	duplicates
DUSR	data usability summary report
E & E	Ecology and Environment Engineering, P.C.
EDD	electronic data deliverable
FS	feasibility study
GPS	Global Positioning System
HASP	Health and Safety Plan
HDPE	high-density polyethylene
IDW	investigation-derived waste
LCS	laboratory control samples
MBE	Minority-owned Business Enterprise
MGP	manufactured gas plant
mmhos/m	millimhos per meter
NYSDEC	New York State Department of Environmental Conservation
PCB	polychlorinated biphenyl
PID	photo-ionization detector
PPE	personal protective equipment

Abbreviations and Acronyms

ppt	parts per thousand
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RI	Remedial Investigation
ROD	Record of Decision
STARS	Spill Technology and Remediation Series
SVOC	semivolatile organic compound
TCL	target compound list
TCLP	toxicity characteristic leaching procedure
TIC	tentatively identified compound
TSP	trisodium phosphate
USDOT	United States Department of Transportation
VOC	volatile organic compound
WA	Work Assignment
WBE	Woman-owned Business Enterprise

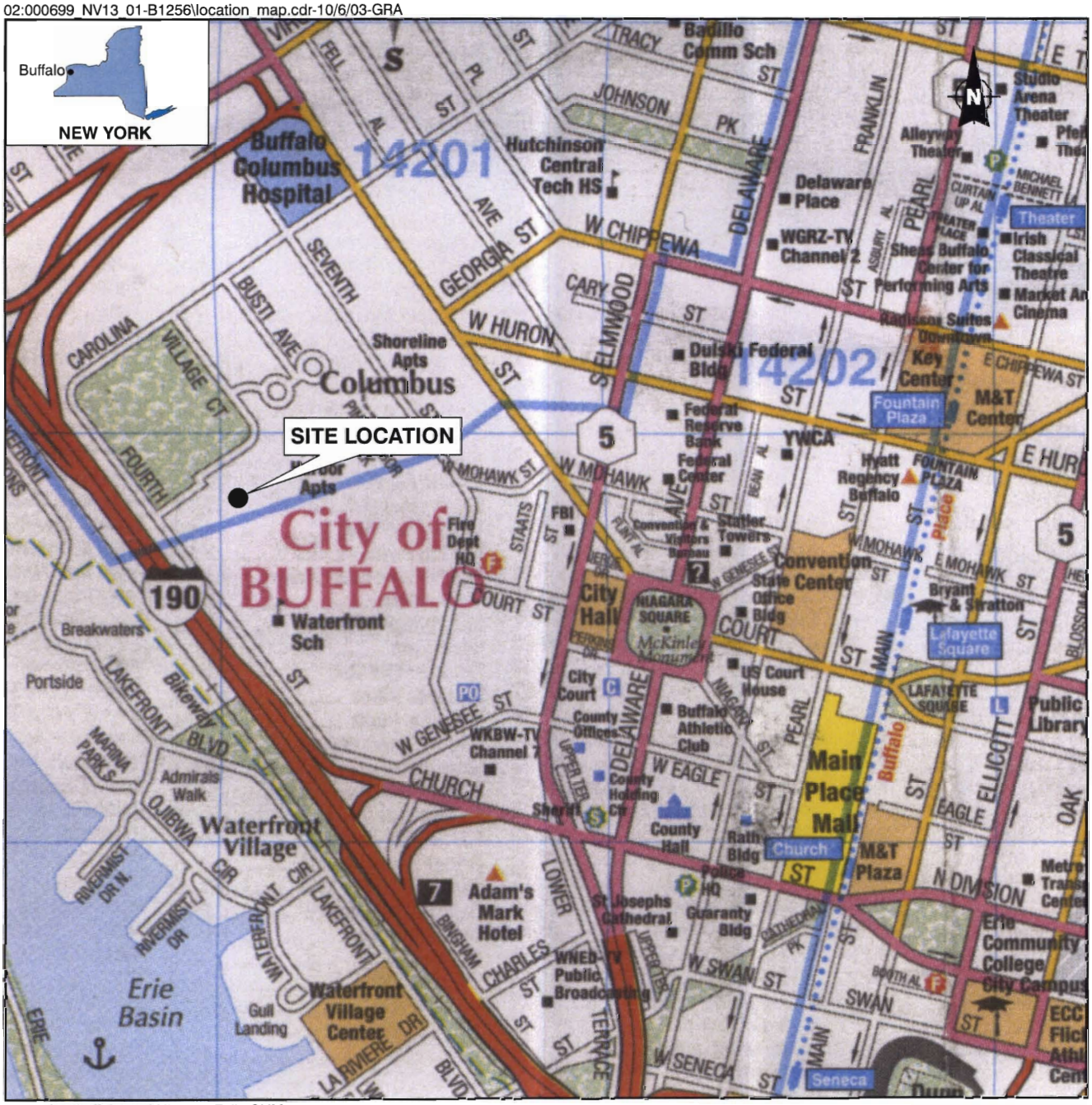
1 Introduction

Pursuant to Work Assignment (WA) No. D003493-43, received on August 20, 2003, Ecology and Environment Engineering, P.C. (E & E) is submitting to the New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation (DER), this work plan for preparation of detailed plans and specifications for use in competitively bidding construction services for remediation of the Fourth Street Inactive Hazardous Waste Site (Site # 9-15-167), located in the city of Buffalo, Erie County, New York (see Figure 1-1).

Upon approval of this work plan, E & E will begin developing plans and specifications for use in bidding remedial construction services associated with excavation and off-site disposal of contaminated soils, treatment of contaminated groundwater collected during excavation, removal of manufactured gas plant (MGP) structures and piping within the area of contaminated soils, and backfilling the excavated areas.

Section 2 of this work plan provides a brief site background and the scope of work. Section 3 details the major tasks and subtasks to be performed. Section 4 presents the major milestones of the project and a project schedule. Section 5 discusses the opportunities for subcontracting within this WA. Section 6 provides a detailed budget prepared in accordance with contractual reporting requirements, including the 2.11 forms. Section 7 presents the staffing plan of E & E's key team members. Section 8 presents the Minority-owned Business Enterprise/Woman-owned Business Enterprise (MBE/WBE) utilization plan.

02:000699_NV13_01-B1256\location_map.cdr-10/6/03-GRA



SOURCE: Buffalo and Niagara Falls CitiMap

SCALE

0 .5 Mile

Figure 1-1 Fourth Street Inactive Hazardous Waste Site Location Map

2 Site Background and Scope of Work

E & E has reviewed the State Superfund Standby Contract WA and the Record of Decision (ROD) received from NYSDEC regarding the site background and scope to remediate the Fourth Street Inactive Hazardous Waste Site. The following is a summary of tasks including project-specific considerations and details of the WA scope.

2.1 General Site Information

A 5-acre site identified as the Fourth Street Inactive Hazardous Waste Site is located near the corner of Fourth and Village Court streets in the city of Buffalo, Erie County, New York. The site was the location of the former Citizens Gas Works MGP, which operated from before 1870 through approximately 1915. While the specific process used is unknown, Citizens Gas Works manufactured gas from coal for heating and lighting. Typical MGP processes produced wastes including coal tar, oils, coke and ash, sulfur, and purifier waste (cyanide-contaminated wood). The MGP was in a heavily industrialized area along the former Erie Canal. The property was subsequently used as a Greyhound Bus service facility from approximately 1934 through 1958. The site is currently located in a mixed residential, commercial, and recreational setting. The site is surrounded by the Waterfront School and the National Fuel Gas Buffalo Service station (another former MGP) on the south, Fourth Street and Interstate 190 on the west, Pine Harbor Apartments on the east, and athletic fields on the north.

Contamination identified during the Remedial Investigation (RI) (Parsons 2001) conducted in 1998 and 1999 included volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) in surface soil, subsurface soil, and/or groundwater above cleanup goals. Coal tar, which is a dense nonaqueous phase liquid (DNAPL) high in VOCs and SVOCs was visually identified in subsurface soils.

2.2 Work Plan Scope

The objective of this work assignment is to prepare detailed plans and specifications for use in competitively bidding the activities necessary to implement the August 2001 ROD. To accomplish this, the following items will be completed:

- Perform a Pre-Design Investigation to delineate the extent of contamination as accurately as possible. This investigation will include the following activities:
  - Locate utilities (current and historical),
  - Develop a site-specific Health and Safety Plan (HASP) and Quality Assurance Project Plan (QAPP),
  - Complete a property survey of the site identifying locations of existing monitoring wells, parking areas, trees, utilities, and surrounding buildings,
  - Rehabilitate existing monitoring wells,
  - Repair/replace existing fence,
  - Sample and analyze groundwater and subsurface soil samples,
  - Perform a geophysical survey,
  - Perform a subsurface geotechnical investigation, and
  - Develop an investigation report;

- Develop plans and specifications including but not limited to:
  - Excavate and remove from site contaminated soil and fill,
  - Treat and dispose of contaminated groundwater,
  - Control odors,
  - Backfill excavation, and
  - Restore site to existing conditions;

- Coordinate pre-award services including:
  - Develop bid packages,
  - Attend pre-bid conference,
  - Develop project addenda, and
  - Review submitted bids.

Further discussion of these tasks are included in Section 3.

3 Major Tasks and Subtasks

The tasks associated with completing the scope of work for this project are identified in Section 2. Each of these tasks are described in detail in this section.

3.1 Task 1: Background Review and Work Plans

3.1.1 Background Review and Site Visit

To become familiar with the project details, E & E will review the following documents and reports as received from NYSDEC:

- *Final Remedial Investigation/Feasibility Study, Parsons Engineering Science for Buffalo Urban Renewal Agency, Inc., January 2001.*
- *Record of Decision, Fourth Street Site, Buffalo (C), Erie County, New York, Site Number 9-15-167, Department of Environmental Conservation, Division of Environmental Remediation, August 2001.*

Additionally, E & E intends to review the following available information:

- *Historical Sanborn maps.*
- *Utility maps provided by the City of Buffalo and utility companies.*

After review of these documents, E & E will identify additional information if necessary to complete the WA.

On September 11, 2003, a site visit attended by Mr. Vivek Nattanmai, Mr. Jaspal Walia, and Mr. Edward Hampston of NYSDEC, Mr. Cameron O'Connor of the New York State Department of Health, and Mr. Rick Watt and Mr. Shawn Gardner of E & E. The visit was conducted to review the project site and discuss approaches to completion of the site objectives. During this visit, the existing monitoring wells were evaluated and project objectives and concerns were discussed.

3.1.2 Scoping Meeting and Remedial Design Work Plan

A conference call was held between members of the Albany and Buffalo NYSDEC offices and the E & E design team on September 19, 2003. This con-

ference call was held in place of a planned scoping meeting at the NYSDEC Central Office in Albany. The purpose of the conference call was to discuss the draft work plan and proposed activities to be completed, along with a list of all deliverables, project cost, and project schedule. Minutes from this call are included in Appendix A.

The Remedial Design Work Plan is being submitted to:

- Provide detail to the original scope of work to support the engineer's level of effort estimates in the project budget;
- Provide and justify recommendations for any changes to the conceptual design that E & E judges to be necessary or advisable;
- Provide an estimate of the subcontractor's costs based on written quotations and estimated budget; and
- Present a schedule for completion of the WA.

3.2 Pre-design Investigation

Following approval of the Remedial Design Work Plan, E & E will implement a pre-design investigation. The objectives of the pre-design investigation are to assess current conditions at the site, determine the horizontal and vertical extent of subsurface soil contamination, and characterize site wastes. Specific tasks designed to accomplish these objectives are outlined in the following subsections. During the performance of this investigation, E & E will conduct field activities, provide oversight of subcontractors, prepare daily field logs, evaluate data, and prepare a report that describes the findings and conclusions from the pre-design investigation. In developing the pre-design investigation report, previous data from the RI report (Parsons 2001) will be combined with and used to supplement the pre-design investigation data.

As information becomes available and analytical results are received during the pre-design investigation, E & E will forward this information to members of NYSDEC for review. Providing this data during the investigation will allow NYSDEC to stay abreast of the site conditions and allow timely feedback to E & E. Allowing NYSDEC representatives the opportunity to review information will also reduce the entire project time schedule.

All field activities are expected to be conducted in Level D personal protective equipment (PPE). However, field team members will maintain Level C respiratory protection equipment on site should the need for its use arise. Costs and schedules have been developed based on Level D PPE.

Prior to initiating intrusive subsurface activities, E & E will coordinate with the Underground Facilities Protection Organization to identify and locate under-

ground utilities in accordance with New York State Code Rule 753. Additional utility identification and property surveys will be performed by E & E as part of the preliminary design.

A site-specific HASP has been prepared in accordance with 29 CFR 1910.120 for implementation of the pre-design investigation. The HASP is included in Appendix B of this work plan.

3.2.1 Well Rehabilitation

Based on the monitoring well inspections conducted during the site visit discussed in Section 3.1.1, a well rehabilitation and redevelopment plan has been designed to repair existing and potential problems with the wells. The inner and outer casings of monitoring wells MW-2 through MW-10 were inspected. MW-1 was previously abandoned. A summary of the necessary repairs to the wells is provided in Table 3-1.

Table 3-1 Well Rehabilitation Plan, Fourth Street Inactive Hazardous Waste Site, Buffalo, NY

Well ID	New Curb Box	New Stick-up Well Casing	New PVC Inner Cap	New J-plug	New Lock
MW-2			1		1
MW-3		1	1		1
MW-4		1	1		1
MW-5				1	1
MW-6[a]	1			1	1
MW-7				1	1
MW-8					1
MW-9					1
MW-10	1[b]			1[b]	1

[a] Additional grout required inside casing due to settling.

[b] Currently, MW-10 has a stick-up well casing that has heaved and is loose. Inquiry will be made to the Waterfront School to determine if their groundskeepers would prefer a flush-mount curb box.

In addition to these repairs, additional grout will be added around the PVC casing in MW-6 where it has settled.

Prior to conducting the above repairs, E & E will use a weighted tape to measure the total depth of each well. These depths will be compared with total depths documented in the RI to determine whether any internal well damage has occurred (from collapse, sedimentation, or filling by vandals). At this time, E & E will also obtain water level information and product thickness data using an oil/water interface probe.

Following completion of data measurement and well repairs, E & E will redevelop all nine wells. These wells have not been purged since 1999 and redevel-

opment is intended to remove sediment, clear fouled well screens and sand packs, and restore natural groundwater flow to the wells in case they have been impacted by well repairs, vandalism, or natural processes. Redevelopment will be conducted using a PVC surge block or equivalent to induce flow through the screen and sand pack, and a submersible pump to remove sediment and water.

Also included in this task is repair and replacement of the existing construction fence that encloses a triangular area containing surface soil contamination. This fence is currently wood-and-wire and plastic fence (snow fence) and in many areas, the fence is breached or otherwise damaged. E & E will inspect the current condition of this fence, replace missing or heavily damaged sections as necessary, and repair sections as practicable. Steel fence posts (construction fence stakes) will be driven into the ground and spaced no more than 8 feet apart. Because the existing fence has not been fully inspected, material and labor costs associated with the repair work are estimated.

E & E will retain a subcontractor for well and fence repair work. To provide a cost-effective solution, a single subcontractor will be selected capable of conducting well and fence repairs in addition to borehole drilling (see Section 3.2.4). Costs associated with this task include the well and fence repairs indicated above (including materials), internal well inspections and measurements, and well redevelopment. However, costs have not been included for well abandonment and replacement should significant internal well damage be identified. Significant well repair or abandonment will be included in the requirements for the contractor.

3.2.2 Groundwater Sampling

Groundwater samples will be collected from the nine existing wells (MW-2 through MW-10) following completion of the rehabilitation program. Sampling will be conducted at least 72 hours after redevelopment is complete. Water samples will be collected using dedicated high-density polyethylene (HDPE) bailers. Prior to collecting samples, water levels will be measured to determine static water volume and each well will be purged of three to five volumes (or until dry if less than three volumes) using a submersible pump. All groundwater samples will be analyzed for target compound list (TCL) SVOCs, including polycyclic aromatic hydrocarbon (PAH) and phenols. In addition, seven wells (MW-2 through MW-7 and MW-10) will be analyzed for VOCs. The VOC analyte list will include the Spill Technology and Remediation Series Memo #1 (STARS) list. Wells MW-8 and MW-9 will not be sampled for VOCs because these wells were previously determined to be upgradient of the Fourth Street Site with groundwater flow controlled by the former Wilkeson Slip of the Erie Canal (Parsons 2001). A summary of the samples to be collected is provided in Table 3-2.

Table 3-2 Sample Summary Table, Fourth Street Inactive Hazardous Waste Site, Buffalo, NY

Analysis	Method Reference	Turnaround Time	Field Samples	QA/AC Samples				Total Samples
				Duplicates	Trip Blanks	MS	MSD	
Product (oil)								
Flashpoint	1010	28 days	1	0	0	0	0	1
PCBs in Oil	8082	28 days	1	0	0	0	0	1
Specific Gravity, Viscosity, Sulfur	NOCO [B]	28 days	1	0	0	0	0	1
TCLP Metals	6010B	28 days	1	0	0	0	0	1
TCLP SVOCs	8270C	28 days	1	0	0	0	0	1
TCLP VOCs	8260B	28 days	1	0	0	0	0	1
Groundwater								
SVOCs	8270C	28 days	9	1	0	1	1	12
VOCs, STARS list	8260B	28 days	7	1	1	1	1	11
Cyanide, total	9012A	28 days	2	1	0	1	1	5
Mercury	7470A	28 days	2	1	0	1	1	5
Metals, TAL-1 list	6010B	28 days	2	1	0	1	1	5
PCBs	8082	28 days	2	1	0	1	1	5
Petroleum Hydrocarbons	8015B	28 days	2	1	0	1	1	5
Phosphate, total	365.2	28 days	2	1	0	0	0	3
Suspended solids, total	160.2	28 days	2	1	0	0	0	3
Subsurface Soil								
SVOCs	8270C	28 days	45	3	0	3	3	54
VOCs, STARS list	8260B	28 days	12	1	0	1	1	15
Cyanide, total	9012A	28 days	6	1	0	1	1	9
Grain size [A]	ASTM D422	28 days	6	1	0	1	1	9
PCBs	8082	28 days	6	1	0	1	1	9
Petroleum Hydrocarbons	8015B	28 days	6	1	0	1	1	9
PH	9045C	28 days	6	1	0	1	1	9
TCLP Metals	6010B	28 days	6	1	0	1	1	9
TCLP SVOCs	8270C	28 days	6	1	0	1	1	9

Table 3-2 Sample Summary Table, Fourth Street Inactive Hazardous Waste Site, Buffalo, NY

Analysis	Method Reference	Turnaround Time	Field Samples	QA/AC Samples				Total Samples
				Duplicates	Trip Blanks	MS	MSD	
TCLP VOCs	8260B	28 days	6	1	0	1	1	9
Investigation-Derived Waste – Groundwater								
Phosphate, total	365.2	28 days	1	0	0	0	0	1
Suspended solids, total	160.2	28 days	1	0	0	0	0	1
Cyanide, total	9012A	28 days	1	0	0	0	0	1
PCBs	8082	28 days	1	0	0	0	0	1
Petroleum Hydrocarbons	8015B	28 days	1	0	0	0	0	1
pH	9040B	28 days	1	0	0	0	0	1
TCLP Metals	6010B/7470A	28 days	1	0	0	0	0	1
TCLP SVOCs	8270C	28 days	1	0	0	0	0	1
TCLP VOCs	8260B	28 days	1	0	0	0	0	1
Investigation-Derived Waste – Soil								
Cyanide, Reactive	9012A-7.3.3	28 days	1	0	0	0	0	1
Grain size [A]	ASTM D422	28 days	1	0	0	0	0	1
PCBs	8082	28 days	1	0	0	0	0	1
Petroleum Hydrocarbons	8015B	28 days	1	0	0	0	0	1
PH	9045C	28 days	1	0	0	0	0	1
Sulfide, Reactive	9034-7.3.4	28 days	1	0	0	0	0	1
TCLP Metals	6010B	28 days	1	0	0	0	0	1
TCLP SVOCs	8270C	28 days	1	0	0	0	0	1
TCLP VOCs	8260B	28 days	1	0	0	0	0	1
Investigation-Derived Waste – Decontamination fluid								
Percent solids	160.3	28 days	1	0	0	0	0	1
PH	9040B	28 days	1	0	0	0	0	1

Table 3-2 Sample Summary Table, Fourth Street Inactive Hazardous Waste Site, Buffalo, NY

Analysis	Method Reference	Turnaround Time	Field Samples	QA/AC Samples				Total Samples
				Duplicates	Trip Blanks	MS	MSD	

Notes:

- All analyses to be conducted by E & E Analytical Services Center, except as noted.
- All analyses to be conducted in accordance with NYSDEC ASP (2000) with Level B reporting requirements.
- Standard analyte list unless otherwise specified.
- Metals TAL-1 list includes: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, silver, thallium, vanadium, zinc.
- Moisture content to be reported for all subsurface soil samples as part of chemical analysis.
- Grain Size analysis includes sieve only.

[A] Subcontracted analysis (GeoTesting Express).
[B] Physical characteristics to be tested by NOCO Products to assess reuse/recycling potential.

Key:

MS = Matrix spike.
MSD = Matrix spike duplicate.
PCB = Polychlorinated biphenyl.
QA/QC = Quality Assurance/Quality Control
STARS = Spill Technology and Remediation Series.
SVOC = Semivolatile organic compound.
TAL = Target Analyte List
TCLP = Toxicity characteristic leaching procedure.
VOC = Volatile organic compound.

Previously, MW-2 was found to contain only DNAPL and a water sample could not be collected during the RI. This will be assessed during implementation of well rehabilitation. If water is present, a sample will be collected by carefully purging and sampling water from above the oil. If oil is present, a peristaltic pump and vinyl tubing will be used to withdraw a sample from below the water. At this time, it is assumed that oil will be separated from the water, the water will be discharged to the storm sewer system, and the oil will be disposed of or recycled. Therefore, the oil will be analyzed for the parameter identified in Table 3-2 for the purpose of assessing disposal and recycling options as part of the preliminary remedial design.

3.2.3 Geophysical Survey

NYSDEC has requested that a geophysical survey be conducted for the purposes of identifying former MGP structures and utilities in the subsurface. Because the majority of these structures are likely to be non-metallic, a conductivity survey will be conducted using a Geonics, Ltd. EM31-MK2 ground conductivity meter. This instrument measures bulk terrain conductivity, which varies according to soil and rock type, thickness, porosity, soil moisture, and the presence of artificial features on the surface or in the subsurface.

However, the overall effectiveness of the EM31-MK2 will be limited by the presence of fill of significant thickness. Since demolition and subsequent regrading on multiple occasions has occurred, it is likely that conductivity differences between the fill and foundations or utilities that are present will be small and indiscernible from background noise. Therefore, the geophysical survey will be used to supplement data obtained from historical maps and utility drawings.

The EM31-MK2 creates a primary magnetic field with a transmitter coil, which in turn induces a secondary magnetic field in the subsurface materials. A receiver coil detects the magnitude of the secondary magnetic field, which is linearly proportional to the terrain conductivity. This is known as the quadrature-phase component and is measured in units of millimhos per meter (mmhos/m). The ratio of the induced secondary magnetic field to the primary magnetic field generated by the instrument is known as the in-phase component and is measured in parts per thousand (ppt). The in-phase component is significantly more sensitive to buried metallic objects than the quadrature-phase conductivity.

The depth of penetration of the instrument signal is a function of the orientation of the transmitter and receiver coils and the distance between the coils (intercoil spacing). The orientation of the coils determines the position of the dipole of the induced magnetic field. The dipole runs through the center of the coils; therefore, by rotating the coils, the dipole is changed from vertical to horizontal (or vice versa). The effective depth of penetration is approximately 14 feet in the vertical dipole mode and approximately 5 feet in the horizontal dipole mode. Vertical dipole readings are recorded with the instrument in the normal operating position, and horizontal dipole readings are recorded by rotating the instrument on its side.

Prior to collecting geophysical data, a rough grid will be established at the site in order to guide data collection. Data collection limits will be limited by existing features including the Waterfront School, Fourth Street, and tennis courts, as well as by the historical extent of MGP structures and former roads. Transect lines will be established approximately 25 feet apart and geophysical data will be recorded continuously along each transect line. Pin flags or stakes will be used to mark key intersections within the data collection grid and may be used later to identify locations for further investigation.

In order to spatially locate geophysical data collection locations, a Trimble Global Positioning System (GPS) will be used. The GPS will be set up for real-time data correction using an integrated beacon or satellite. A hand-held field computer running software provided by Geonics (EM31ALG) will be used to record data signals simultaneously from the EM31-MK2 and GPS units.

Data will be processed using commercially available software. Software provided by Geonics (DAT31W, version 1.22) will be used to convert the data to a usable format and combine conductivity and GPS station data. Surfer (version 8.02) will be used to process data and generate contour maps of the terrain conductivity and in-phase components for both vertical and horizontal dipoles. The resulting contour maps will be overlaid onto a site map for structure identification. The geophysical data will be used as a supplement to existing maps depicting approximate locations of underground utilities and former MGP structures.

3.2.4 Subsurface Soil Sampling

As shown on Figure 3-1, 20 boreholes will be completed at the site to determine the horizontal and vertical extent of DNAPL and SVOC contamination and characterize the soil and DNAPL for disposal. Boreholes will be installed using direct-push (Geoprobe or equivalent) technology. E & E will retain a subcontractor to provide direct-push services. Borehole locations have been selected to further delineate the VOC plume near former boring SB-12 as well as DNAPL and SVOC contamination in the main source area. Borehole locations may be adjusted in the field based on site features, geophysical survey results, utility markouts, shallow refusal, and observations made during sampling. The resulting investigation will be dynamic with the objective of unambiguously determining the horizontal and vertical extents of soil/material requiring remediation and filling data gaps as they are identified to eliminate the need for future mobilizations. Therefore, in addition to the 20 boreholes depicted on Figure 3-1, approximately five additional boreholes will be held in reserve in the event that it is necessary to step out from the source area to further delineate contamination and find "clean," uncontaminated soil.

Continuous soil cores will be collected at each location until refusal is encountered. Based on review of available data, it is anticipated that refusal will occur between 16 to 23 feet below ground surface. Therefore, the average maximum

depth of the borings was determined to be 20 feet. The Geoprobe Macrocore system or equivalent will be used to collect soil cores in dedicated acetate liners. Soil cores will be screened for organic vapors using a photo-ionization detector (PID). E & E's field geologist will record physical observations for all soil cores paying particular attention to the presence of DNAPL and sheens. In order to become familiar with the physical characteristics of the DNAPL, boreholes within the previously identified DNAPL source area will be sampled first.

At the 20 boreholes depicted on Figure 3-1, up to two depth intervals per location will be selected for sub-sampling and laboratory analysis. One sample will be collected from the interval exhibiting the highest level of contamination based on visual observations and PID readings. The second sample will be collected from near the bottom of the borehole in the glacial lake sediments or glacial till from below the fill and intervals of significant contamination to determine the vertical extent of contamination. For the five reserve boreholes, costs for one additional analytical sample have been included. If it becomes necessary to "chase" the lateral extent of contamination in search of "clean" soil in a particular area, soil samples collected from a borehole in or near the source area may be archived pending analysis of samples from an outer borehole. A field decision will be made with NYSDEC concurrence regarding the locations and intervals to be archived and sampled in this instance.

All samples will be analyzed for TCL SVOCs to aid in determination of the extent of contamination. In addition, select samples will also be analyzed for STARS list VOCs. VOC analysis will be conducted on samples from boreholes around former boring SB-12 (upper and lower samples in BH-1 through BH-4 [see Figure 3-1]) and in the DNAPL source area (most heavily contaminated samples in BH-10, BH-11, BH-12, and BH-16 [see Figure 3-1]). Additional samples analyses have been selected to aid in waste characterization for disposal including: cyanide, petroleum hydrocarbons, polychlorinated biphenyls (PCBs), pH, grain size, toxicity characteristic leaching procedure (TCLP) metals, TCLP VOCs, and TCLP SVOCs. Six representative samples of DNAPL-contaminated soil from the source area will be selected for these waste characterization analyses. A summary of analyses to be performed is included in Table 3-2.

Upon completion, boreholes will be backfilled with a cement/bentonite grout.

3.2.5 Surveying

A NYS-licensed land surveyor will be retained to survey all sample locations, including boreholes and wells. Previously established benchmarks and the same coordinate system used during the RI will be used to the extent practicable. A horizontal accuracy of one per 5,000 feet will be used for locations and a vertical accuracy of 0.1 foot will be used for boreholes and other ground surface elevations. Well casing elevations will be measured to 0.05 foot.

N

SCALE IN FEET

0 80 160 240

NOTE:
BACKGROUND SURVEY INFORMATION FOR THIS MAP FROM PARSONS ENGINEERING SCIENCE, INC. DWG. 32260C13.DWG DATED 2/13/99

BASKETBALL COURT
TENNIS COURT
TENNIS COURT
PLAYGROUND
GRASS
CONCRETE
HYD
1 STORY BRICK SCHOOL
BUILDING
PARKING
ATHLETIC FIELD
DRIVEWAY
WALK
WALK
WALK
STONE PARKING
DRIVE
FR
FOURTH STREET
FOURTH STREET

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

MW-04 MW-05 MW-06 MW-07 MW-08 MW-10

SB-01 SB-02 SB-03 6'–10' SB-04 4'–14' SB-05 3'–14' SB-06 4'–10' SB-07 6'–18' SB-10 7'–14' ODOR SB-11 SB-12 14'–18' ODOR SB-13 4'–14' SB-15 SB-21 SB-22 6'–10' SHEEN SB-23

MW-01 6'–14' * MW-02 2'–14' * MW-05 4'–8' ODOR

BH-1 BH-2 BH-3 BH-4 BH-5 BH-6 BH-7 BH-8 BH-9 BH-10 BH-11 BH-12 BH-13 BH-14 BH-15 BH-16 BH-17 BH-18 BH-19 BH-20

SS-01 SS-02 SS-03 SS-04 SS-05

ecology and environment

LEGEND:

- BH-01 — PROPOSED PRE-DESIGN INVESTIGATION BOREHOLE LOCATION
- MW-02 — RI MONITORING WELL LOCATION
- SB-01 — RI SOIL BORING LOCATION
- SS-01 — RI SURFACE SOIL SAMPLE LOCATION
- OFFSS-01 — RI OFF SITE SURFACE SOIL SAMPLE LOCATION
- 6'–10' — RI DEPTH AT WHICH DNAPL WAS OBSERVED
- 6'–10' * — RI DEPTH WHERE DNAPL IS INFERRED
- RI AREA OF DNAPL OCCURRENCE

PROPOSED SOIL EXPLORATION LOCATIONS
FIGURE 3–1
FOURTH STREET SITE
BUFFALO, NEW YORK

F:\MV15 4TH ST\proposed.dwg
BUFFplot JJR 10/1/03

3.2.6 Decontamination and Waste Management

Standard operating procedures will be employed to minimize the degree of possible cross-contamination and investigation-derived waste (IDW) production. Dedicated, disposable equipment will be used to the extent practicable, including acetate sleeves for subsurface soil sampling and bailers for groundwater sampling. Non-dedicated equipment will be decontaminated in accordance with NYSDEC-approved procedures. Special attention will be given to all downhole tooling, which will be decontaminated prior to and following each use. Decontamination of large equipment will consist of:

- Removing foreign matter; and
- High-pressure steam cleaning.

The following alternative procedure will be used for smaller equipment and may also be employed for downhole tooling:

- Initially removing all foreign matter;
- Scrubbing with brushes in trisodium phosphate (TSP) solution;
- Rinsing with deionized water; and
- Allowing to air dry.

Often, the use of household degreasers such as Pine-Sol is required to remove coal tar. If necessary, degreasing will be performed prior to the above procedures.

A temporary decontamination area will be established on site using heavy plastic sheeting or equivalent to capture decontamination wastes. Fluids generated during decontamination will be drummed for off-site disposal during the remedial effort. A single representative sample of drummed decontamination wastes will be collected and analyzed for the parameters listed in Table 3-2 for disposal characterization.

All groundwater purged during redevelopment and sampling will be containerized in United States Department of Transportation (USDOT)-approved drums. Soil cuttings from borehole installation will also be drummed. Soils will be segregated from other solid materials such as acetate Geoprobe liners. All drums will be temporarily staged within a secondary containment unit constructed of bermed plastic sheeting within the fenced area of the site. Waste soil and water will be sampled as a composite with grabs from each drum for the parameters listed in Table 3-2. These analyses have been selected for the dual purpose of characterizing the drummed IDW for disposal as well as characterizing bulk soils and groundwater for treatment and disposal during remedial construction. For costing

purposes, it has been assumed that six drums of nonhazardous water and six drums of hazardous soil/solid waste will be transported and disposed of off site.

3.2.7 Analytical and Quality Control Procedures

Samples selected for laboratory analyses will be analyzed by E & E's Analytical Services Center (ASC) on a 28-day standard turnaround time basis. Sample aliquots for grain size analysis will be sent to the ASC and subsequently forwarded to a subcontracted laboratory (GeoTesting Express of Boxborough, Massachusetts). One oil sample will also be sent to NOCO in Tonawanda, New York for physical and chemical characterization to determine recycling potential. Table 3-2 summarizes the sampling and analyses by matrix and method. Site-specific bottle requirements and sample collection, handling, and shipping procedures are included in the site-specific Quality Assurance Project Plan (QAPP) in Appendix C.

Analytical data will be presented in the Pre-Design Investigation Report. All analyses will be conducted in accordance with the most recent edition of the NYSDEC Analytical Services Protocol (ASP). Analytical methods have been selected to meet the technical and quality assurance (QA) objectives of the project. For SVOC analyses, the top 20 tentatively identified compounds (TICs) will be reported. All laboratory reports will be prepared in accordance with ASP Level B reporting requirements.

The site-specific QAPP also details the quality control (QC) samples to be collected and analyzed and QA/QC procedures to be implemented by the laboratory and during data review. QC samples are also summarized in Table 3-2.

Laboratory results will be reported in an electronic data deliverable (EDD) in the ASC standard corporate format. An E & E QA chemist will process the EDD using a Microsoft Access-based review program that allows for efficient review of all analytical data. Based on the results of this process, a data usability summary report (DUSR) will be prepared in accordance with the most current NYSDEC Department of Environmental Remediation Guidance for Development of DUSRs (June 1999). Data usability review will focus on deviations from expected QC activities, problems encountered, and the acceptability of the methodologies used. Several QC samples are processed and reviewed from the EDD. QC samples included laboratory duplicates (DUP), blanks (MBLK, FBLK), matrix spikes and duplicates (MS, MSD), laboratory control samples (LCS), and surrogate recoveries for QC and samples. Data associated with laboratory and field QC samples that meet all acceptance limits are not qualified and are considered usable as reported. Data associated with laboratory and field QC samples that consistently exceeded some of the acceptance limits or had other analytical problems are qualified and described in the DUSR.

3.2.8 Pre-design Investigation Report

E & E will review the RI/Feasibility Study (FS) and other available data and prepare a summary describing the results of the pre-design investigation. The newly

acquired data will be supplemented by previous data as part of the site evaluation process. The evaluation of the summarized data will allow:

- An unambiguous representation of the extent of contaminated soil to be excavated;
- Determination of soil disposal requirements;
- Determination of groundwater treatment and disposal requirements;
- Determination of DNAPL disposal options; and
- Evaluation of utility locations and related impacts of soil excavation.

The summary and evaluation will be incorporated into a report that will be supported by tabulated data and figures as necessary. E & E intends to develop this report in conjunction with the Preliminary Design (30% Design) Report of Task 3. The Task 3 design basis work will begin with evaluation of technologies and methods to control odors and standard design tasks (establishing backfill material requirements, restoration requirements, etc.). As soon as groundwater analytical information is available, we will begin to determine what type of treatment will be necessary based on disposal options. Other design requirements will be started as information becomes available. Since information related to the pre-design investigation will be submitted to NYSDEC as it is received, the "Draft" Pre-Design Investigation Report will be combined with the 30% Design Report for review and comment. The report will be updated at the 90% Plans and Specifications Task.

3.3 Plans and Specifications

The ultimate objective of this WA is to design a system to remove the contaminated soils and treat and dispose of groundwater removed as part of the soils remediation. A complete set of plans and specifications for removal of the contaminated soils and groundwater will be developed. The design will be based on the findings of the Pre-Design Investigation. The following items are the major tasks expected to be the focus of the design:

- Identify excavation extents based on the preliminary design investigation;
- Identify project boundaries;
- Identify slope requirements for excavation;
- Identify and recommend areas likely needing sheeting protection for the public and fencing for security;
- Identify the requirements for a site security plan;

- Identify requirements for a mobilization/demobilization plan for construction activities within the site;
- Develop specifications for decontamination areas;
- Identify requirements for staging areas and a dewatering program;
- Identify disposal options and requirements;
- Identify treatment requirements;
- Determine odor control options for the project (e.g., cover/tenting, foam);
- Identify trucking routes for hauling excavated waste from the site and clean fill to the site;
- Identify and design restoration requirements including pavement, curbing, landscaping, and drainage; and
- Develop plan sheets to include existing site conditions including utilities, contamination extents with boring and monitoring well locations, excavation elevations, and final grading/restoration plan.

This task is divided into increasing levels of development in order to allow NYSDEC the opportunity to review the design and comment as this effort continues. These levels are described in further detail in Subsection 3.3.1.

3.3.1 Preliminary Design

During the preliminary design, submittals associated with the pre-design investigation and design basis report, plans, and table of contents for the specifications will be developed. The preliminary design investigation report and the design basis report will be combined into one report that will identify the findings and discuss the alternatives to address the project goals.

Also, permits required to implement the proposed remedial design and associated activities will be identified along with all non-property permits that would be necessary (i.e., State Pollution Discharge Elimination System permits, temporary industrial wastewater discharge permits, Air Pollution Permits, etc.).

3.3.2 Intermediate Design

At this time, it not expected that the intermediate design level will be needed. Unless, NYSDEC determines that additional work is required to identify alternatives to meet the project goals or major changes are required to the plans or specification outline, E & E will move into the pre-final design level. Work within Task 3 will then proceed to the Pre-Final Design task.

3.3.3 Pre-final and Final Design

The Pre-Final Design will consist of plans and specifications developed to the 90% level. This level will be a completed set of plans and specifications for review by NYSDEC prior to production of the final documents for bidding. This ensures the documents are formatted accordingly and acceptable as bid documents. The Final Design will incorporate NYSDEC's comments and will be used as bid documents.

3.3.4 Project Cost Estimate

An engineer's Project Cost Estimate will be developed at each design task level of the project. As the design progresses towards final, the cost estimate format will become more detailed. The final engineer's project cost estimate will also be presented in the format of the project bid form.

3.4 Pre-award Services

E & E will provide assistance to NYSDEC during the bid services phase of this project.

3.4.1 Pre-bid Conference

If requested by NYSDEC, E & E will attend and conduct one pre-bid meeting at the site with prospective bidders. During the pre-bid conference, E & E will discuss technical aspects of the project, tour the project site, answer questions, and prepare minutes of the meeting.

3.4.2 Addenda

E & E will assist NYSDEC with responses to questions posed by prospective bidders. NYSDEC will prepare and distribute all addenda.

3.4.3 Bid Review

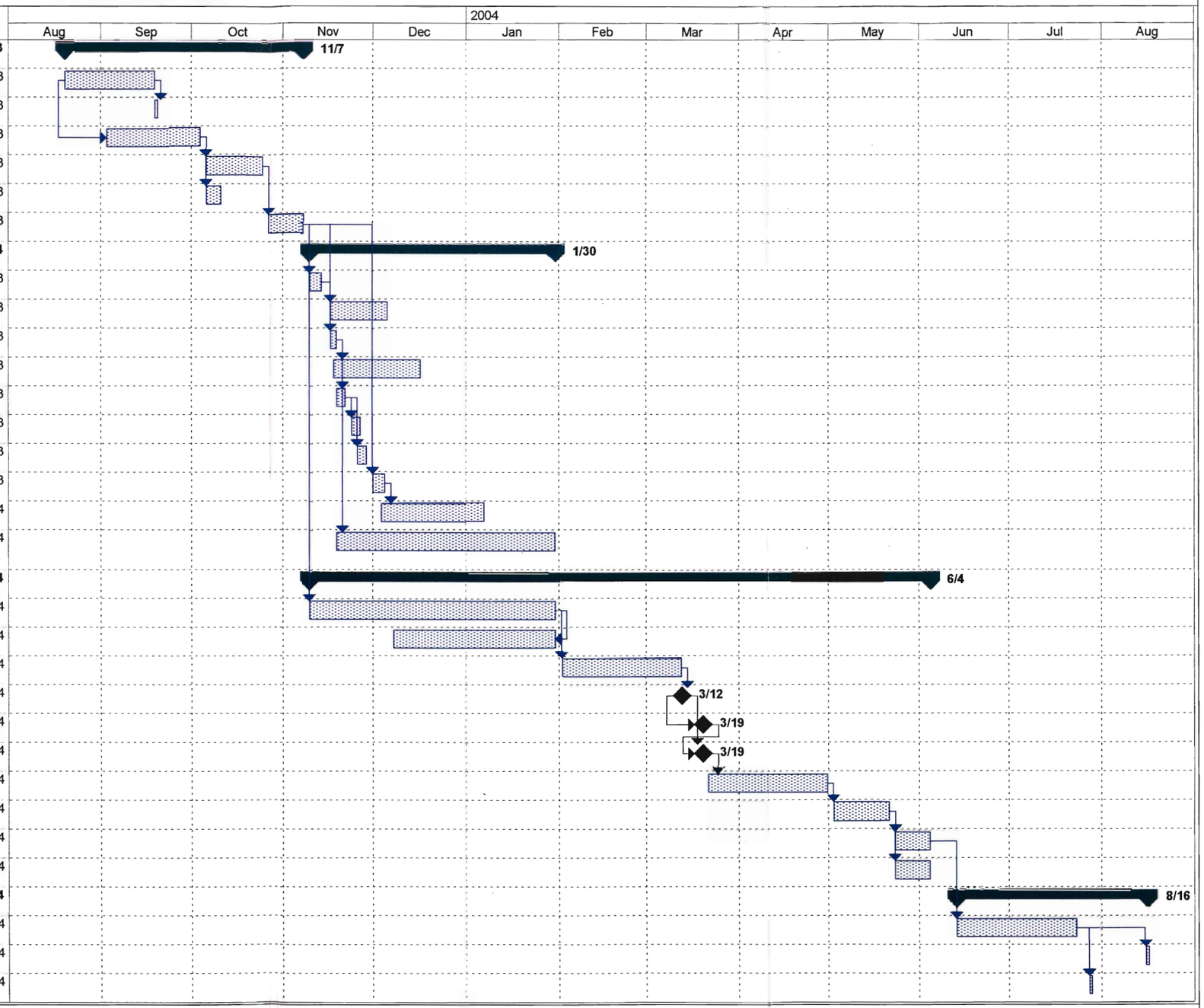
E & E will perform review of bids received from prospective bidders for NYSDEC.

4 Progress Schedule

Based on E & E's review of the required tasks and proposed work assignments, E & E has developed the attached revised schedule (Figure 4-1). This schedule was also developed based on review of the proposed schedule developed by NYSDEC as included in the WA.

FOURTH STREET - INACTIVE HAZARDOUS WASTE SITE

ID	Task Name	Duration	Start	Finish
1	**Task 1: Background Review and Work Plan**	**58 days**	**Wed 8/20/03**	**Fri 11/7/03**
2	Background review and site visit	22 days	Wed 8/20/03	Thu 9/18/03
3	Scoping meeting (conference call)	1 day	Fri 9/19/03	Fri 9/19/03
4	Remedial draft work plan and submittal	23 days	Wed 9/3/03	Fri 10/3/03
5	DEC review and comment submittal	15 days	Mon 10/6/03	Fri 10/24/03
6	Draft HASP and QAPP	5 days	Mon 10/6/03	Fri 10/10/03
7	Remedial final work plan and submittal	10 days	Mon 10/27/03	Fri 11/7/03
8	**Task 2: Pre-Design Investigation**	**60 days**	**Mon 11/10/03**	**Fri 1/30/04**
9	Well rehabilitation/fence repair	4 days	Mon 11/10/03	Thu 11/13/03
10	Utility Paper Investigation/Mapping	15 days	Mon 11/17/03	Fri 12/5/03
11	Groundwater sampling	2 days	Mon 11/17/03	Tue 11/18/03
12	Lab Analysis (groundwater)	21 days	Tue 11/18/03	Tue 12/16/03
13	Geophysical Survey	3 days	Wed 11/19/03	Fri 11/21/03
14	Geophysical data interpretation	3 days	Mon 11/24/03	Wed 11/26/03
15	Surveying	3 days	Wed 11/26/03	Fri 11/28/03
16	Subsurface soil drilling/sampling	4 days	Mon 12/1/03	Thu 12/4/03
17	Lab Analysis (soils)	24 days	Thu 12/4/03	Tue 1/6/04
18	Pre-Design Investigation Report and submittal (coincide with Preliminary Design)	53 days	Wed 11/19/03	Fri 1/30/04
19	**Task 3: Plans and Specifications**	**150 days**	**Mon 11/10/03**	**Fri 6/4/04**
20	Preliminary Design (30% submittal)	60 days	Mon 11/10/03	Fri 1/30/04
21	Project cost estimate (30%) submittal	40 days	Mon 12/8/03	Fri 1/30/04
22	NYSDEC review and comment submittal	30 days	Mon 2/2/04	Fri 3/12/04
23	Intermediate Design (60% submittal)	0 days	Fri 3/12/04	Fri 3/12/04
24	Project cost estimate (60%) submittal	0 days	Fri 3/19/04	Fri 3/19/04
25	NYSDEC review and comment submittal	0 days	Fri 3/19/04	Fri 3/19/04
26	Pre-Final design (90% submittal)	30 days	Mon 3/22/04	Fri 4/30/04
27	NYSDEC review and comment submittal	15 days	Mon 5/3/04	Fri 5/21/04
28	Final design (100% submittal)	10 days	Mon 5/24/04	Fri 6/4/04
29	Project cost estimate submittal	10 days	Mon 5/24/04	Fri 6/4/04
30	**Task 4: Pre-award Services**	**46 days**	**Mon 6/14/04**	**Mon 8/16/04**
31	Bid Period	30 days	Mon 6/14/04	Fri 7/23/04
32	Pre-bid conference	1 day	Mon 8/16/04	Mon 8/16/04
33	Bid review	1 day	Wed 7/28/04	Wed 7/28/04



Project: schedule fin , Fourth Street
Date: Tue 10/7/03
DEC/E & E (000699.NV13)

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

Figure 4-1

5 Subcontracting Plan

In order to complete the WA, E & E has determined that opportunities exist for subcontractor services. In order to identify the property extents and layout the areas of contamination to minimize the amount of excavation, surveys will be required. It was therefore decided to subcontract surveying services to expeditiously complete this part of the project.

Subcontractor services are also required for subsurface geotechnical investigation. E & E has determined that an investigation using geoprobe services will provide the required information accurately for the best value.

To retain the services of a surveyor and a geoprobe contractor, E & E developed scopes of work applicable to each specialty (see Appendices D and E). Based on the responses to the scopes of work, a subcontractor was chosen for each task.

For the survey services, Wendel Duchscherer Survey of Lockport, New York was selected based on low cost; however, Wendel is neither a WBE nor MBE.

For the subsurface geotechnical services, C&W Environmental, LLC of Cheektowaga, New York was chosen. C&W Environmental is neither a WBE nor MBE but was selected based on the lowest cost estimate. Their proposal did not include labor for well rehabilitation or subsurface soil sampling. For comparison purposes with the other bids, E & E added one day of labor to each of these tasks. Even after this adjustment, C&W Environmental remained the lowest bidder.

6 Cost Assumptions and Budget

E & E's proposed revised budget is $210,085. This budget is predicated on the following assumptions:

- Existing monitoring wells will be repaired where necessary. The wells will also be rehabilitated so groundwater samples can be obtained and analyzed.
- The existing fence around the area identified as having surface contamination will be repaired and replaced as necessary.
- A survey will be performed to obtain data for plotting monitoring wells, utility lines, existing surface appurtenances, and proposed soil borings. It is assumed that local controls exist and will be retrievable through information provided by Parsons Engineering Science, Inc.
- Property metes and bounds will not be required as the limits of excavation are not expected to go beyond the property boundaries. Available information from Parsons Engineering Science, Inc., will be used where necessary.
- A geoprobe will be used to perform the soils investigation.
- Groundwater samples will be analyzed for the parameters listed in the Buffalo Sewer Authority discharge permit for Steelfields, Ltd. as submitted by NYSDEC.
- Actual groundwater treatment methodologies will not be specified, but treatment parameters will be identified and included in the specifications as the requirements for a contractor performance-based contract.
- Task 3, Plans and Specifications, can be started after the submittal of the final work plan. Subtasks of the Plans and Specifications will be contingent upon the completion of certain activities in the pre-design investigation such as groundwater and soils lab analysis results. Plans and specifications work related to these results will begin after the results are received and analyzed.
- The Pre-Design Investigation report will be incorporated with the Preliminary Design (30% design) report. Work necessary to complete the Preliminary De-

sign will begin during the Pre-Design Investigation and proceed as data become available. Information gathered during the Pre-Design Investigation will be submitted to NYSDEC in a timely fashion for review.

- It is assumed that no work will be performed during the Intermediate Design (60% design) task. After review of the Preliminary Design, work will commence with the Pre-Final Design.

- No construction oversight will be included in this project. This project will end after the bid review task.

- The entire duration as identified in the project schedule is 301 days (60 weeks). This schedule includes three review periods for NYSDEC on three submittals (Work Plan, Pre-Design Investigation/Preliminary Design, and Pre-Final Design). Thirty days have been included for the Pre-Design Investigation/Preliminary Design submittal and 15 days have been included for the Work Plan and Pre-Final Design submittals.

Schedule 2.11(a) Summary of Work Assignment Price

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

1.	Direct Salary Costs (Schedule 2.11(b))	$51,856
2.	Indirect Costs	$95,934
3.	Direct Non-Salary costs (Schedules 2.11(c) and (d))	$36,798

Subcontract Costs

Cost-Plus-Fixed-Fee Subcontracts (Schedule 2.11(e))

	Name of Subcontractor	Services to be Performed	Subcontract Price
A		Geotech analysis	630
B	Wendel Duchscherer	survey	4960
C		Waste transportation	450
		Waste disposal	600
		6 soil drums, haz	360
		tax	220
			7,220

4. Total Cost-Plus-Fixed-Fee Subcontracts

Unit Price Subcontracts (Schedule 2.11(f))

	Name of Subcontractor	Services to be Performed	Subcontract Price
A	C&W Environmental	fence/well repair	2839
B	C&W Environmental	drilling	4353
C			
D			

5.	Total Unit Price Subcontracts	7,192	
6.	Subcontract Management Fee	-	
7.	Total Subcontract Costs (Lines 4+5+6)		14,412
8.	Fixed Fee		11,084
9.	Total Work Assignment Price (Lines 1+2+3+7+8)		210,085

NOTE: Rates are in accordance with Section 2.10 of the State Superfund Standby Contract #D003493

Schedule 2.11(b) Direct Labor Hours Budgeted

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

IRECT LABOR HOURS BUDGETED - BY NSPE GRADE
Rates for Year Ending February 1, 2001

NSPE Grade	IX	VIII	VII	VI	V	IV	III	II	I	Total	Labor	Overhead		Fee	
Rate/Hour	$73.88	$54.21	$48.87	$39.85	$34.15	$28.14	$25.12	$22.40	$17.49	Hours	Cost	185%	SUBTOTAL	7.50%	TOTAL
TASK DESCRIPTION															
Task 1 - Background Review and Work Plan	0	0	0	45	62	0	12	5	0	124	$4,324	$7,999	$12,323	$924	$13,247
Task 2 - Predesign Investigation	0	0	12	240	0	6	304	96	8	666	20,222	37,411	57,633	4,322	61,955
Task 3 - Plans and Specifications	0	0	46	55	129	180	200	266	0	876	24,801	45,882	70,683	5,301	75,984
Task 4 - Pre-award Services	0	0	2	5	28	38	4	4	0	81	2,509	4,642	7,151	536	7,687
Est. Direct Labor Hours	0	0	60	345	219	224	520	371	8	1,747					
Est. Direct Labor Cost	$0	$0	$2,812	$13,748	$7,479	$6,303	$13,062	$8,310	$140	**TOTALS**	$51,856	$95,934	$147,790	$11,084	$158,874

Engineer/Contract # D003493
Project Name Fourth Street Inactive Hazardous Waste Site
Work Assignment No. D003493-43

Date Prepared 10/20/03

Schedule 2.11(b-1)
Direct Administrative Labor Hours Budgeted

Labor Classification	*IX*	*VIII*	*VII*	*VI*	*V*	*IV*	*III*	*II*	*I*	*Total No. of Direct Labor Hrs.*
Task 1			2		3					5
Task 2			6		21					27
Task 3			10		25					35
Task 4			2		2					4
Task 5										
Task 7										
Task 6										
Task 8										
Task 9										
Task 10										
Task 11										
Task 12										
Total Hours										

Contract/Project administrative hours would include (subject to contract allowability) but not necessarily be limited to the following activities:

1) Work Plan Budget Development
   - Conflict of Interest check
   - Budget schedules & supporting documentation
   - Staffing plans
2) Review work assignment (WA) progress
   - Conduct progress reviews
   - Prepare monthly project report
   - Update WA progress schedule
   - Prepare M/WBE Utilization Report
3) Contractor Application for Payment (CAP)
   - Oversee and prepare monthly CAP
4) Program Management
   - Prepare monthly cost control report
   - Cost control reviews
3) Develop subcontracts
   - Manage subcontracts
   - NSPE list update
   - Equipment inventory
5) Miscellaneous
   - Conduct Health and Safety Reviews
   - Word processing and graphic artists
   - Report editing

Contract/Project administration hours would **not** include:

1) QA/QC reviews
2) Technical oversight by management
4) Work plan development
5) Review of deliverables

Schedule 2.11(c) Direct Non-Salary Costs

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

ITEM	Maximum Reimbursement Rate	Unit	Estimated No. of Units		Total Estimated Costs
A. IN-HOUSE COSTS*					
Communication Costs	$ 5.00	Call	64		320.00
Reproduction	$ 0.05	Page	15,500		775.00
Blueprinting	$ 1.75	Page	60		105.00
CAD Computer Usage	$ 10.00	Hour	248		2,480.00
Protective Clothing: Level D	$ 15.00	Day	16		240.00
Protective Clothing: Level C	$ 50.00	Day	-		-
Protective Clothing: Level B	$ 70.00	Day	-		-
Shipping: Lab Samples		lbs.	-		-
Shipping: Equipment		lbs.	-		-
Shipping: Other Fedex Priority	$ 22.00	5 lbs.	10		220.00
Postage (FED-EX PRIORITY)	$ 17.00	2 lbs.	4		68.00
Purchased Items - Incidentals		Lump Sum			2,758.00
Outside Equipment Rental		Lump Sum			1,855.00
Miscellaneous Field Supplies/ODCs		Lump Sum			305.00
E&E Analytical Services		Lump Sum			27,250.00
				Subtotal	36,376.00
B. MISCELLANEOUS					
1. TRAVEL					
Airfare: Buffalo/Albany	$ 504.00	RT	-		-
Per Diem: Albany	$ 34.00	Day	-		-
Per Diem: Rochester	$ 34.00	Day	-		-
Lodging: Albany	$ 70.00	Night	-		-
Auto Rental	$ 50.00	Day	-		-
Mini Van Rental	$ 70.00	Day	1.00		70.00
Local Mileage	$ 0.36	Mile	840.00		302.40
Parking		Day	-		-
Gasoline/Tolls		RT	-		50.00
				Subtotal	422.40
TOTAL DIRECT NON-SALARY COSTS					**$ 36,798.40**

NOTES: *PPE Costs are estimated. Actual costs will be billed.

Schedule 2.11(d) Equipment Usage Schedule

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

ID No	ITEM	Maximum Reimbursement Rate	Time Period	Estimated No. of Periods	Estimated No. of Units	Total Estimated Cost

NO EQUIPMENT RENTAL CHARGES ARE ALLOWED PER STANDBY CONTRACT

TOTAL EQUIPMENT USAGE

Exhibit 2
Cost Schedule For
Professional Surveying Services
Fourth Street Inactive Waste Site
Buffalo, New York

Costing compliant with NYSDEC Form 2.11(e).

A.Direct Salary Costs

Professional Responsibility Level	Labor Classification	Avg. Reimbursement Rate	Max. Reimbursement Rate	Est. # Hours	Est. Direct Salary Cost (Avg. Reimb. Rate)
Mgt. Engineer	NSPE VIII		$54.21	3.5	$ 142.00
Sr. Engineer	NSPE III		$25.12	7.5	$ 192.00
Engr. Tech.	NSPE I		$17.49	99.0	$ 1258.00
Total Direct Salary Costs					$ 1592.00

B. Indirect Costs

Amount budgeted for indirect costs is:	$ 3158.00

C. Maximum Reimbursement Rates for Direct Non-Salary Costs

Item	Maximum Reimbursement	Unit	Number of Units	Total Estimated Cost
1 Travel				
Overnight Expenses	$ 80.00	Night		$ N/A -
Dinner Only	$ 24.00	Dinner		$ N/A -
Breakfast Only	$ 6.00	Breakfast		$ N/A -
Mileage	$ 0.36	Mile		$ 160 -00
Total Travel				$ 160 -00
2 Supplies				
Postage	$ 17.00	Lump Sum		$ N/A -
Level D Protection	$ 15.00	Day		$ N/A -
Total Station w/Tripod	$ 146.00	Day		$ N/A -
Miscellaneous Expenses	$ 50.00	Lump Sum		$ 50 -00
Reproduction	$ 0.05	Each Copy		$ N/A -
Total Supplies				$ N/A -
Total Travel and Supplies Cost				$ 210 -00

D. Fixed Fee

The Fixed Fee is:	$ 4960.00

Schedule 2.11(f)

Unit Price Subcontracts
Work Assignment Number D003493-43

Name of Subcontractor	Services to be Performed	Subcontract Price	Management Fee
C & W Environmental, LLC	Geotechnical investigation/ well rehab and fence repair	$7,192.00	

Item	Max. Reimbursement Rate (Specify Unit)	Est. No. of Units	Total Est. Cost
See subcontract proposal in appendix E			

Subtotal Subcontract Price	$ $7,192.00
Subcontract Management Fee	$ 0
TOTAL	$ $7,192.00

Schedule 2.11(g) Monthly Cost Control Report/Summary of Fiscal Information

Page _____ of _____
Date Prepared _____
Billing Period _____
Invoice No. _____

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

SUMMARY SCHEDULE

Expenditure Category	A Costs Claimed This Period	B Paid to Date	C Total Disallowed to Date	D Total Costs Incurred to Date (A+B+C)	E Estimated Costs to Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs							$51,856	
2. Indirect Costs (185%)							$95,934	
3. Subtotal Direct Salary & Indirect Costs							$147,790	
4. Travel							$422	
5. Other Non-Salary Costs							$36,376	
6. Subtotal Direct Non-Salary Costs							$36,798	
7a. Subcontractors							$14,412	
7b. Subcontract Management Fee							$0	
8. Total Work Assignment Cost							$199,000	
9. Fixed Fee							$11,084	
10. Total Work Assignment Price							$210,085	

Schedule 2.11(g) Monthly Cost Control Report/Summary of Fiscal Information

Page _____ of _____
Date Prepared _____
Billing Perlod _____
Invoice No. _____

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

Task 1 - Background Review and Work Plan Expenditure Category	A Costs Claimed This Period	B Paid to Date	C Total Disallowed to Date	D Total Costs Incurred to Date (A+B+C)	E Estimated Costs to Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs							$4,324	
2. Indirect Costs (185%)							$7,999	
3. Subtotal Direct Salary & Indirect Costs							$12,323	
4. Travel							$152	
5. Other Non-Salary Costs							$1,119	
6. Subtotal Direct Non-Salary Costs							$1,271	
7a. Subcontractors							$0	
7b. Subcontract Management Fee							$0	
8. Total Work Assignment Cost							$13,594	
9. Fixed Fee							$924	
10. Total Work Assignment Price							$14,519	

Schedule 2.11(g) Monthly Cost Control Report/Summary of Fiscal Information

Page _____ of _____
Date Prepared _____
Billing Period _____
Invoice No. _____

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

Task 2 - Predesign Investigation Expenditure Category	A Costs Claimed This Period	B Paid to Date	C Total Disallowed to Date	D Total Costs Incurred to Date (A+B+C)	E Estimated Costs to Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs							$20,222	
2. Indirect Costs (185%)							$37,411	
3. Subtotal Direct Salary & Indirect Costs							$57,633	
4. Travel							$173	
5. Other Non-Salary Costs							$32,211	
6. Subtotal Direct Non-Salary Costs							$32,384	
7a. Subcontractors							$14,412	
7b. Subcontract Management Fee							$0	
8. Total Work Assignment Cost							$104,429	
9. Fixed Fee							$4,322	
10. Total Work Assignment Price							$108,751	

Schedule 2.11(g) Monthly Cost Control Report/Summary of Fiscal Information

Page _____ of _____
Date Prepared _____
Billing Period _____
Invoice No. _____

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

Task 3 - Plans and Specifications Expenditure Category	A Costs Claimed This Period	B Paid to Date	C Total Disallowed to Date	D Total Costs Incurred to Date (A+B+C)	E Estimated Costs to Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs							$24,801	
2. Indirect Costs (185%)							$45,882	
3. Subtotal Direct Salary & Indirect Costs							$70,683	
4. Travel							$54	
5. Other Non-Salary Costs							$2,820	
6. Subtotal Direct Non-Salary Costs							$2,874	
7a. Subcontractors							$0	
7b. Subcontract Management Fee							$0	
8. Total Work Assignment Cost							$73,557	
9. Fixed Fee							$5,301	
10. Total Work Assignment Price							$78,858	

Schedule 2.11(g) Monthly Cost Control Report/Summary of Fiscal Information

Page _____ of _____
Date Prepared _____
Billing Period _____
Invoice No. _____

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

Task 4 - Pre-award Services

Expenditure Category	A Costs Claimed This Period	B Paid to Date	C Total Disallowed to Date	D Total Costs Incurred to Date (A+B+C)	E Estimated Costs to Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs							$2,509	
2. Indirect Costs (185%)							$4,642	
3. Subtotal Direct Salary & Indirect Costs							$7,151	
4. Travel							$43	
5. Other Non-Salary Costs							$227	
6. Subtotal Direct Non-Salary Costs							$270	
7a. Subcontractors							$0	
7b. Subcontract Management Fee							$0	
8. Total Work Assignment Cost							$7,421	
9. Fixed Fee							$536	
10. Total Work Assignment Price							$7,957	

Schedule 2.11(g) - Supplemental

Cost Control Report for Subcontracts

Engineer Ecology & Environment Engineering, P.C.
Contract No. D003493
Project Name Fourth Street Inactive Hazardous Waste Site
Work Assignment No. D003493-43

Page _____ **of** _____
Date Prepared _____
Billing Period _____
Invoice No. _____

Subcontract Name	*A Subcontract Costs Claimed this Application Inc. Resubmittals*	*B Subcontract Costs Approved for Payment on Previous Applications*	*C Total Subcontract Costs to Date (A plus B)*	*D Subcontract Approved Budget*	*E Management Fee Budget*	*F Management Fee Paid*	*G Total Costs to Date (C plus F)*
1. Wendel Duchscherer Survey				$4,960.00			
2. C & W Environmental				$7,192.00			
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10. **TOTALS**							

Project Manager _____ Date _____

NOTES:

1) Costs listed in Columns A, B, C & D do not include any management fee costs.
2) Management fee is applicable to only properly procured, satisfactorily completed, unit price subcontracts over $10,000.
3) Line 11, Column G should equal Line 7 (Subcontractors), Column D of Summary Cost Control Report.

7/97

Schedule 2.11(h) Summary of Labor Hours

Page _____ of _____
Date Prepared _____
Billing Period _____
Invoice No. _____

ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
State Superfund Standby Contract #D003493
Work Assignment # : D003493-43
Project Name: 4th Street Inactive Hazardous Waste Site

Rates for Year Ending February 1, 2001

NSPE Grade	IX		VIII		VII		VI		V		IV		III		II		I		TOTAL
Rate/Hour	$73.88		$54.21		$46.87		$39.85		$34.15		$28.14		$25.12		$22.40		$17.49		HOURS
TASK	EXP./	EST.	EXP./	EST.	EXP./	EST.	EXP./	EST.	EXP./	EST.	EXP./	EST.	EXP./	EST.	EXP./	EST.	EXP./	EST.	EXP./	EST.
Task 1 - Background Review and Worl	0	0	0	0	0	0	0	45	0	62	0	0	0	12	0	5	0	0	0	124
Task 2 - Predesign Investigation	0	0	0	0	0	12	0	240	0	0	0	6	0	304	0	96	0	8	0	666
Task 3 - Plans and Specifications	0	0	0	0	0	46	0	55	0	129	0	180	0	200	0	266	0	0	0	876
Task 4 - Pre-award Services	0	0	0	0	0	2	0	5	0	28	0	38	0	4	0	4	0	0	0	81
TOTAL HOURS		0		0		60		345		219		224		520		371		8		1,747
TOTAL COST		$0		$0		$2,812		$13,748		$7,479		$6,303		$13,062		$8,310		$140		$51,855

CONSULTANT/CONTRACTOR DETAILED M/WBE-EEO UTILIZATION PLAN
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Consultant/Contractor Name: Ecology & Environment Engineering, P.C.		
Contract Type/Number: D003493-43		Contract Award Date:
Address: 368 Pleasant View Drive	City: Lancaster	State: New York Zip Code: 14086
Project Owner Name: New York State Department of Environmental Conservation		Project/Grant No.:
Address: 625 Broadway	City: Albany	State: New York Zip Code: 12233
Authorized Representative:		Title:
Authorized Signature:		

EEO AND MBE/WBE CONTRACT SUMMARY

M/WBE CONTRACT SUMMARY	%	Amount	EEO CONTRACT SUMMARY	%	No./Emp.	Wk./Hrs.
1. Total Dollar Value of the Prime Contractor	100	$210,085	6. Total for all Employees			
			7. Total Goal for Minority Employees			
2. State Share/Amount						
3. MBE Goal/Amount	15	$31,513	8. Total Goal for Female Employees			
4. WBE Goal/Amount	5	$10,504	9. EEO Combined Totals			
5. MBE/WBE Combined Totals	20	$42,017				

Office of Minority & Women's Business Programs Use Only

Proposed Goals		Date Approved	Date Disapproved	Initials
MBE (%)	EEO-Minorities (%)			
WBE (%)	EEO-Minorities (%)			

7 Staffing Plan

E & E proposes the following primary staffing plan for the completion of this WA.

Program Manager: D. Albers, P.E.
Construction Management Director: D. Miller, P.E.
Project Manager: S. Gardner, P.E.
Project Geologist: R. Watt, P.G.

Task 1: Work Plan Development

D.Albers – Program review
S. Gardner – Preparation and subcontract development
R. Watt – Preparation and subcontract development, development of HASP and QAPP

Task 2: Pre-Design Investigation

D. Albers – Principal reviewer
R. Watt – Performance of groundwater sampling, geophysical survey, coordination of Geoprobe activities and performance of soil sampling, development of draft and final Pre-Design Investigation Reports
S. Gardner – Performance of utility investigation/confirmation, coordination with survey subcontractor
T. Siener, CIH – Review of HASP
Wendel Duchscherer – Performance of site survey
C&W Environmental – Performance of Geoprobe subsurface investigation
E & E Analytical Services Center – Groundwater and soil analysis

Task 3: Plans and Specifications

D. Miller – QC/QA, Principal reviewer
S. Gardner – Design, plan and specification development
W. Kawar – Assistance with design and plan and specification development
J. DiLulio – Cost estimate preparation, assistance with design, Design Report development

Task 4: Pre-award Services

D. Albers – Attendance at Pre-Bid conference

S. Gardner – Attendance at Pre-Bid conference, development of addenda, performance of bid review

W. Kawar – Assistance with addenda development

8 MBE/WBE Utilization Plan

Introduction and Objective

E & E fully subscribes to the New York State policy that MBE/WBE firms be afforded the maximum opportunity to participate in contracts offered by New York State agencies. As a contractor of NYSDEC, E & E is committed to full compliance with Executive Law Article 15-A and pertinent federal regulations to further MBE/WBE goals and to achieve significant participation by MBE/WBE firms to a level commensurate with their capabilities and responsibilities.

In this section, E & E's MBE/WBE Utilization Plan is described, including goals for this WA, details regarding the services, firms, and the portion of work scheduled to be performed by MBE/WBE firms.

Contract Goals

E & E fully expects to commit to the following established percentage goals. Actual dollar amounts will be contingent upon the total dollar value of the awarded contract.

- Total project amount: $210,085
  - Total percent of MBE/WBE work goal 20% – $42,017
  - Total percent of MBE work goal: 15% – $31,513
  - Total percent of WBE work goal: 5% – $10,504

  E & E maintains an up-to-date affirmative action plan and MBE/WBE hiring plan to ensure equal opportunity for all job applicants, employees, and subcontractors. For the New York State Superfund standby contract, E & E will use the following procedures and resources to meet established MBE/WBE goals:

- The E & E project manager will consult with the E & E MBE/WBE subcontracting coordinator to identify and evaluate work that requires subcontractor services. The subcontracting opportunities will be divided into discrete tasks that may be completed by MBE or WBE firms.

- Following the identification of discrete tasks, the MBE/WBE subcontracting coordinator will review the New York State Directory of Certified Minority and Women-owned Business Enterprises and E & E's MBE/WBE database.

  E & E has developed a database to facilitate the acquisition of qualified MBE and WBE firms for work on various state and federal government contracts. This database consists of the following:

  - MBE and WBE firms listed in the current New York State Department of Commerce Directory of Minority and Women-Owned Businesses, entered and cross-referenced by nine categories of services frequently used by E & E.

    The categories are:
    - Environmental consulting,
    - Engineering,
    - Drilling/geophysics,
    - Laboratory,
    - Community relations,
    - Construction management,
    - Supplier/equipment,
    - Miscellaneous services, and
    - General contractors.

  This listing and cross-referencing facilitates E & E's rapid identification of potentially-qualified MBE/WBE firms for use in various projects.

  - Firms identified in the database as environmental consulting, engineering/geophysical, or drilling services were sent questionnaires requesting more detailed information regarding the backgrounds of each firm. Any firm responding to the first-tier questionnaire was then asked to submit additional information in a supplemental questionnaire that gave E & E more information in a standard format, which enables the comparison and selection of potential firms using methodical and consistent evaluation criteria.

- Following the identification of qualified potential MBE/WBE contractors, the project manager will solicit bids as delineated in the paragraph below, Criteria for Selection.

Criteria for Selection

The criteria for selection are used to obtain and evaluate bids for other nonprofessional services. Following the identification of discrete tasks and potential MBE/WBE firms by the project manager and E & E's MBE/WBE subcontracting coordinator, bids will be requested from qualified firms, and, to the extent possible, one or more MBE/WBE firms will be asked to bid on each task. If bids ex-

ceed $10,000, at least five bids will be obtained. If bids range between $5,000 and $10,000, three bids will be obtained. In either case, based on the bids submitted, an award will be made to the most responsible MBE/WBE bidder. If bids are less than $5,000, E & E plans to solicit three verbal quotes from MBE/WBE firms. Professional services will be subcontracted to MBE/WBE firms pursuant to applicable New York State regulations.

Subcontracted Services

E & E has found that opportunities exist for MBE/WBEs in the following work categories:

- Surveying services; and
- Subsurface soil investigation services.

In order to follow E & E's criteria, five bids were sought for both surveying and subsurface soil investigation. Requests were submitted to each of the following firms:

Well Rehabilitation and Soil Boring Subcontractors:

- American Auger & Ditching Co. – WBE
- C & W Environmental
- Northstar Drilling – WBE
- Nothnagle Drilling, Inc.
- Zebra Environmental Corporation

Surveying Subcontractors:

- Klettke Land Surveys, P.C.
- Lu Engineers, P.C. – MBE
- Naybor Land Surveying – WBE
- Wendel Duchscherer Survey
- Woodbury Surveying - WBE

After receipt of the bids, C & W Environmental was selected to perform the well rehabilitation and soil borings and Wendel Duchscherer was selected to perform the surveying services. These firms were selected based on their lowest bid of

each respective group. American Auger and Ditching Company, Naybor Land Surveying, and Woodbury Surveying declined to bid due to schedule conflicts.

9 References

Parsons Engineering Science, Inc. (Parsons), 2001, Remedial Investigation/Feasibility Study at the Fourth Street Site, January.

A Conference Call Minutes

Conference Call Minutes
Fourth Street Inactive Hazardous Waste Site
September 19, 2003

Attendees:
Vivek Nattanmai - DEC Albany
Andrew English - DEC Albany
Edward Hampston - DEC Albany
Jaspal Walia - DEC Buffalo
Martin Doster - DEC Buffalo
Dave Albers - E & E
Rick Watt - E & E
Shawn Gardner - E & E

1. Contract Documents

Rick discussed well rehab and groundwater sampling. MW-1 was removed. The wells will be rehabilitated now since activity not scheduled for ~9 months. About half the wells need rehab.

Fieldwork can start about week after submittal of final work plan. Draft work plan will incorporate sub quotes, cost estimate, etc. The final work plan will incorporate site-specific health and safety plan and quality assurance plans for the pre-design fieldwork.

Target early November to start fieldwork. Approximately three weeks required for pre-design field activities followed and interspersed with data evaluation and lab analysis. Target before Christmas break for fieldwork completion. During fieldwork, will minimize exposure to public. During this time, will do some work when school's out.

Not addressing soil around SB12 was discussed. All parties believed it was part of scope of work but don't recall if ROD discusses this. This topic will be discussed further internally at DEC as to whether the area around SB12 is going to be addressed (removed) or not. It's possible there's an unknown source and the question is whether it's linked to the site.

A requirement for a new fact sheet was discussed. Andrew stated one maybe should be issued after 30% design to identify what's going to happen. M. Doster stated that a fact sheet was sent in May 2003 that said no money, no activity.

One of the site challenges is that site ownership is unclear. The city owns the school; BURA owns property with the contamination. The school board runs the school. Therefore, we should include all parties. Jaspal gave Vivek the contact number and names. Vivek has already spoken with school board and city. Vivek will identify who's responsible for granting access to the site and will gain access through this group.

The original fact sheet has a distribution list and a fact sheet was given to the students. The Buffalo DEC office did the mailing. A Spanish version of fact sheet was prepared (translated by a representative from the Buffalo Public school). The school did translation at Buffalo DEC's encouragement for original.

M. Doster stated that because the State is taking responsibility for the site, the state should repair the snow fence that is in disrepair around an area of contaminated soil. It was decided to include a work

element to repair or replace fence in E & E's scope and work plan. E & E proposed to dispose of the existing fence and replace with appropriate fence (orange construction fence). We will reuse what can be.

M. Doster also mentioned the key to the design is the utilities. E & E needs to spend time locating and investigating where they are, their age, construction, and what's active. While writing the ROD, National Fuel and other organizations contested that excavation cannot be done because of utilities. We also need to keep in mind that the school may want to build on site.

Vivek - After work plan approval, E & E should have contractors ready to go when NTP is issued.

1. For pre-design report include old data from RI but only what's necessary to identify contamination
2. Vivek to follow-up with Parson's to obtain electronic copies of the existing RI/FS and survey.

Andrew:

1. Focus on extent of soil for excavation; identify what needs to be removed unambiguously.
2. Collect enough data to determine hazardous waste along with Engineer's estimate
3. Ground water treatment issues: decide what type of treatment, if further characterization is needed or if we decide to let contractor figure out treatment. 30% design will further identify this course.
4. Utility issues will be a major concern for this project.

M. Doster recalls not having a lot of TCLP data and recommend spending time to gather sufficient data.

Basis of Design report: Pre-design is typically separate from Basis of Design report but Vivek proposes to blend the two reports together. This will be decided later.

Water volume and treatment requirements for Buffalo Sewer Authority (BSA) will be determined. E & E will get preliminary data for sample analysis and BSA requirements to Vivek as work progresses.

Dewatering issues:

- Settling tanks and treatment with sampling before discharge to BSA.
- Handling water with product. Possibly mix with soil, phase separation and disposal/recycling of oil. Need analytical on oil phase during investigation. E & E to determine what may be required in addition to TCLP, PCBs, and flashpoint.
- Collect additional groundwater analytical data to help with basis of design.

General discussion:

- Pre-design has to identify limits of contamination unambiguously. Field effort must be dynamic.
- Include extra borings to allow step out if contamination is encountered beyond formerly identified boundaries.
- Don't want any surprises during excavation.
- If a boring is found to be dirty, archive a sample and step out to complete a clean boring.
- Leave extra room for additional samples.
- Manage water during excavation but don't want to get into long-term treatment, possibly remove a significant volume of groundwater during remediation to improve overall groundwater quality..
- E & E will contact BSA and prepare a performanced-base spec, then develop treatment train for cost estimating and compliance check.
- E & E will work with the DEC to get BSA's permit requirements and include with specs.

M. Doster stated he has a BSA permit from Steel Fields site for discharge to BSA. He will get a copy to E & E within a week. E & E will develop sampling plan based on this permit.

Vivek talked with school board about excavation schedule. Board would like excavation during summer (~2 months). If cannot complete, consider how to handle school activities if excavation continues.

Sprung structure - difficult to cover this entire area staging area - maybe using ballfield area and moving parking area for interim. DEC (Buffalo) stated DNAPL cross-hatched area was developed conservatively but they are "comfortable" with these limits. However, still needs to be verified. Structure or foam should be considered to minimize odor. National Fuel thinks they can use foam on their adjacent MGP site. E & E will include an evaluation of foam to control odors in design report.

- DEC will meet with school official after pre-design. E & E will support when necessary.
- Level B will likely be required during remediation.
- Present design critical questions before 30% so that the questions are addressed during the 30% design
- Buffalo DEC suggested reviewing the responsiveness summary in the ROD to gain an understanding of the community concerns and the concerns of NFG.
- Public was receptive, NFG and BURA provided comments and was against activity.
- Activity and remedial design by NFG is about 6 months ahead of the Fourth Street site. Pre-design for NFG already complete. 30% expected around Thanksgiving.
- For NFG, in-situ oxidation under school proposed; however, portions of the school are supported on piers and contamination was identified in some areas beneath the school.
- Buffalo DEC confident two sites are not commingled. DNAPL boundary does appear to end as shown on map in the RI report (cross-hatched area).

E & E needs to be concerned with historical structure foundations. Geophysical surveys can supplement historic structure and utility maps, but with fill being thick in the area of past structures, foundations and utilities will be hard to identify. Rep from the conductivity meter manufacturer said we should be able to identify some features.

Jaspal did not identify any cyanide waste, believe it's on the NFG site.

Discussed using backhoe instead of borings. Rick concerned with vertical extent. M. Doster feels benefit to do some test pits. Rick stated for cost effectiveness, stick with one method. Vivek didn't propose test pits because lateral extent is reasonably well identified.

E & E will conduct utility and background research to find out what is there. However, NFG found a gas line on NFG site even after their completed their research and had the utilities field marked.

Pre-design field activities sequence:

- Well rehab
- Groundwater sampling
- Geophysics
- Utility search (concurrent with well rehab and geophysics)
- Bore holes

Jaspal will provide the site plan for the Waterfront School to E & E.

Transportation issues for disposal of waste:

- Foaming and tarping trucks;
- Evaluate routes to avoid residential
- Well designed decon area/pad
- Drawings showing routes
- Special training, specs for addressing odors

Budget

- More soil borings
- More possible water analysis
- Utility issues
- Adding snow fence
- Discuss design effort in more detail with Vivek after this call.

Schedule

- Looking to get draft work plan submittal 2-3 weeks following this conference call. Will include budget, schedule, etc., as well as Draft Field Activities Plan

Action Items:

Vivek - Electronic figure from Parson
Richard Stanton - Access permission
Jaspal - BSA permit for Steel Fields, and plans for school from Retech/NFG report
Gardner - additional detail on design costs to Vivek

B Health and Safety Plan

ecology and environment, inc.

SITE-SPECIFIC
HEALTH AND SAFETY PLAN

Project: Fourth Street Inactive Hazardous Waste Site (Site No. 9-15-167)

Project No.: 000699.NV13.02

TDD/PAN No.: _____

Project Location: City of Buffalo, Erie County, New York

Proposed Date of Field Activities: November, 2003

Project Director: Dave Albers

Project Manager: Shawn Gardner

Prepared by: Wadie Kawar Date Prepared: October 16, 2003

Approved by: Tom Siener Date Approved: October 30, 2003

Reviewed by: Richard Watt Date Reviewed: October 30, 2003

1. INTRODUCTION

1.1 POLICY

It is E & E's policy to ensure the health and safety of its employees, the public, and the environment during the performance of work it conducts. This site-specific health and safety plan (SHASP) establishes the procedures and requirements to ensure the health and safety of E & E employees for the above-named project. E & E's overall safety and health program is described in *Corporate Health and Safety Program for Toxic and Hazardous Substances* (CHSP). After reading this plan, applicable E & E employees shall read and sign E & E's Site-Specific Health and Safety Plan Acceptance form.

This SHASP has been developed for the sole use of E & E employees and is not intended for use by firms not participating in E & E's training and health and safety programs. Subcontractors are responsible for developing and providing their own safety plans.

This SHASP has been prepared to meet the following applicable regulatory requirements and guidance:

Applicable Regulation/Guidance
29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER)
Other:

1.2 SCOPE OF WORK

Description of Work: 1. Use a direct-push unit (Geoprobe) to obtain soil core samples. 2. Monitoring well rehabilitation and development, and collection of groundwater samples from existing groundwater monitoring wells. 3. Perform geophysical survey.

Equipment/Supplies: Attachment B-1 contains a checklist of equipment and supplies that will be needed for this work.

The following is a description of each numbered task:

Task Number	Task Description
1	Collect soil samples from direct-push boreholes
2	Rehabilitation of existing monitoring wells, and collection of groundwater samples
3	Geophysical survey

1.3 SITE DESCRIPTION

Site Map: A site map is attached at the end of this plan.

Site History/Description (see project work plan for detailed description): The 5-acre site under investigation was the location of the former Citizens Gas Works Manufacture Gas Plant (MGP). The site is located in a mixed residential, commercial, and recreational setting. The site is surrounded by the Waterfront School and the National Fuel Gas Buffalo Service station (another former MGP) on the south, Fourth Street and Interstate 190 on the west, Pine Harbor Apartments on the east, and athletic fields on the north. While the specific process used is unknown, Citizens Gas Work manufactured gas from coal for heating and lighting. Typical MGP processes produced waste including coal tar, oils, coke and ash, sulfur, and purifier waste (cyanide-contaminated wood). Contamination identified during the Remedial Investigation (RI) conducted in 1998 and 1999 included benzene, toluene, ethylbenzene, xylene (BTEX), polynuclear aromatic hydrocarbons (PAHs), and cyanide. The highest concentrations of BTEX, total PAHs, and cyanide detected in groundwater were 21.7 µg/l, 9 µg/l, and 140 µg/l, respectively. The highest concentrations of BTEX, total PAHs, and cyanide detected in subsurface soil samples were 33 mg/kg, 211 mg/kg, and 46.3 mg/kg respectively. Coal tar (DNAPL) was also identified in subsurface soil.

Is the site currently in operation? No.

Locations of Contaminants/Wastes: Volatile and semi-volatile organic compounds have been detected in both on-site groundwater and subsurface soil.

Types and Characteristics of Contaminants/Wastes:

☒ Liquid	☐ Solid	☐ Sludge	☐ Gas/Vapor
☐ Flammable/Ignitable	☒ Volatile	☐ Corrosive	☐ Acutely Toxic
☐ Explosive	☐ Reactive	☒ Carcinogenic	☐ Radioactive
☐ Medical/Pathogenic	☐ Other: _____		

2. ORGANIZATION AND RESPONSIBILITIES

E & E team personnel shall have on-site responsibilities as described in E & E's standard operating procedure (SOP) for Site Entry Procedures (GENTECH 2.2). The project team, including qualified alternates, is identified below.

Name	Site Role/Responsibility
Rick Watt	Field Team Leader and Site Safety Officer
Stephanie Reynolds	Field Geologist
Others (field technicians)	To be determined

3. TRAINING

Prior to work, E & E team personnel shall have received training as indicated below. As applicable, personnel shall have read the project work plan, sampling and analysis plan, and/or quality assurance project plan prior to project work.

Training	Required
40-Hour OSHA HAZWOPER Initial Training and Annual Refresher (29 CFR 1910.120)	X
Annual First Aid/CPR	X
Hazard Communication (29 CFR 1910.1200)	X
40-Hour Radiation Protection Procedures and Investigative Methods	
8-Hour General Radiation Health and Safety	
Radiation Refresher	
DOT and Biannual Refresher	X
Other:	

4. MEDICAL SURVEILLANCE

4.1 MEDICAL SURVEILLANCE PROGRAM

E & E field personnel shall actively participate in E & E's medical surveillance program as described in the CHSP and shall have received, within the past year, an appropriate physical examination and health rating.

E & E's health and safety record (HSR) form will be maintained on site by each E & E employee for the duration of his or her work. E & E employees should inform the site safety officer (SSO) of any allergies,

medical conditions, or similar situations that are relevant to the safe conduct of the work to which this SHASP applies.

Is there a concern for radiation at the site? Yes X ☒ No

If no, go to 5.1.

4.2 RADIATION EXPOSURE

Not applicable. Dosimetry will not be conducted.

5. SITE CONTROL

5.1 SITE LAYOUT AND WORK ZONES

Site Work Zones: Refer to the map attached at the end of this plan for designated work zones.

Site Access Requirements and Special Considerations: Underground utilities are not completely delineated at the site. E&E will contact the underground utility protection organization to identify and locate underground utilities prior to intrusive subsurface activities.

Illumination Requirements: Work during daylight hours only.

Sanitary Facilities (e.g., toilet, shower, potable water): Facilities will be identified in the field.

On-Site Communications: Cell phone will be brought on site and maintained with either team member.

Other Site-Control Requirements: None known at this time. To be determined.

5.2 SAFE WORK PRACTICES

Daily Safety Meeting: A daily safety meeting will be conducted for all E & E personnel and documented. The information and data obtained from applicable site characterization and analysis will be addressed in the safety meetings and also used to update this HASP, if necessary.

Work Limitations: Work shall be limited to a maximum of 12 hours per day. If 12 consecutive days are worked, at least one day off shall be provided before work is resumed. Work will be conducted in daylight hours unless prior approval is obtained and the illumination requirements in 29 CFR 1910.120(m) are satisfied.

Weather Limitations: Work shall not be conducted during electrical storms. Work conducted in other inclement weather (e.g. severe rain or snow) will be approved by project management and the regional safety coordinator or designee.

Other Work Limitations: None at this time. To be determined.

Buddy System: Field work will be conducted in pairs of team members according to the buddy system.

Line of Sight: Each field team member shall remain in the line of sight and within verbal communication of at least one other team member.

Eating, Drinking, and Smoking: Eating, drinking, smoking, and the use of tobacco products shall be prohibited in the exclusionand contamination reduction areas, at a minimum, and shall only be permitted in designated areas.

Contamination Avoidance: Field personnel shall avoid unnecessary contamination of themselves, other personnel, equipment, and all materials to the extent practicable.

Sample Handling: Protective gloves of a type designated in Section 7 will be worn when containerized samples are handled for labeling, packaging, transportation, and other purposes.

Vermiculite Handling: Vermiculite will not be used; its use has been replaced with use of bubble wrap.

Other Safe Work Practices: Care should be taken when working in or near parking lots, roadways, etc. High visibility vests should be worn when working in roadways.

6. HAZARD EVALUATION AND CONTROL

6.1 PHYSICAL HAZARD EVALUATION AND CONTROL

Potential physical hazards and their applicable control measures are described in the following table for each task.

Hazard	Task Number	Hazard Control Measures
Biological (flora, fauna, etc.)	All	Potential hazard: Bee stings, poison ivy, dog bites. Establish site-specific procedures for working around identified hazards. Other: _____
Cold Stress	All.	Provide warm break area and adequate breaks. Provide warm noncaffeinated beverages. Promote cold stress awareness. See *Cold Stress Prevention and Treatment* (attached at the end of this plan if cold stress is a potential hazard).
Compressed Gas Cylinders	1 (PID)	Use caution when moving or storing cylinders. A cylinder is a projectile hazard if it is damaged or its neck is broken. Store cylinders upright and secure them by chains or other means. Other: _____
Confined Space	None	Ensure compliance with 29 CFR 1910.146. See SOP for Confined Space Entry. Additional documentation is required. Other: _____
Drilling/Direct Push	1	See Attachment B-3 for Geoprobe operations. Other: _____
Drums and Containers	1,2	Ensure compliance with 29 CFR 1910.120(j). Consider unlabeled drums or containers to contain hazardous substances and handle accordingly until the contents are identified. Inspect drums or containers and assure integrity prior to handling. Move drums or containers only as necessary; use caution and warn nearby personnel of potential hazards. Open, sample, and/or move drums or containers in accordance with established procedures; use approved drum/container-handling equipment. Other: _____

Hazard	Task Number	Hazard Control Measures
Electrical	1	Ensure compliance with 29 CFR 1910 Subparts J and S. Locate and mark energized lines. De-energize lines as necessary. Ground all electrical circuits. Guard or isolate temporary wiring to prevent accidental contact. Evaluate potential areas of high moisture or standing water and define special electrical needs. Other: _____
Excavation and Trenching	None	Ensure that excavations comply with and personnel are informed of the requirements of 29 CFR 1926 Subpart P. Ensure that any required sloping or shoring systems are approved as per 29 CFR 1926 Subpart P. Identify special personal protective equipment (PPE) (see Section 7) and monitoring (see Section 8) needs if personnel are required to enter approved excavated areas or trenches. Maintain line of sight between equipment operators and personnel in excavations/trenches. Such personnel are prohibited from working in close proximity to operating machinery. Suspend or shut down operations at signs of cave in, excessive water, defective shoring, changing weather, or unacceptable monitoring results. Other: _____
Fire and Explosion	None	Inform personnel of the location(s) of potential fire/explosion hazards. Establish site-specific procedures for working around flammables. Ensure that appropriate fire suppression equipment and systems are available and in good working order. Define requirements for intrinsically safe equipment. Identify special monitoring needs (see Section 8). Remove ignition sources from flammable atmospheres. Coordinate with local fire-fighting groups regarding potential fire/explosion situations. Establish contingency plans and review daily with team members. Other: _____

Hazard	Task Number	Hazard Control Measures
Heat Stress	None	Provide cool break area and adequate breaks. Provide cool non-caffeinated beverages. Promote heat stress awareness. Use active cooling devices (e.g., cooling vests) where specified. See *Heat Stress Prevention and Treatment* (attached at the end of this plan if heat stress is a potential hazard).
Heavy Equipment Operation	None	Define equipment routes, traffic patterns, and site-specific safety measures. Ensure that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms. Ensure that ground spotters are assigned and informed of proper hand signals and communication protocols. Identify special PPE (Section 7) and monitoring (Section 8) needs. Ensure that field personnel do not work in close proximity to operating equipment. Ensure that lifting capacities, load limits, etc., are not exceeded. Other: _____
Heights (Scaffolding, Ladders, etc.)	None	Ensure compliance with applicable subparts of 29 CFR 1910. Identify special PPE needs (e.g., lanyards, safety nets, etc.) Other: _____
Noise	1	Establish noise level standards for on-site equipment/operations. Inform personnel of hearing protection requirements (Section 7). Define site-specific requirements for noise monitoring (Section 8). Other: _____
Overhead Obstructions	1	Wear hard hat. Other: Geoprobe Rig_____
Power Tools	None	Ensure compliance with 29 CFR 1910 Subpart P. Other: _____
Sunburn	None	Apply sunscreen. Wear hats/caps and long sleeves. Other: _____

Hazard	Task Number	Hazard Control Measures
Utility Lines	1	Identify/locate existing utilities prior to work. Ensure that overhead utility lines are at least 25 feet away from project activities. Contact utilities to confirm locations, as necessary. Other: _____
Weather Extremes	All	Establish site-specific contingencies for severe weather situations. Provide for frequent weather broadcasts. Weatherize safety gear, as necessary (e.g., ensure eye wash units cannot freeze, etc.). Identify special PPE (Section 7) needs. Discontinue work during severe weather. Other: _____
Other:	All	Active roadways: wear high visibility clothing and watch for cars.

6.2 CHEMICAL HAZARD EVALUATION AND CONTROL

6.2.1 Chemical Hazard Evaluation

Potential chemical hazards are described by task number in Table 6-1. Hazard Evaluation Sheets for major known contaminants are in Attachment B-2 at the end of this plan.

6.2.2 Chemical Hazard Control

An appropriate combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below published exposure levels (see Section 6.2.1).

Applicable Engineering/Administrative Control Measures: None

PPE: See Section 7.

6.3 RADIOLOGICAL HAZARD EVALUATION AND CONTROL

Not applicable.

Table 6-1

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	Benzene*	1 ppm	0.1	10 ppm	Y	Inh, Ing, Eye, Skin	DIZZ, GD, HA, NAU, Drowsiness, Irr. E/S/URT/GI, Pulmonary edema, Convulsions	4.68 ppm Aromatic	150% 100%	9.25
1	Cyanide	5 mg/m3 Sk	5 mg/m3 C; Sk	5 mg/m3 Sk	Y	Inh, Ing, Eye, Skin	HA, DIZZ, LOC, Cessation of breathing, Inh.or ing. may be fatal	PWP Almond	--- ---	15.13
1	Ethyl benzene	100 ppm	100 ppm	100 ppm	Y	Inh, Ing, Eye, Skin	Irritation (E/S/mucous membranes), headache, dermatitis, narcosis, coma	140 ppm Aromatic	100% ---	8.76
1	Naphthalene	10 ppm	10 ppm	10 ppm	N	Inh, Ing, Eye, Skin	Abdominal cramps, confusion, dark urine	3 ppm Tar, Mothballs	48% ---	8.12
1	Phenanthrene*	0.2 mg/m3	0.1 mg/m3	0.2 mg/m3	Y	Inh, Ing, Eye, Skin	Sensitization to sunlight, skin irritation	--- Aromatic	--- ---	7.80
1	Pyrene*	0.2 mg/m3	0.1 mg/m3	0.2 mg/m3	Y	Inh, Ing, Eye, Skin	Sensitization to sunlight, skin irritation	--- Characteristic	--- ---	7.72
1	Toluene*	100 ppm	100 ppm	50 ppm	N	Inh, Ing, Eye, Skin	Irritation of eyes/URT/skin; fatigue, weakness, confusion, HA, DIZZ, LOC	1.6 ppm Aromatic	--- 100%	8.82
1	Xylene, all isomers	100 ppm	100 ppm	100 ppm	N	Inh, Ing, Eye, Skin	Irritation of eyes/nose/throat, drowsiness, dizziness	20 ppm Aromatic, sweet	111% 112%	8.56

Key at end of Table.

Table 6-1
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)

KEY:

* = Chemical is a known or suspected carcinogen.
--- = Information not available

PEL	= Permissible Exposure Limit	E/N/T	= Eyes/Nose/Throat	Ing	= Ingestion	PWP	= Poor Warning Properties
REL	= Recommended Exposure Limit	E/S	=Eyes/skin	IRR	= Irritation	URT	= Upper Respiratory Tract
TLV	= Threshold Limit Value	FA	= Fatigue	LFC	= Lowest Feasible Concentration	V	= Vomiting
C	= Ceiling Limit	F/CC	= fibers per cubic centimeter	LOC	= Loss of Consciousness	WK	= Weakness
CGH	= Cough	GD	= Giddiness	MG/M3	= Milligrams per cubic meter	SK	= Skin Notation
CNS	= Central Nervous System Effects	GI	= Gastrointestinal Tract	NAU	= Nausea	SP	= Slow Pulse
DIZZ	= Dizziness	HA	= Headaches	ppm	= Parts per million	STEL	= Short Term Exposure Limit
		Inh	= Inhalation				

7. LEVEL OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT

7.1 LEVEL OF PROTECTION

The following levels of protection (LOPs) have been selected for each work task based on an evaluation of the potential or known hazards, the routes of potential hazard, and the performance specifications of the PPE. On-site monitoring results and other information obtained from on-site activities will be used to modify these LOPs and the PPE, as necessary, to ensure sufficient personnel protection. The authorized LOP and PPE shall only be changed with the approval of the regional safety coordinator or designee. Level A is not included below because Level A activities, which are performed infrequently, will require special planning and addenda to this SHASP.

Task Number	B	C	D	Modifications Allowed?
1		(X)	X	Yes
2		(X)	X	Yes
3			X	Yes

Note: Use "X" for initial levels of protection. Use "(X)" to indicate levels of protection that may be used as site conditions warrant.

7.2 PERSONAL PROTECTIVE EQUIPMENT

The PPE selected for each task is indicated below. E & E's PPE program complies with 29 CFR 1910.120 and 29 CFR 1910 Subpart I and is described in detail in the CHSP. Refer to 29 CFR 1910 for the minimum PPE required for each LOP.

PPE	Task Number/LOP							
	1	2	3					
Full-face APR	(X)	(X)						
Powered APR								
Cartridges:								
H								
GMC-H	(X)	(X)						
GMA-H								
Other:								
Positive-pressure, full-face SCBA								
Spare air tanks (Grade D air)								
Positive-pressure, full-face, supplied-air system								
Cascade system (Grade D air)								
Manifold system								
5-Minute escape mask								
Safety glasses	X	X	X					
Monogoggles								
Coveralls/clothing	X	X	X					
Protective clothing:								
Tyvek	(X)	(X)	(X)					
Saranex								
Other:								

PPE	Task Number/LOP							
	1	2	3					
Splash apron								
Inner gloves:								
Cotton								
Nitrile	X	X	X					
Latex								
Other:								
Outer gloves:								
Viton								
Rubber								
Neoprene	(X)	(X)	(X)					
Nitrile	(X)	(X)	(X)					
Other:								
Work gloves	(X)							
Safety boots (as per ANSI Z41)	X	X	X					
Neoprene safety boots (as per ANSI Z41)								
Boot covers (type: latex)	(X)	(X)	(X)					
Hearing protection (type: TBD)	(X)							
Hard hat	X	(X)	(X)					
Face shield								
Other:								
Other:								

8. HEALTH AND SAFETY MONITORING

Health and safety monitoring will be conducted to ensure proper selection of engineering/administrative controls, work practices, and/or PPE so that employees are not exposed to hazardous substances at levels that exceed permissible exposure/dose limits or published exposure levels. Health and safety monitoring will be conducted using the instruments, frequency, and action levels described in Table 8-1. Health and safety monitoring instruments shall have been appropriately calibrated and/or performance-checked prior to use.

A community air monitoring plan for control of fugitive vapors and nuisance odors is attached to the end of this plan.

Table 8-1

HEALTH AND SAFETY MONITORING

Instrument	Task Number	Contaminant	Monitoring Location	Monitoring Frequency	Action Levels[a]	
☒ PID (e.g., HNu IS-101) or ☐ FID (e.g., OVA 128-GC)	1, 2	Organic vapors	Breathing zone	continuous	**Unknown Vapors** Background to 1 ppm: Level D 1 to 5 ppm above background: Level C 5 to 500 ppm above background: Level B >500 ppm above background: Level A	**Contaminant-Specific** N/A
Multigas Meter (Oxygen Meter/Explosimeter)	1	Methane and H_2S	At drilling location	continuous	**Oxygen** <19.5% or >22.0%: Evacuate area; eliminate ignition sources; reassess conditions. 19.5 to 22.0%: Continue work in accordance with action levels for other instruments. **Hydrogen Sulfide** ≥4 ppm H_2S: Leave area and consult with SSO.	**Explosivity** ≤10% LEL: Continue work in accordance with action levels for other instruments; monitor continuously for combustible atmospheres. >10% LEL: Evacuate area; eliminate ignition sources; reassess conditions.

[a] Unless stated otherwise, airborne contaminant concentrations are measured as a time-weighted average in the worker's breathing zone. Acceptable concentrations for known airborne contaminants will be determined based on OSHA/NIOSH/ACGIH and/or NRC exposure limits.

Key:

FID = Flame ionization detector.
H_2S = Hydrogen Sulfide.
LEL = Lower explosive limit.
PID = Photoionization detector.
ppm = Parts per million.
SSO = Site safety officer.

9. DECONTAMINATION PROCEDURES

All equipment, materials, and personnel will be evaluated for contamination upon leaving the exclusion area. Equipment and materials will be decontaminated and/or disposed and personnel will be decontaminated, as necessary. Decontamination will be performed in the contamination reduction area or any designated area such that the exposure of uncontaminated employees, equipment, and materials will be minimized. Specific procedures are described below.

Equipment/Material Decontamination Procedures (specified by work plan): Prevent cross-contamination and decon equipment after each use. Dedicated sampling equipment to be used whenever possible. All non-dedicated equipment will be steam cleaned or washed with laboratory-grade detergent and triple rinsed with deionized or distilled water.

Ventilation: All decontamination procedures will be conducted in a well-ventilated area.

Personnel Decontamination Procedures: Protective clothing to be removed in a manner that will minimize the potential of contaminant to skin contact.

PPE Requirements for Personnel Performing Decontamination: Appropriate splash protection to be worn during steam cleaning and/or a wet decon.

Personnel Decontamination in General: Following appropriate decontamination procedures, all field personnel will wash their hands and face with soap and potable water. Personnel should shower at the end of each work shift.

Disposition of Disposable PPE: Disposable PPE must be rendered unusable and disposed as indicated in the work plan.

Disposition of Decontamination Wastes (e.g., dry wastes, decontamination fluids, etc.): Used PPE is to be double bagged if deemed non-hazardous. Potentially hazardous PPE will be drummed. Wastewater is to be containerized and tested. See workplan for further details.

10. EMERGENCY RESPONSE

This section contains additional information pertaining to on-site emergency response and does not duplicate pertinent emergency response information contained in earlier sections of this plan (e.g., site layout, monitoring equipment, etc.). Emergency response procedures will be rehearsed regularly, as applicable, during project activities.

10.1 EMERGENCY RESPONSIBILITIES

All Personnel: All personnel shall be alert to the possibility of an on-site emergency; report potential or actual emergency situations to the team leader and SSO; and notify appropriate emergency resources, as necessary.

Team Leader: The team leader will determine the emergency actions to be performed by E & E personnel and will direct these actions. The team leader also will ensure that applicable incidents are reported to appropriate E & E and client project personnel and government agencies.

SSO: The SSO will recommend health/safety and protective measures appropriate to the emergency. Recommendations will be made with the concurrence of the regional safety coordinator as necessary.

Other: _____

10.2 LOCAL AND SITE RESOURCES (including phone numbers)

Ambulance: **911**

Hospital: Buffalo General Hospital, 100 High Street, Buffalo, NY (716) 859-5600

Directions to Hospital: See map attached at the end of this plan.

Poison Control: 716-878-7654 or 1-800-822-1222 (WNY Poison Control Center)

Police Department: 911 or (716-851-4545), 74 Franklin 14202

Fire Department: 911

Client Contact: Vivek Nattanmai, NYSDEC, 518-402-9812

Site Contact: None

On-Site Telephone Number: Field crew to be equipped with cellular telephone

Cellular Telephone Number: TBD

Radios Available: None

Other:

10.3 E & E EMERGENCY CONTACTS

E & E Emergency Response Center (24 Hours):	716/684-8940
Corporate Health and Safety Director, Dr. Paul Jonmaire:	716/684-8060 (office) 716/655-1260 (home)
Regional Office Contact, Tom Siener, CIH:	716/684-8060 (office) 716/662-4740 (home)
Other:	

10.4 OTHER EMERGENCY RESPONSE PROCEDURES

On-Site Evacuation Signal/Alarm (must be audible and perceptible above ambient noise and light levels): Sound car horn in continuous mode for 10 seconds.

On-Site Assembly Area: At E & E support vehicle.

Emergency Egress Route to Get Off Site: Exit to 4th Street to the west.

Off-Site Assembly Area: 4th Street, west of the site.

Preferred Means of Reporting Emergencies: Telephone, see emergency contact information above.

Site Security and Control: In an emergency situation, personnel will attempt to secure the affected area and control site access.

Emergency Decontamination Procedures: Wash hands and remove contaminated outer wear.

PPE: Personnel will don appropriate PPE when responding to an emergency situation. The SSO and Section 7 of this plan will provide guidance regarding appropriate PPE.

Emergency Equipment: Appropriate emergency equipment is listed in Attachment B-1. Adequate supplies of this equipment shall be maintained in the support area or other approved work location.

Incident Reporting Procedures: Report using telephone to appropriate authorities.

N

SCALE IN FEET

0 80 160 240

NOTE:
BACKGROUND SURVEY INFORMATION FOR THIS MAP FROM PARSONS ENGINEERING SCIENCE, INC. DWG. 32260C13.DWG DATED 2/13/99

BASKETBALL COURT
TENNIS COURT
TENNIS COURT
ATHLETIC FIELD
PLAYGROUND
GRASS
CONCRETE
HYD
1 STORY BRICK SCHOOL
BUILDING
DRIVEWAY
WALK
WALK
WALK
STONE PARKING
DRIVE
FR
FOURTH STREET
FOURTH STREET
PARSONS

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

MW-01 MW-02 MW-03 MW-04 MW-05 MW-06 MW-07 MW-08 MW-09 MW-10

SB-01 SB-02 SB-03 6'-10' SB-04 4'-14' SB-05 3'-14' SB-06 4'-10' SB-07 6'-18' SB-08 SB-09 SB-10 7'-14' ODOR SB-11 SB-12 14'-18' ODOR SB-13 4'-14' SB-15 SB-21 SB-22 6'-10' SHEEN SB-23

SS-01 SS-02 SS-03 SS-04 4'-8' ODOR SS-05 SS-06

BH-1 BH-2 BH-3 BH-4 BH-5 BH-6 BH-7 BH-8 BH-9 BH-10 BH-11 BH-12 BH-13 BH-14 BH-15 BH-16 BH-17 BH-18 BH-19 BH-20

ecology and environment

F:\NV13 4TH ST\proposal.dwg
BUFFplot: jjk 10/1/03

LEGEND:

- BH-01 — PROPOSED PRE-DESIGN INVESTIGATION BOREHOLE LOCATION
- MW-02 — RI MONITORING WELL LOCATION
- SB-01 — RI SOIL BORING LOCATION
- SS-01 — RI SURFACE SOIL SAMPLE LOCATION
- OFFSS-01 — RI OFF SITE SURFACE SOIL SAMPLE LOCATION
- 6'-10' — RI DEPTH AT WHICH DNAPL WAS OBSERVED
- 6'-10' * — RI DEPTH WHERE DNAPL IS INFERRED
- RI AREA OF DNAPL OCCURRENCE

PROPOSED SOIL EXPLORATION LOCATIONS
FIGURE 3-1
FOURTH STREET SITE
BUFFALO, NEW YORK

HOSPITAL DRIVING DIRECTIONS

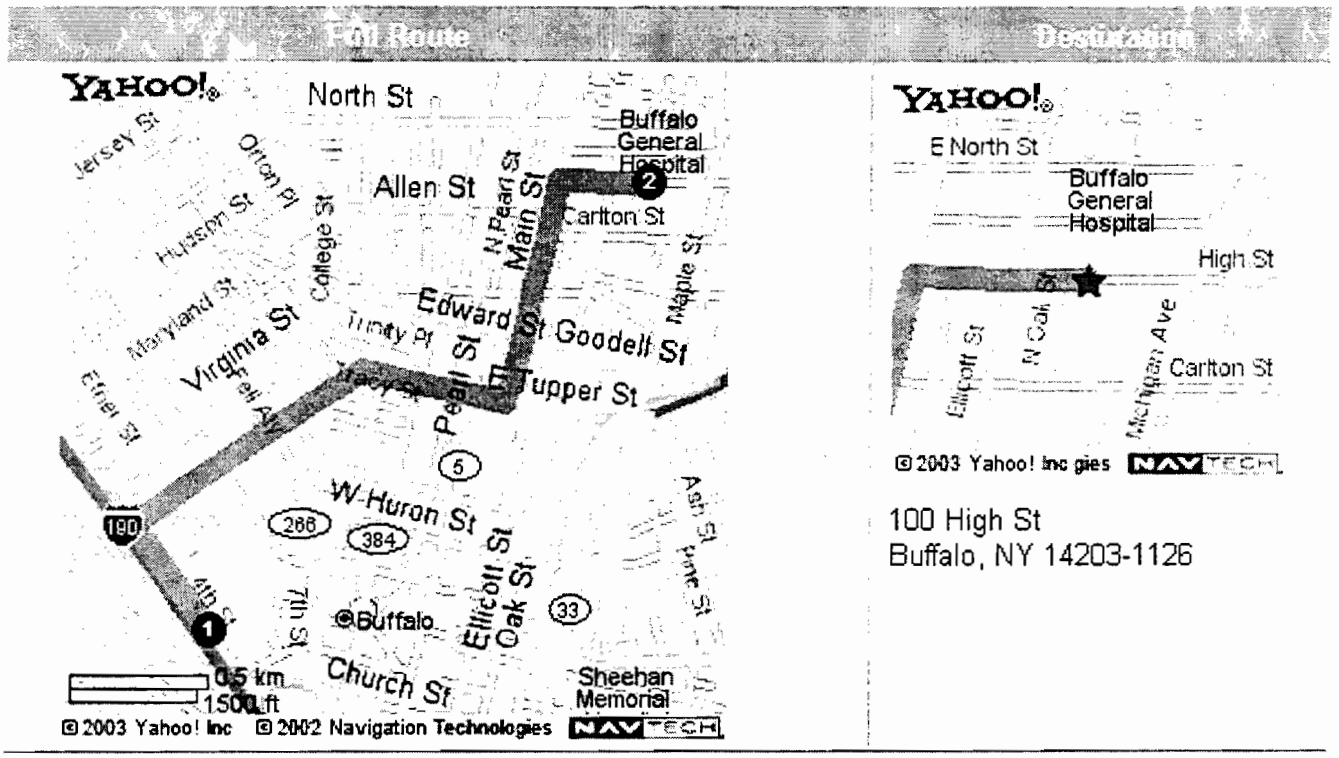
Starting from: A 95 4th St, Buffalo, NY 14202-2613

Arriving at: B Buffalo General Hospital
100 High St, Buffalo, NY 14203-1126
(716) 859-5600

Distance: 1.9 miles **Approximate Travel Time:** 5 mins

Directions

1. Start at **95 4TH ST, BUFFALO** going towards **VILLAGE CT** - go **0.3** mi
2. **4TH ST** becomes **CAROLINA ST** - go **0.6** mi
3. Turn R on **W TUPPER ST** - go **0.3** mi
4. Turn L on **MAIN ST** - go **0.5** mi
5. Turn R on **HIGH ST** - go **0.2** mi
6. Arrive at **100 HIGH ST, BUFFALO**



Source: 2003 Yahoo! Inc.

Attachment B-1

Equipment/Supplies Checklist

ATTACHMENT 1 EQUIPMENT/SUPPLIES CHECKLIST			
INSTRUMENTATION	No.	**EMERGENCY EQUIPMENT**	No.
OVA	1	First aid kit	1
Thermal desorber		Stretcher	
O_2/explosimeter w/cal. kit		Portable eye wash	1
Photovac tip		Blood pressure monitor	
HNu (probe: ___eV)		Fire blanket	
Magnetometer		Fire extinguisher	1
Pipe locator		Thermometer (medical)	
Weather station		Spill kit	
Draeger tube kit (tubes: _____)			
Brunton compass			
Real-time cyanide monitor			
Real-time H_2S monitor			
Heat stress monitor			
Noise equipment		**DECONTAMINATION EQUIPMENT**	
Personal sampling pumps and supplies		Wash tubs	
MiniRam dust monitor		Buckets	X
Mercury monitor		Scrub brushes	X
Spare batteries (type_____)		Pressurized sprayer	
		Spray bottle	X
		Detergent (type: Alconox/Liquinox)	X
RADIATION EQUIPMENT/SUPPLIES		Solvent (type: _____)	
Documentation forms		Plastic sheeting	X
Portable ratemeter		Tarps and poles	
Scaler/ratemeter		Trash bags	X
1" NaI gamma probe		Trash cans	
2" NaI gamma probe		Masking tape	
ZnS alpha probe		Duct tape	X
GM pancake probe		Paper towels	X
Tungsten-shielded GM probe		Face mask	
Micro R meter		Face mask sanitizer	
Ion chamber		Step ladders	
Alert monitor		Distilled water	X
Pocket dosimeter		Deionized water	X
Dosimeter charger		Drums (USDOT)	X
Radiation warning tape			
Radiation decon supplies			
Spare batteries (type:_____)			
SAMPLING EQUIPMENT		**MISCELLANEOUS (Cont.)**	
4-oz. bottles	X	Gatorade or equivalent	X
1-liter amber bottles		Tables	
VOA bottles	X	Chairs	
Gauze pads		Weather radio	
Hand bailers	X	Two-way radios	
Spoons	X	Binoculars	
Bottle labels	X	Megaphone	
		Cooling vest	

ATTACHMENT 1 EQUIPMENT/SUPPLIES CHECKLIST			
MISCELLANEOUS	No.	**SHIPPING EQUIPMENT**	No.
Pump		Coolers	X
Surveyor's tape		Paint cans with lids and clips	
100' Fiberglass tape	X	Bubble Wrap	X
300' Nylon rope		Shipping labels	X
Nylon/polyethylene string	X	DOT labels:	
Surveying flags	X	"Up"	
Camera	X	"Danger"	
Film	X	"Inside Container Complies ..."	
Bung wrench/ratchet	X	Hazard Group	
Soil auger		Strapping tape	X
Pick		Baggies	X
Shovel		Custody seals	X
Catalytic heater		Chain-of-custody forms	X
Propane gas		Federal Express forms	X
Banner tape		Clear packing tape	X
Surveying meter stick		Permanent markers	X
Chaining pins and ring			
Logbooks (_X_ large, ___ small)	X		
Required MSDSs	X		
Intrinsically safe flashlight			
Potable water	X		

Attachment B-2

Hazard Evaluation of Chemicals

ecology and environment, inc.

Job No: 1 HAZARD EVALUATION OF CHEMICALS PREPARATION DATE: 4/11/1995

CHEMICAL NAME: Benzene*

CAS NUMBER: 71-43-2 DOT NAME/ID NO: UN 1114

SYNONYMS: BENZOL, BENZOLE, CYCLOHEXATRIENE, BENZOLENE, BICARBURET OF HYDROGEN, CARBON OIL, COAL NAPHTHA

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: C6H6 MOLECULAR WEIGHT: 78.1 SPG/D: 0.88 SOLUBILITY: Slightly soluble

PHYSICÁL STATE: Colorless liquid with a pleasant odor.

FLAMMABLE LIMITS: UPPER - 8.0 %;LOWER - 1.3 %. FLASH POINT: 12F (11C)

VAPOR PRESSURE: 75 mmhg at 68F (20oC) FREEZING POINT: 42F BOILING POINT: 80 C (176 F)

ODOR CHARACTERISTIC: Aromatic Incompatabilities: STRONG OXIDIZING AGENTS, SULFURIC ACID, NITRIC ACID

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA : 10 ppm PEL - TWA: 1 ppm ODOR THRESHOLD: 4.68 ppm

HUMAN (LCLO): RAT/MOUSE (LC50): LD50 (ORAL-RAT)(MG/KG)-4894;

CARCINOGEN: Yes TERATOGEN: AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection:

Gloves: Polyvinyl-Alcohol-E; Teflon-VG; Viton-VG.

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: Death of animals, birds, or fish, and death or low growth rate in plants.death of animals, birds, or fish, and death or low growth rate in plants.

Chronic Symptoms: Shortened lifespan, reproductive problems, lower fertility, and changes in appearance or behavior. Chronic effects can be seen long after first exposure(s) to a toxic chemical.

FIRST AID:

FIRST AID-INHAL: Remove the person from exposure. Begin rescue breathing if breathing has stopped and CPR if

FIRST AID-EYE: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

FIRST AID-SKIN: Quickly remove contaminated clothing. Immediately wash area with large amounts of soap and water. Seek medical attention.

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE:

CHEMICAL NAME: Cyanide

CAS NUMBER: 151-50-8 DOT NAME/ID NO:

SYNONYMS: POTASSIUM CYANIDE, SODIUM CYANIDE, AG CN

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: KCN MOLECULAR WEIGHT: 65.12 SPG/D: 1.52 SOLUBILITY: APPRECIABLE (MORE THAN 10 %)

PHYSICAL STATE: WHITE, GRANULAR POWDER WITH THE ODOR OF HCN.

FLAMMABLE LIMITS: FLASH POINT:

VAPOR PRESSURE: 0 mmHg FREEZING POINT: BOILING POINT: 2957F

ODOR CHARACTERISTIC: Almond Incompatabilities: STRONG ACIDS, STRONG OXIDIZING AGENTS, WATER, AMMONIA

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA : 5 mg/m3 Sk PEL - TWA: 5 mg/m3 Sk ODOR THRESHOLD: PWP

HUMAN (LCLO): RAT/MOUSE (LC50): LD50 (ORAL-RAT)(MG/KG)-10;

CARCINOGEN: TERATOGEN: AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection: IF AIRBORNE CONCENTRATION EXCEEDS TLV, A DUST/MIST RESPIRATOR IS RECOMMENDED. IF CONCENTRATION EXCEEDS CAPACITY OF RESPIRATOR, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED. SAFETY GOGGLES, UNIFORM, APRON, RUBBER GLOVES.

Gloves:

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: Loss of consciousness, convulsions, Ing. or Inh. may be rapidly fatal

Chronic Symptoms: ---

FIRST AID:

FIRST AID-INHAL: CALL A PHYSICIAN. IF INHALED, BREAK AN AMYL NITRITE PEARL IN A CLOTH AND HOLD LIGHTLY UNDER NOSE FOR 15 SECONDS. REPEAT 5 TIMES AT ABOUT 15 SECOND INTE

FIRST AID-EYE: CALL A PHYSICIAN. IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

FIRST AID-SKIN: CALL A PHYSICIAN. IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE:

ecology and environment, inc.

Job No: 1 HAZARD EVALUATION OF CHEMICALS PREPARATION DATE: 4/11/1995

CHEMICAL NAME: Cyanide

CAS NUMBER: 151-50-8 DOT NAME/ID NO:

SYNONYMS: POTASSIUM CYANIDE, SODIUM CYANIDE, AG CN

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: MOLECULAR WEIGHT: SPG/D: SOLUBILITY:

PHYSICAL STATE:

FLAMMABLE LIMITS: FLASH POINT:

VAPOR PRESSURE: FREEZING POINT: BOILING POINT:

ODOR CHARACTERISTIC: Almond Incompatabilities:

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA : 5 mg/m3 Sk PEL - TWA: 5 mg/m3 Sk ODOR THRESHOLD: PWP

HUMAN (LCLO): RAT/MOUSE (LC50):

CARCINOGEN: TERATOGEN: AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection:

Gloves:

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: HA, DIZZ, LOC, Cessation of breathing, Inh.or ing. may be fatal

Chronic Symptoms: 15.13

FIRST AID:

FIRST AID-INHAL:

FIRST AID-EYE:

FIRST AID-SKIN:

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE:

ecology and environment, inc.

Job No: 1 HAZARD EVALUATION OF CHEMICALS PREPARATION DATE: 4/11/1995

CHEMICAL NAME: Cyanide

CAS NUMBER: 151-50-8 DOT NAME/ID NO:

SYNONYMS: HYDROCYANIC ACID POTASSIUM SALT

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: KCN MOLECULAR WEIGHT: 65.12 SPG/D: 1.52 SOLUBILITY: APPRECIABLE (MORE THAN 10 %)

PHYSICAL STATE: WHITE, GRANULAR POWDER WITH THE ODOR OF HCN.

FLAMMABLE LIMITS: FLASH POINT:

VAPOR PRESSURE: 0 mmHg FREEZING POINT: BOILING POINT: 2957F

ODOR CHARACTERISTIC: Almond Incompatabilities: STRONG ACIDS, STRONG OXIDIZING AGENTS, WATER, AMMONIA

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA : 5 mg/m3 Sk PEL - TWA: 5 mg/m3 Sk ODOR THRESHOLD: PWP

~~HUMAN (LCLO):~~ ~~RAT/MOUSE (LC50):~~ ~~LD50 (ORAL RAT)(MG/KG) 10;~~

CARCINOGEN: TERATOGEN: AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection: IF AIRBORNE CONCENTRATION EXCEEDS TLV, A DUST/MIST RESPIRATOR IS RECOMMENDED. IF CONCENTRATION EXCEEDS CAPACITY OF RESPIRATOR, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED. SAFETY GOGGLES, UNIFORM, APRON, RUBBER GLOVES.

Gloves:

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: Loss of consciousness, convulsions, Ing. or Inh. may be rapidly fatal

Chronic Symptoms: ---

FIRST AID:

FIRST AID-INHAL: CALL A PHYSICIAN. IF INHALED, BREAK AN AMYL NITRITE PEARL IN A CLOTH AND HOLD LIGHTLY UNDER NOSE FOR 15 SECONDS. REPEAT 5 TIMES AT ABOUT 15 SECOND INTE

FIRST AID-EYE: CALL A PHYSICIAN. IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

FIRST AID-SKIN: CALL A PHYSICIAN. IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE:

ecology and environment, inc.

Job No: 1 HAZARD EVALUATION OF CHEMICALS PREPARATION DATE: 4/11/1995

CHEMICAL NAME: Cyanide

CAS NUMBER: 151-50-8 DOT NAME/ID NO:

SYNONYMS: HYDROCYANIC ACID POTASSIUM SALT

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: MOLECULAR WEIGHT: SPG/D: SOLUBILITY:

PHYSICAL STATE:

FLAMMABLE LIMITS: FLASH POINT:

VAPOR PRESSURE: FREEZING POINT: BOILING POINT:

ODOR CHARACTERISTIC: Almond Incompatabilities:

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA : 5 mg/m3 Sk PEL - TWA: 5 mg/m3 Sk ODOR THRESHOLD: PWP

HUMAN (LCLO): RAT/MOUSE (LC50):

CARCINOGEN: TERATOGEN: AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection:

Gloves:

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: HA, DIZZ, LOC, Cessation of breathing, Inh.or ing. may be fatal

Chronic Symptoms: 15.13

FIRST AID:

FIRST AID-INHAL:

FIRST AID-EYE:

FIRST AID-SKIN:

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE:

CHEMICAL NAME: Ethyl benzene
CAS NUMBER: 100-41-4 DOT NAME/ID NO: UN 1175
SYNONYMS: PHENYLETHANE, ETHYL BENZOL

CHEMICAL AND PHYSICAL PROPERTIES:
CHEMICAL FORMULA: CH3CH2C6H5 MOLECULAR WEIGHT: 106.2 SPG/D: 0.87 SOLUBILITY: Slightly soluble
PHYSICAL STATE: Colorless liquid with an aromatic odor.
FLAMMABLE LIMITS: UPPER-6.7%;LOWER-0.8% FLASH POINT: 59F (15C)
VAPOR PRESSURE: 7.1 mmhg at 68F (20C) FREEZING POINT: -139F BOILING POINT: 277F
ODOR CHARACTERISTIC: Aromatic Incompatabilities: STRONG OXIDIZERS

BIOLOGICAL PROPERTIES:
IDLH: TLV-TWA : 100 ppm PEL - TWA: 100 ppm ODOR THRESHOLD: 140 ppm
~~HUMAN (LCLO):~~ ~~RAT/MOUSE (LC50):~~
CARCINOGEN: TERATOGEN: AQUATIC:
ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):
Personal protection: Avoid skin contact with Ethyl Benzene. Wear solvent resistant gloves and clothing,Wear splash proof chemical goggles and face shield.Respiratory Protection.

Gloves: Teflon-VG; Viton-E.
E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:
Monitoring:

HEALTH HAZARDS:
Acute Symptoms: Irritation (E/S/mucous membranes), headache, dermatitis, narcosis, coma,trouble breathing, paralysis and death.

Chronic Symptoms: May damage the developing fetus,blistering,liver damage,fatigue, sleep disturbances,reduced coordination.

FIRST AID:
FIRST AID-INHAL: Remove the person from exposure.Begin rescue breathing if breathing has stopped and CPR if heart action has stopped.Transfer promptly to a medical facility.
FIRST AID-EYE: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.
FIRST AID-SKIN: Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

DISPOSAL/WASTE TREATMENT:
DISPOSAL OF WASTE:

ecology and environment, inc.

Job No: 1 HAZARD EVALUATION OF CHEMICALS PREPARATION DATE: 4/11/1995

CHEMICAL NAME: Naphthalene

CAS NUMBER: 91-20-3 DOT NAME/ID NO: UN 1334/UN 2304

SYNONYMS: NAPTHALIN, MOTH BALL, WHITE TAR

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: C10H8 MOLECULAR WEIGHT: 128.18 SPG/D: 1.14 SOLUBILITY: Very slightly soluble

PHYSICAL STATE: White crystalline solid or a liquid with a

FLAMMABLE LIMITS: UPPER - 5.9 %; LOWER - 0.9 % FLASH POINT: 174F

VAPOR PRESSURE: 0.05 mm Hg at 68F FREEZING POINT: BOILING POINT: 218 C (424 F)

ODOR CHARACTERISTIC: Tar, Mothballs Incompatabilities: STRONG OXIDIZING AGENTS

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA : 10 ppm PEL - TWA: 10 ppm ODOR THRESHOLD: 3 ppm

HUMAN (LCLO): RAT/MOUSE (LC50): LD50 (ORAL-RAT)(MG/KG)-1780;

CARCINOGEN: TERATOGEN: AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection: Avoid skin contact with Naphthalene. Wear protective gloves and clothing. Wear dust-proof goggles and face shield.Respiratory Protection.

Gloves: Teflon-E.

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: Abdominal cramps, confusion, dark urine,irritation(E/N/T),liver and kidneys damage

Chronic Symptoms: May damage the developing fetus,skin allergy,itching and a skin rash.

FIRST AID:

FIRST AID-INHAL: Remove the person from exposure. Begin rescue breathing if breathing has stopped and CPR if heart action has stopped.Transfer promptly to a medical facility.

FIRST AID-EYE: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

FIRST AID-SKIN: Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE:

CHEMICAL NAME: Phenanthrene*
CAS NUMBER: 85-01-8 DOT NAME/ID NO:
SYNONYMS:

CHEMICAL AND PHYSICAL PROPERTIES:
CHEMICAL FORMULA: C14H10 MOLECULAR WEIGHT: 178.23 SPG/D: 1.063 SOLUBILITY: Disulfide
PHYSICAL STATE: White fine crystalline powder.
FLAMMABLE LIMITS: FLASH POINT:
VAPOR PRESSURE: FREEZING POINT: BOILING POINT: 760.00mmHg
ODOR CHARACTERISTIC: Aromatic Incompatabilities: Strong oxidizing agents.

BIOLOGICAL PROPERTIES:
IDLH: TLV-TWA : 0.2 mg/m3 PEL - TWA: 0.2 mg/m3 ODOR THRESHOLD: ---
~~HUMAN (LCLO)~~: ~~RAT/MOUSE (LC50): LD50 = 700 mg/kg.~~
CARCINOGEN: Yes TERATOGEN: AQUATIC:
ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):
Personal protection: Wear safety glasses and chemical goggles if splashing is possible. Wear appropriate protective gloves and clothing to prevent skin exposure. Full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Gloves:

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:
Monitoring:

HEALTH HAZARDS:
Acute Symptoms: Sensitization to sunlight, skin irritation

Chronic Symptoms: 7.80

FIRST AID:
FIRST AID-INHAL: Remove from exposure to fresh air immediately.
FIRST AID-EYE: Immediately flush eyes with plenty of water for at least 15 minutes,occasionally lifting the upper and lower lids.
FIRST AID-SKIN: Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

DISPOSAL/WASTE TREATMENT:
DISPOSAL OF WASTE: Dispose of in a manner consistent with federal, state, and local regulations.

CHEMICAL NAME: Pyrene*

CAS NUMBER: 129-00-0 DOT NAME/ID NO:

SYNONYMS: BENZO[DEF]PHENANTHRENE; PYREN

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: MOLECULAR WEIGHT: SPG/D: SOLUBILITY:

PHYSICAL STATE:

FLAMMABLE LIMITS: FLASH POINT:

VAPOR PRESSURE: FREEZING POINT: BOILING POINT:

ODOR CHARACTERISTIC: Characteristic Incompatabilities:

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA : 0.2 mg/m3 PEL - TWA: 0.2 mg/m3 ODOR THRESHOLD: ---

HUMAN (LCLO): RAT/MOUSE (LC50):

CARCINOGEN: TERATOGEN: AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection:

Gloves:

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: Sensitization to sunlight, skin irritation

Chronic Symptoms: 7.72

FIRST AID:

FIRST AID-INHAL:

FIRST AID-EYE:

FIRST AID-SKIN:

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE:

ecology and environment, inc.

Job No: 1 HAZARD EVALUATION OF CHEMICALS PREPARATION DATE: 4/11/1995

CHEMICAL NAME: Toluene*

CAS NUMBER: 108-88-3 DOT NAME/ID NO: UN 1294

SYNONYMS: PHENYL METHANE, METHYL BENZENE

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: C6H5CH3 MOLECULAR WEIGHT: 92.14 SPG/D: 0.87 SOLUBILITY: Slightly soluble

PHYSICAL STATE: Colorless liquid with a sweet pungent odor.

FLAMMABLE LIMITS: UPPER - 7.1 %;LOWER - 1.2 %. FLASH POINT: 40F

VAPOR PRESSURE: 22 mm Hg at 68F FREEZING POINT: -139F BOILING POINT: 111 C (232 F)

ODOR CHARACTERISTIC: Aromatic Incompatabilities: STRONG OXIDIZING AGENTS, NITRIC ACID, SULFURIC ACID,CHLORINE

BIOLOGICAL PROPERTIES:

IDLH: 2000 PPM TLV-TWA : 50 ppm PEL - TWA: 100 ppm ODOR THRESHOLD: 1.6 ppm

HUMAN (LCLO): RAT/MOUSE (LC50): LD50 (ORAL-RAT)(MG/KG)-5000;

CARCINOGEN: Yes TERATOGEN: AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection: Avoid skin contact with Toluene. Wear solvent resistant gloves and clothing.Wear splash proof chemical goggles and face shield.Respiratory Protection.

Gloves: Polyvinyl-Alcohol-E; Teflon-E; Viton-E.

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: Irritation of eyes/URT/skin; fatigue, weakness, confusion, HA, DIZZ, LOC

Chronic Symptoms: May damage the developing fetus,may damage bone marrow, causing low blood cell count,headaches, loss of appetite, nausea, and liver and kidney damage, and may cause brain damage.

FIRST AID:

FIRST AID-INHAL: Remove the person from exposure.

FIRST AID-EYE: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

FIRST AID-SKIN: Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE: DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL

ecology and environment, inc.

Job No: 1 HAZARD EVALUATION OF CHEMICALS PREPARATION DATE: 4/11/1995

CHEMICAL NAME: Xylene, all isomers
CAS NUMBER: 1830-20-7 DOT NAME/ID NO:
SYNONYMS: DIMETHYLBENZENE, XYLOL

CHEMICAL AND PHYSICAL PROPERTIES:
CHEMICAL FORMULA: MOLECULAR WEIGHT: SPG/D: SOLUBILITY:
PHYSICAL STATE:
FLAMMABLE LIMITS: FLASH POINT:
VAPOR PRESSURE: FREEZING POINT: BOILING POINT:
ODOR CHARACTERISTIC: Aromatic, sweet Incompatabilities:

BIOLOGICAL PROPERTIES:
IDLH: 1000 PPM TLV-TWA : 100 ppm PEL - TWA: 100 ppm ODOR THRESHOLD: 20 ppm
HUMAN (LCLO): RAT/MOUSE (LC50):
CARCINOGEN: TERATOGEN: AQUATIC:
ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):
Personal protection:

Gloves:

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:
Monitoring:

HEALTH HAZARDS:
Acute Symptoms: Irritation of eyes/nose/throat, drowsiness, dizziness

Chronic Symptoms: 8.56

FIRST AID:
FIRST AID-INHAL:
FIRST AID-EYE:
FIRST AID-SKIN:

DISPOSAL/WASTE TREATMENT:
DISPOSAL OF WASTE:

Attachment B-3

Health and Safety Excerpts from Ecology and Environment, Inc. Standard Operation Procedure Geoprobe Operations (GEO 4.12)

Title:	**GEOPROBE OPERATION**
Category:	GEO 4.12
Revised:	October 2003

STANDARD OPERATING PROCEDURE

GEOPROBE OPERATION

02:000699.NV13.01-B1256

ecology and environment, inc.
368 Pleasant View Drive / Lancaster, New York 14086 / (716) 684-8060

TITLE: GEOPROBE OPERATION

CATEGORY: GEO 4.12 **REVISED:** October 2003

TITLE: GEOPROBE OPERATION

CATEGORY: GEO 4.12 **REVISED:** October 2003

Responsibilities

Operator

The crew consists of an operator and a helper. The operator is responsible for the safe and efficient operation of the Geoprobe, and also performs the daily inspections and maintenance. In addition, the operator inventories the supplies and equipment daily and ensures that an adequate supply of expendable parts are on hand.

The operator is responsible for completing the subsurface investigation in accordance with the site-specific work plan and in a safe manner consistent with the site health and safety plan. Routinely, the operator is also the field team leader and as such, is responsible for (1) the quality of the samples recovered from the Geoprobe; (2) compliance with the project's quality assurance/quality control requirements; and (3) completion of the site log.

If the operator observes any unsafe or potentially dangerous situations, the operator will stop operations until the proper corrective actions have been taken. The operator has the authority to secure operations at any location if the operator concludes that the conditions are dangerous or could compromise the quality of the samples.

Helper

The primary function of the helper is to assist the operator in conducting the subsurface investigation. The helper is responsible for assembling, securing, and disassembling the rods and other sampling tools used in the investigation. The helper is also responsible for ensuring that all of the equipment is properly decontaminated and that all tools are in proper working order.

If the helper notices any unsafe or potentially dangerous situations, the helper will inform the operator immediately. The helper must be attentive to conditions around the Geoprobe because the operator will be concentrating on the operation of the unit.

Site Safety Coordinator

The site safety coordinator (SSC) is responsible for ensuring that the subsurface investigation is completed as outlined in the site health and safety plan. The SSC will ensure that all overhead and buried utilities (e.g., electrical lines, telephone lines, natural gas lines) have been identified and located prior to commencing the subsurface investigation. The SSC will be familiar with the operations of the Geoprobe and the potential hazards posed by its operation. In many cases, the operator or helper also serves as the SSC.

Field Procedures

Overhead and Buried Utilities

The use of a Geoprobe on a site or project near electrical power lines and other utilities requires that special precautions be taken by both the operator and the helper. Electricity can shock, burn, and cause death. By law, overhead and buried utilities must be located, noted, and emphasized on all subsurface investigation location plans and assessment sheets. When over-

head electrical power lines exist at or near the site, consider all wires to be live and dangerous. Watch for sagging power lines before entering the site. Do not lift power lines to gain entrance; call the power company and ask them to raise the lines or de-energize the lines. Before raising the derrick near power lines, walk completely around the unit. Determine what the minimum distance from any point on the unit to the nearest power line will be when the derrick is being raised. Do not raise the derrick or operate the unit if this distance is less than 25 feet or, if known, the minimum clearance stipulated by federal, state, and local regulations. To avoid contact with power lines, never move the Geoprobe with the derrick in a raised position.

If there are any questions concerning the safety of drilling on sites near overhead power lines, contact the power company. The power company will provide expert advice at the site as a public service at no cost.

Underground electrical utilities are as dangerous as overhead power lines. Be aware and always suspect the existence of underground utilities. If a sign warning of underground utilities is located on a site boundary, do not assume that underground utilities are located on or near the boundary or property line under the sign. Always contact the owners of utilities and determine jointly the precise location of underground utility lines, and mark or flag the locations. Besides electrical, other utilities that need to be checked are gas, telephone, water, cable TV, fiber optics (very important because of the cost to repair them), and sewer. Potentially responsible parties (PRPs) are often uncooperative in this regard. Private locators can be contracted to survey areas that the utility locators will not.

Operating the Geoprobe

Visual Inspection. At the start of each work day, the operator must visually inspect the Geoprobe. This includes (1) checking the hydraulic fluid levels and the hydraulic lines for fraying, cuts, or leaks; (2) checking the derrick and attachments assembly for adequate lubrication and for damage, nicks, burrs, and leaks; (3) removing any unnecessary dust, dirt, or oil to prevent jams or damage to the equipment; (4) checking nuts and bolts; and (5) checking the sampling equipment (e.g., drive rods, anvils, and pull caps).

Attachment B-4

Community Air Monitoring Plan

Community Air Monitoring Plan
Fourth Street Inactive Hazardous Waste Site
Buffalo New York

All site personnel must be prepared to respond and act quickly in the event of an emergency or accidental contaminant release. Emergency preparedness and response procedures will aid in protecting site workers and the surrounding environment. Preplanning measures will include employee training, fire and explosion prevention, chemical spill and discharge prevention and protection, and safe work practices to avoid personal injury or exposure.

Volatile organic compounds shall be monitored at the downwind perimeter of the work area on a periodic basis during intrusive activities. If total organic vapor levels exceed 5 ppm above background, work activities must be halted and monitoring continued under the provisions of the Vapor Emission Response Plan outlined below. All readings must be recorded and be available for State (DEC & DOH) personnel to review.

Vapor Emission Response Plan

- If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities shall be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background work activities may resume.

- If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities may resume provided the organic vapor level 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities shall be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Site Safety Officer (SSO) shall be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

Major Vapor Emission

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

- If, following the cessation of the work activities, or as the results of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 foot zone).

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

- However, the Major Vapor Emission Response Plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background.

Major Vapor Emission Response Plan

Upon activation of the Major Vapor Emission response plan, the following activities shall be implemented:

- All emergency response contacts as listed in the Health and Safety Plan will be notified.

- Coordination with local officials to arrange for notification and evacuation of the surrounding community.

- Air monitoring for VOCs shall be conducted at 30-minute intervals within the 20-foot zone by the SSO until emissions have subsided.

- If two successive readings below action level of 5 ppm above background are measured for VOCs air monitoring may be halted or modified by the SSO.

- Activities may resume if agreed upon by all emergency response contacts.

Odor

The following odor control measures will be implemented during the site activities:

- During the direct push soil sample collection, a temporary cover will be placed over the borehole whenever the rods are withdrawn.

- When the core samples are laid out on plastic sheeting, an additional sheet of plastic will be used to cover the cores when inspections are not being conducted.

- At the completion of activities at a borehole, the hole will be plugged with cement/bentonite grout and the soil cores will be drummed.

- If any odors are detected in public areas, work will stop until odors can dissipate.

Attachment B-5

Cold Stress Prevention and Treatment

COLD STRESS PREVENTION AND TREATMENT

Cold temperatures are potentially hazardous, especially when work is conducted without appropriate precautions. The following sections describe cold stress prevention and the recognition and treatment of cold stress emergencies.

Preventing Emergencies Due to Cold Stress

When working in situations where the ambient temperature is low, especially if low temperatures are accompanied by windy conditions, personnel should use the following cold-stress prevention measures:

- Wear warm, dry, loose-fitting clothing that is preferably worn in layers. Outer clothing should be waterproof and windproof. Inner clothing should be capable of retaining warmth even when it is wet (e.g., wool or polypropylene) or have wicking capabilities (to draw moisture and perspiration away from the skin).
- Wear lined and insulated footwear and warm gloves or mittens.
- Alternately remove and don clothing layers as necessary to regulate body temperature and reduce excess perspiration.
- Drink warm fluids as often as desired.
- Take frequent breaks to provide for cold stress monitoring.

Cold Stress Emergencies

Hypothermia. Exposure to cold can cause the body's internal temperature to drop to a dangerously low level. Hypothermia occurs when a person's body loses heat faster than it can be produced. The body's normal deep-body temperature is approximately 98.6 degrees Fahrenheit. If body temperature drops to 95 degrees Fahrenheit, uncontrollable shivering may occur. If cooling continues, these other symptoms may occur:

- Vague, slow, slurred speech;
- Forgetfulness, memory lapses;
- Inability to use hands;
- Frequent stumbling;
- Drowsiness;
- Exhaustion, collapse;
- Unconsciousness; and
- Death.

Hypothermia impairs the judgment of the victim. Hypothermia is possible even in temperatures above freezing and can be prevented by remaining warm and dry and avoiding overexposure to the cold.

If a person shows symptoms of hypothermia, perform the following:

- Remove the victim from exposure to wet and cold weather.
- Remove wet clothing.
- If the victim is only mildly affected, provide warm drinks and dry clothing.
- If the victim is more seriously affected (clumsy, confused, unable to shiver), begin safe-warming procedures such as hugging, wrapping in dry blankets, and the use of warm objects such as hot water bottles or heat packs, and arrange for evacuation. Do not give the victim warm drinks until he or she exhibits a clear level of consciousness and appears to be warming up.

Frostbite. Frostbite occurs when body tissue freezes. Severe frostbite can lead to reduced circulation and the possible need for amputation. To prevent frostbite, maintain good circulation and keep extremities warm and dry. In extreme cold, it is important to prevent heat loss from as many areas of the body as possible. Exposed limbs and the head are major areas of heat loss.

Tall, thin people; those in poor physical condition; people with chronic diseases; heavy smokers; children; the elderly; and those who have been drinking alcohol are more susceptible to frostbite than other people due to poor circulation, poor production of body heat, or both.

There may be no pain or numbness experienced with gradual freezing of body tissues. While in the cold, it is important to test extremities for sensation and ensure that clothing is loose-fitting and warm. Exposed parts of the body should be inspected routinely. Just before freezing, skin becomes bright red. As freezing continues, small white patches will appear and the skin will become less elastic, often remaining pitted after it is touched or squeezed.

Serious freezing is most common in the feet because people are less aware of them, circulation and sensation are poorer, and warm footwear is difficult to obtain. Hands are usually the next to freeze. Exposed parts of the head will freeze less rapidly because they are conditioned to exposure and have a better blood supply.

In very cold weather, avoid touching cold metal with bare body parts. In the event that this happens, release the skin gently using heat, warm water, or urine. Avoid handling gasoline, kerosene, or similar liquids which, when handled in cold weather, can cause immediate frostbite.

If a person shows symptoms of frostbite, consult a medical professional, if possible, and perform the following:

- Initiate rewarming only if subsequent refreezing is not a possibility (thawing and refreezing should always be avoided because this is very injurious to tissue). Rewarm body parts in water that is approximately 100 to 105 degrees Fahrenheit. Do not try to thaw the body parts using cold water, snow, or intense heat from fires or stoves. The whole body may be immersed in warm water if necessary.

- If a large portion of an extremity is frozen when rewarming is initiated, the deep body temperature may drop as cooled blood begins to circulate throughout the body. Provide warm liquids to alleviate this situation.

- Move the afflicted part gently and voluntarily during rewarming.

- Use pain medication if it is available. Rewarming can be acutely painful. After thawing is completed, a deep pain may persist for several days, depending on the severity of the frostbite. Pain may be a good sign as it indicates that nerve function is present.

- A dull purple color, swelling, or blisters indicate serious injury and the need for medical attention. Consult a medical professional.

C

Quality Assurance Project Plan

Site-Specific Quality Assurance Project Plan (QAPP) Fourth Street Inactive Hazardous Waste Site City of Buffalo, New York Site No. 9-15-167

October 2003

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway
Albany, New York

_____ _____
E & E Project Director Date

_____ _____
E & E QA Officer Date

Table of Contents

List of Tables

List of Acronyms

DUSR	Data Usability Summary Report
E & E	Ecology and Environment Engineering, P.C.
NYSDEC	New York State Department of Environmental Conservation
QAPP	Quality Assurance Project Plan
QA	Quality Assurance
QC	Quality Control
SOW	Scope of Work
TCLP	Toxicity Characteristic Leaching Procedure

1 Project Management

This site-specific Quality Assurance Project Plan (QAPP) has been prepared by Ecology and Environment Engineering, P.C. (E & E) for the New York State Department of Environmental Conservation (NYSDEC), under Superfund Standby Contract No. D003493, Work Assignment Number 43. E & E personnel will implement this site-specific QAPP for all activities conducted for the Fourth Street site.

This QAPP has been prepared as part of the Work Plan for the project and is an addendum to the master NYSDEC QAPP (E & E 2001). This addendum documents changes, modifications, or new procedures and practices to be used that are applicable to activities anticipated under this investigation. This site-specific QAPP is formatted to address the four major sections listed in the master QAPP: Project Management, Data Generation and Acquisition, Assessment and Oversight, and Data Validation and Usability. The information provided only covers deviations or new procedures for implementing the project. Any subsection that is not changed is not included in this site-specific QAPP. General tables with site-specific information have been added to this QAPP for easier review of site-specific requirements.

1.1 Project Organization

The project team for this site is listed in Table C1-1.

1.2 Problem Definition/Background

Pertinent information relative to conducting this work assignment is defined in Section 2 of the Work Plan.

1.3 Project Description

The specific scope of work (SOW) for the current activities is defined in Work Plan Section 3 and includes the following areas:

- Problem(s) to be resolved;
- Direct and indirect measurements required;
- Applicable technical or regulatory quality assurance (QA)/quality control (QC) standards or criteria;
- Any special resources (e.g., personnel or equipment) needed for the site;
- Scope and schedule of the project deliverables; and
- Any special assessment or oversight procedures necessary to verify site-specific quality objectives are met.

Table C1-1 Project Organization, Fourth Street Site

Key Team Member	Contact Name and Telephone	
NYSDEC Project Manager	Vivek Nattanmai	518-402-9812
NYSDEC QA Officer	Timothy LeBarron	518-402-9761
E & E Project Manager	Shawn Gardner	716-684-8060
E & E Field Team Leader	Richard Watt	716-684-8060
E & E Project Chemist	Marcia Galloway	716-684-8060
Driller	C&W Environmental, LLC	716-597-0001
Surveyor	Wendel Duchscherer	716-433-5993
Laboratory – Chemical	Analytical Services Center	716-685-8080
Laboratory – Geotechnical	GeoTesting Express	978-635-0424

1.4 Quality Objectives and Criteria

General quality objectives and performance criteria for the NYSDEC projects outlined in the Master QAPP are applicable to this project. Additional quality objectives as determined from the planning process for this project include the following:

- Data gathered during the pre-design investigation will be used to directly support the design of the selected remedial action described in the Record of Decision.
- Analyses have been selected to characterize subsurface materials to determine treatment and/or disposal requirements. This includes analysis of discrete groundwater and subsurface soil samples as well as composite samples collected from waste derived from investigation of these matrices. These analyses are based on the premise that soils will be hauled off site for landfilling or

recycling and that groundwater will be pretreated and discharged to the Buffalo Sewer Authority.

1.5 Special Training/Certification

There are no site-specific training requirements for this work assignment.

1.6 Documents and Records

Sample identification will be in accordance with the master QAPP. However, since only one site will be investigated, the three letter site code is not required. Therefore, groundwater samples will be identified by the monitoring well number (i.e., MW02 through MW10) and subsurface soil samples will be identified as SB##-A, B, C, etc., where ## represents the borehole number and the letters A, B, C, etc. represent progressively deeper sample intervals. Sample intervals in feet below ground surface will be recorded in the field log and on the chain-of-custody form.
Laboratory report requirements are the same as the master QAPP.

The following records and reports will be produced as part of this project.

- Work Plan,
- Site-specific Health and Safety Plan,
- Site-specific QAPP,
- Field Logbook,
- Geotechnical Logs,
- Chain-of-custody Form,
- Laboratory Data Package – Category B,
- Draft Report, and
- Final Report.

2 Data Generation and Acquisition

The samples and analytical methods planned for this site are provided on Table 3-2 of the Work Plan. The analytical methods are listed on Table C2-1. Current laboratory reporting limits and control limits are provided in Attachment C1 of this document.

The collection of field and laboratory QC samples is the same as the master QAPP. Project-specific requirements are provided on Tables C2-2 through C2-3.

The instruments to be used during field activities at the Fourth Street Site and the associated calibration reference is provided in Table C2-4.

TABLE C2-1 Summary of Analytical Methods, Preservatives, and Holding Times
Fourth Street Inactive Hazardous Waste Site, Buffalo, NY

Analysis	Method Reference	Sample Containers	Chemical Preservative [A]	Holding Time
Product (oil)				
Flashpoint	1010	One 8-oz. glass jar	None	40 days
PCBs in Oil	8082			5 days to extraction, 40 days for analysis
Specific Gravity, Viscosity, Sulfur	NOCO [B]	Two 8-oz. glass jar	None	None
TCLP Metals	6010B	One 8-oz. glass jar	None	180 days to extraction, 180 days to analysis (5/26 for mercury)
TCLP Semivolatile organic compounds	8270C			5 days to extraction, 40 days for analysis
TCLP Volatile organic compounds	8260B	One 4-oz. glass vial with Teflon-lined septum	None	7 days to extraction, 7 days to analysis
Groundwater				
Semivolatile organic compounds	8270C	Two 1-L amber glass bottles	None	5 days to extraction, 40 days for analysis
Volatile organic compounds, STARS list	8260B	Three 40-mL glass vials with Teflon-lined septa	None	7 days
Cyanide, total	9012A	One 1-L HDPE bottle	NaOH to pH >12	12 days
Mercury	7470A	One 1-L HDPE bottle	HNO_3 to pH <2	180 days (26 days for mercury)
Metals, TAL-1 list (see notes)	6010B			
PCBs	8082	Two 1-L amber glass bottles	None	5 days to extraction, 40 days for analysis
Petroleum Hydrocarbons	8015B	One 1-L amber glass bottle	H_2SO_4 to pH <2	5 days to extraction, 40 days for analysis
Phosphate, total	365.2	One 1-L HDPE bottle	None	2 days
Suspended solids, total	160.2			7 days
Subsurface Soil				
Semivolatile organic compounds	8270C	One 8-oz. glass jar	None	5 days to extraction, 40 days for analysis
PCBs	8082			
Volatile organic compounds, STARS list	8260B	One 4-oz. glass vial with Teflon-lined septum	None	7 days
Cyanide, total	9012A	One 8-oz. glass jar	None	12 days
Petroleum Hydrocarbons	8015B			5 days to extraction, 40 days for analysis
pH	9045C			ASAP
TCLP Metals	6010B	One 8-oz. glass jar	None	180 days to extraction, 180 days to analysis (5/26 for mercury)
TCLP Semivolatile organic compounds	8270C			5 days to extraction, 40 days for analysis
TCLP Volatile organic compounds	8260B	One 4-oz. glass vial with Teflon-lined septum	None	7 days to extraction, 7 days to analysis
Grain size (sieve)	ASTM D422	1-gal HDPE bag	None	Not applicable

TABLE C2-1 Summary of Analytical Methods, Preservatives, and Holding Times
Fourth Street Inactive Hazardous Waste Site, Buffalo, NY

Analysis	Method Reference	Sample Containers	Chemical Preservative [A]	Holding Time
Investigation-Derived Waste - Groundwater				
Cyanide, total	9012A	One 1-L HDPE bottle	NaOH to pH >12	12 days
PCBs	8082	Two 1-L amber glass bottles	None	5 days to extraction, 40 days for analysis
Petroleum Hydrocarbons	8015B	One 1-L amber glass bottle	H_2SO_4 to pH <2	5 days to extraction, 40 days for analysis
pH	9040B	One 1-L HDPE bottle	None	ASAP
Phosphate, total	365.2			2 days
Suspended solids, total	160.2			7 days
TCLP Metals	6010B	One 1-L HDPE bottle	HNO_3 to pH <2	180 days to extraction, 180 days to analysis (5/26 for mercury)
TCLP Semivolatile organic compounds	8270C	Two 1-L amber glass bottles	None	5 days to extraction, 40 days for analysis
TCLP Volatile organic compounds	8260B	Three 40-mL glass vials with Teflon-lined septa	None	7 days to extraction, 7 days to analysis
Investigation-Derived Waste - Soil				
Cyanide, Reactive	9012A-7.3.3	One 8-oz. glass jar	None	12 days
Sulfide, Reactive	9034-7.3.4			7 days
pH	9045C			ASAP
PCBs	8082	One 8-oz. glass jar	None	5 days to extraction, 40 days for analysis
Petroleum Hydrocarbons	8015B			5 days to extraction, 40 days for analysis
TCLP Metals	6010B	One 8-oz. glass jar	None	180 days to extraction, 180 days to analysis (5/26 for mercury)
TCLP Semivolatile organic compounds	8270C			5 days to extraction, 40 days for analysis
TCLP Volatile organic compounds	8260B	One 4-oz. glass vial with Teflon-lined septum	None	7 days to extraction, 7 days to analysis
Grain size (sieve)	ASTM D422	1-gal HDPE bag	None	Not applicable
Investigation-Derived Waste - Decontamination fluid				
Percent solids	160.3	One 1-L HDPE bottle	None	7 days
pH	9040B			ASAP

Notes:

- All analyses to be conducted in accordance with NYSDEC ASP (2000) with Level B reporting requirements.
- Standard analyte list unless otherwise specified.
- Metals TAL-1 list includes: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, silver, thallium, vanadium, zinc
- Moisture content to be reported for all subsurface soil samples as part of chemical analysis.

[A] All samples to be cooled to 4°C

[B] Physical characteristics to be tested by NOCO Products to assess reuse/recycling potential

TABLE C2-1 Summary of Analytical Methods, Preservatives, and Holding Times
Fourth Street Inactive Hazardous Waste Site, Buffalo, NY

Analysis	Method Reference	Sample Containers	Chemical Preservative [A]	Holding Time

Key:
ASAP = As soon as possible.
ASTM = American Society for Testing and Materials
HDPE = High-density polyethylene
HNO_3 = Nitric acid.
H_2SO_4 = Sulfuric acid.
L = Liter.
mL = Milliliter.
NaOH = Sodium hydroxide.
oz. = Ounce.
PCBs = Polychlorinated biphenyls
STARS = NYSDEC Spill Technology and Remediation Series (Memorandum No. 1 [1992]).
TAL = Target Analyte List.
TCLP = Toxicity characteristic leaching procedure.

Table C2-2 Field Quality Control Requirements for Fourth Street Site

QC Sample	Description
Field Duplicate	One per matrix per 20 samples for each analysis.
Field Equipment Blank	One per equipment set per ten samples for each analysis. Only equipment sets that are subject to decontamination require equipment blanks. Dedicated or disposal equipment do not require equipment blanks. Samples collected with a Geoprobe will not required equipment blanks since dedicated sample tube liners are used.
Trip Blank	One per shipment for each cooler in which samples for VOC analysis are shipped. Trip blanks are analyzed for VOCs only (SW846 method 8260B) when samples for the same analysis are shipped. Trip blanks are only shipped with aqueous matrices.

Key:
VOC = Volatile organic compound.

Table C2-3 Laboratory Quality Control Samples for Fourth Street Site

QC Sample	Description
Method Blank	One per matrix per preparation batch for each analysis.
MSB	One per matrix per preparation batch for each analysis. The MSB must contain all target analytes of concern at the site or as specified by the CLP method.
Surrogate Spikes	All samples analyzed for organic methods.
MS/MSD	One per matrix per Sample Delivery Group for each analysis. The spike solution must contain a broad range of the analytes of concern at the site or as specified by the CLP method. The overall frequency of MS/MSD on the project samples must be at least one set per 20 samples.

Key:
CLP = Contract Laboratory Program.
MSB = Method Spike Blank.
MS/MSD = Matrix Spike/Matrix Spike Duplicate.

Table C2-4 Field Equipment and Calibration Procedures

Instrument or Equipment	Description	Field Calibration Procedure	Acceptability/ Performance Criteria	Responsible Personnel
pH/Conductivity/ Temperature Meter	The Myron 6P Ultrameter is designed for field use with battery operation and is capable of measuring pH, conductivity, temperature, TDS, resistivity, and ORP. Instrument can be used for environmental water testing. Internal memory stores and recalls up to 20 readings. Specifications are as follows: **pH:** Range 0 to 14 pH; resolution 0.01 pH; accuracy ±0.01 pH. **ORP:** Range ± 999 mV; resolution ±1 mV; accuracy ±1 mV. **Conductivity:** Range 0 to 9,999 µS or 10 to 200 µS or 5 auto ranges; resolution 0.01 < 100 µS or 0.1 < 1,000 µS or 1.0 > 1,000 µS, depending upon range selected.; accuracy ±1% of reading. **TDS:** Range 0 to 9,999 ppm or 10 to 20 ppt or 5 auto ranges; resolution 0.01 < 100 ppm or 0.1 < 1,000 ppm or 1.0 > 1,000 ppm, depending upon range selected; accuracy ±1% of reading. **Resistivity:** Range 10 KΩ to 30 MΩ; resolution 0.01 < 100 KΩ or 0.1 < 1,000 KΩ or 0.01 > 1 MΩ, depending upon range selected; accuracy ±1% of reading. **Temperature:** range 32 to 160°F; resolution 0.1°F; accuracy ±0.1°F.	The meter will be factory calibrated prior to rental. Before use, pH and conductivity need to be tested for responsiveness daily. pH buffer and conductivity standard solutions will be used to check responsiveness. Automatic temperature correction must be on. Place the buffer or standard in the appropriate probe location and record the result. Use two pH buffer solutions spanning the expected range of measurements such as 4.0 and 7.0 or 7.0 and 10.0. The probes should be rinsed with water between after each buffer or standard solution. Used solutions are to be discarded.	pH and conductivity checks should be within 10% of the buffer or standard solution. If greater than 10%, follow manufacturer's instructions provided with the instrument to field calibrate.	Project Geologist, Sampler
Turbidity Meter	HACH 2100P Nephelometer designed for field use with battery operation. Range 0.01 to 1,000 NTU.	The unit is factory calibrated. Field procedures involve checking the unit's responsiveness at least daily using factory-supplied standards. The responsiveness should be checked on the 0 to 10 range, 0 to 100 range, and 0 to 1,000 NTU range.	± 10%	Sampler
MiniRAE 2000 Handheld VOC Monitor	The MiniRAE 2000 Handheld VOC Monitor contains a PID sensor and is capable of monitoring more than 100 VOCs down to 0.1 ppm. Selectable survey and hygiene modes permit the user to set appropriate alarm	The responsiveness of the unit will be checked daily and each time the unit is turned on by exposing the meter to a known low concentration VOC source such as a marking pen, butane, etc.	Contains rechargeable NiMH battery pack, good for 10 hours of operation; can be changed in the field.	Site Safety Officer, Project Geologist

Table C2-4 Field Equipment and Calibration Procedures

Instrument or Equipment	Description	Field Calibration Procedure	Acceptability/ Performance Criteria	Responsible Personnel
	modes permit the user to set appropriate alarm thresholds for STEL, TWA and low/high level peak values. Range 0 to 999 ppm with a resolution down to 0.1 ppm; range 100 to 10,000 with a resolution down to 1 ppm. Response time is less than 3 seconds. Accuracy is ±10% of reading for range of 0 to 999 ppm; ±20% of reading for range of 100 to 10,000 ppm. UL and cUL Class 1, Div. 1, Groups A, B, C and D.	pen, butane, etc.	During use for sample screening, ambient air readings are required for comparison with sample results.	
Heron H. 01L Oil/Water Interface Probe	Heron H.01L Oil/Water Interface Probe is designed to measure the thickness of product layers (LNAPL) as thin as 1 mm (1/200 ft) floating on the water table. It is also capable of detecting and measuring sinking layers of product (DNAPL). Ideal for wells, piezometers and direct push equipment as narrow as 19 mm (3/4 in.). The tape complies with US-GGG-T-106E NTS standards. Accurate to ±0.01 %.	No field calibration is required. Responsiveness to water may be checked in potable water.	Contains 9V battery. If LED doesn't light up, or if signal convention is non-detect, then change battery.	Project Geologist, Sampler
Oxygen/ Explosive Gas Meter	The GasTech GT-402 Four Gas Monitor is designed to monitor oxygen, hydrogen sulfide and hydrocarbons from -4°F up to 113°F (-20°C to 45°C). A two-level alarm system warns of unsafe gas levels with both audible and visual signals. Specifications are as follows: **Range:** Hydrocarbons: 0 to 100% LEL in 1% increments; 0 to 10,000 ppm in 20 ppm increments. Oxygen: 0 to 30.0% volume in 0.1% increments. Carbon Monoxide: 0 to 300 ppm in 1-ppm increments. Hydrogen Sulfide: 0 to 200 ppm in 1-ppm increments. **Accuracy**: LEL: ±5% of reading.	Meter to be calibrated in accordance with manufacturer's specifications to be provided with instrument. Calibrate in ambient atmosphere: oxygen to 20.8% and LEL to zero.	Contains 4 quantity Nickel Cadmium batteries good for 10 hours of operation. If batteries are dead, recharge them with charger provided.	Project Geologist, Sampler

Table C2-4 Field Equipment and Calibration Procedures

Instrument or Equipment	Description	Field Calibration Procedure	Acceptability/ Performance Criteria	Responsible Personnel
	Carbon Monoxide, Hydrogen Sulfide: ±10% of full scale. Response time of 90% in 30 seconds, UL and CSA approved; Class 1, Division 1, Groups A, B, C and D.			
Geonics EM31-MK2 Conductivity Meter	The EM31-MK2 is an electromagnetic meter that measures the bulk terrain conductivity of the subsurface as a response to an induced magnetic field. Both quadrature and in-phase readings will be recorded. The MK2 variant incorporates a built in data logger.	The instrument is factory calibrated. The set-up procedures and functional checks described in the manufacturer's operations manual will be performed prior to conducting the survey and on a daily basis.	The EM31 contains C-size alkaline batteries that are checked by setting the MODE switch to the OPER position and rotating the RANGE switch to the BATT position. Meter should read ±4.4.	Project Geologist
Trimble GPS unit	A Trimble Pro XRS or equivalent device will be used to connect to the EM31-MK2 to obtain location (X,Y) data associated with the conductivity readings.	Must be calibrated in accordance with manufacturer's specifications to be provided with instrument.	Contains rechargeable batteries. If low battery indicator is lit, then recharge battery before further use.	Project Geologist

Key:

°C = degress Celsius
°F = degrees Fahrenheit
DNAPL = high density nonaqueous phase liquid
ft = feet
GPS = global positioning satellite
in = inches
KΩ = kilo Ohms
LEL = lower explosive limit
LNAPL = low density nonaqueous phase liquid
MΩ = mega Ohms
µS = microSiemens
mm = millimeter
mV = millivolt
NTU = nephelometric turbidity units
ORP = oxidation/reduction potential
O_2 = oxygen
PID = photoionization detector
ppm = parts per million
ppt = parts per thousand
STEL = short-term exposure limit
TDS = total dissolved solids
TWA = time-weighted average
VOC = volatile organic compound

3 Assessment and Oversight

E & E's assessment and oversight procedures for the project activities are the same as the master QAPP. There are no additional procedures to meet the quality objectives for these work assignment activities.

3.1 Assessment and Response Actions

Planned assessment activities for these work assignment activities are as follows:

Field Audits

No field audits are planned.

Field Inspections

The E & E Task Leader for the Pre-Design Investigation will act as Field Team Leader and inspect the work performed by all E & E field crews and subcontractors.

Laboratory Audits

No laboratory audits are planned.

3.2 Reports to Management

The reports to management are specified the same as master QAPP. No additional reports are required for this project.

4 Data Validation and Usability

For these work assignment activities, E & E will implement the general procedures for data validation and usability described in the master QAPP except as noted below

4.1 Data Review and Verification Requirements

There are no additional data review criteria for this project.

4.2 Verification and Validation Methods

Requirements are the same as specified in the master QAPP for laboratory verification and evaluation of completeness. Third party data validation will not be performed. A data usability summary report (DUSR) will be prepared by E & E's QA Chemist in accordance with NYSDEC guidance for the development of DUSRs. The data review will be accomplished electronically for all sample results. One DUSR will be prepared following the completion of all sample analyses.

4.3 Reconciliation with User Requirements

The data assessment procedures listed in the master QAPP are applicable to this project. There are no additional data assessment procedures.

C1

Analytical Method Reporting and Quality Control Limits

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_160.2_TSS_W

Total Suspended Solids (TSS) by method 160.2

Comments:

Made: 12/30/1998 Rev: 3 History:
Updated: 9/8/2003 3:55:24 PM
Updateby: lindauerf

Rev. 1. by HumphreyR (8/2/01 5:37:41 PM) Added accurate TXT_PQL for use in AFCEE DP calc
Rev. 2. by HowardW (9/2/2003 11:07:48 AM) Added LCS samp type (No limits). Spike levels and recovery limits need to be updated in the spreadsheet before import using the level and recoveries listed on the standard vial used.
Rev. 3. by LindauerF (9/8/2003 3:55:08 PM) make LCS limits to 85-115%

Units: mg/L **WetChemistry**

Or	AT	Analyte Name	CAS#	Testcode Specs									
				MDL	PQL	LCS SPK	LCS LIMITS						
0	A	Total Suspended Solids (Residue, Non-Filterable)		4	4	0	85-115						

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_160.3_TS_W

Solids, Total by Method 160.3

Comments:

Made: 4/1/1999 11:22:48 Rev: 2 History:
Updated: 9/8/2003 3:55:51 PM
Updateby: lindauerf

Rev. 1. by HowardW (9/2/2003 11:16:25 AM) Added LCS samp type (No limits). Spike levels and recovery limits need to be updated in the spreadsheet before import using the level and recoveries listed on the standard vial used.
Rev. 2. by LindauerF (9/8/2003 3:55:35 PM) make LCS limits to 85-115%

Units: mg/L	WetChemistry	Testcode Specs									
		MDL	PQL	LCS SPK	LCS LIMITS						
Or AT	Analyte Name	CAS#									
0 A	Residue, Total		10	10	0	85-115					

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_365.2_PO4T_W

Phosphorus, Total by Method 365.2

Comments:

Made: 3/10/1999 2:45:46 Rev: 9 History:
Updated: 5/8/2003 11:38:54 AM
Updateby: piccioner

Rev. 1. by WHH (10/3/00 11:05:56 AM) Add Phosphorus, Total (As PO4).
Rev. 2. by RLH (02/23/01 3:34:40 PM) enter initsampvol
Rev. 3. by WHH (3/2/01 11:57:13 AM) Update MDL and PQL.
Rev. 4. by WHH (3/2/01 11:59:22 AM) Update MDL exp. date.
Rev. 5. by HowardW (1/29/02 5:15:45 PM) Add Spec Type of ICV.
Rev. 6. by OhnmeissT (6/17/02 1:55:49 PM) updated spks for CCV and LCS per D Giglia
Rev. 7. by LenzC (7/8/2002 12:20:33 PM) Adjust MS Spk amount to SOP
Rev. 8. by OhnmeissT (8/19/02 1:55:25 PM) updated MS limits

Units: mg/L **WetChemistry**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	MS SPK	MS LIMITS
0	A	Phosphorus, Total (As P)	7723-14-0	0.0102	0.05	0.3	83-119	0.3	83-119
0	A	Phosphorus, Total (As PO4)	7723-14-0	0.031	0.15	0.9198	83-119	0.9198	83-119

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_6010B_TAL_W

Metals, TAL by ICP Method 6010B

Comments:

Made: 2/3/2000 Rev: 20

Updated: 10/16/2003 1:24:52 PM

Updateby: PiccioneR

History: Admin Updated UQLs to reflect current upper quantitaion limits 05/09/00 3:00PM
Rev. 2. Admin update(10/4/00 4:47:30 PM) for Se spike value for MS/MSD spec types from 10 to 110 ug/L
Rev. 3. Admin update(10/4/00 4:47:30 PM) for Se spike value for MS/MSD spec types from 10 to 110 ug/L
Rev. 4. by WHH (2/5/01 10:45:36 AM) Update MDLs.
Rev. 5. by WHH (2/12/01 10:49:30 AM) Update ICV.
Rev. 6. by OhnmeissT (6/15/01 1:47:03 PM) added ICSA samptype
Rev. 7. by HowardW (6/15/01 5:17:27 PM) Update MDL, PQL, UQL and Spike Limits.
Rev. 8. by LindauerF (2/14/02 1:45:58 PM) change Mg and K PQL to 1500 mg/L
Rev. 9. by HowardW (2/21/02 10:47:01 AM) Add MS/MSD limits for Ca, Mg, K, Na.

Units: µg/L **Metals**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Aluminum	7429-90-5	23.2	200	1000	80-120	20	1000	75-125	20
0	A	Antimony	7440-36-0	6.53	10	1000	80-120	20	1000	75-125	20
0	A	Arsenic	7440-38-2	6.97	25	1000	80-120	20	1000	75-125	20
0	A	Barium	7440-39-3	0.897	20	1000	80-120	20	1000	75-125	20
0	A	Beryllium	7440-41-7	0.152	5	1000	80-120	20	1000	75-125	20
0	A	Cadmium	7440-43-9	0.519	5	1000	80-120	20	1000	75-125	20
0	A	Calcium	7440-70-2	175	1500	10000	80-120	20	10000	75-125	20
0	A	Chromium	7440-47-3	0.729	10	1000	80-120	20	1000	75-125	20
0	A	Cobalt	7440-48-4	0.585	20	1000	80-120	20	1000	75-125	20
0	A	Copper	7440-50-8	3.34	20	1000	80-120	20	1000	75-125	20
0	A	Iron	7439-89-6	46.4	200	10000	80-120	20	10000	75-125	20
0	A	Lead	7439-92-1	4.65	5	1000	80-120	20	1000	75-125	20
0	A	Magnesium	7439-95-4	30	1500	10000	80-120	20	10000	75-125	20
0	A	Manganese	7439-96-5	1.34	10	1000	80-120	20	1000	75-125	20
0	A	Nickel	7440-02-0	1.61	20	1000	80-120	20	1000	75-125	20
0	A	Potassium	7440-09-7	149	1500	10000	80-120	20	10000	75-125	20
0	A	Selenium	7782-49-2	6.5	20	1000	80-120	20	1000	75-125	20
0	A	Silver	7440-22-4	1.18	10	50	80-120	20	50	75-125	20
0	A	Sodium	7440-23-5	47.3	1500	10000	80-120	20	10000	75-125	20
0	A	Thallium	7440-28-0	7.44	20	1000	80-120	20	1000	75-125	20
0	A	Vanadium	7440-62-2	2.96	20	1000	80-120	20	1000	75-125	20
0	A	Zinc	7440-66-6	1.85	20	1000	80-120	20	1000	75-125	20

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_7470A_HG_W

Mercury Analysis in Water by Method 7470A

Comments:

Made: 1/7/1999 Rev: 8 History:
Updated: 10/6/2003 1:07:08 PM
Updateby: howardw

Rev. 1. by WHH (10/4/00 10:30:22 AM) Update MDL
Rev. 2. by WHH (1/11/01 1:10:23 PM) Update Spike Recovery Limits for LCS, MS
Rev. 3 by piccioner (8/3/01 10:03:40 AM) Limits Data updated :Adjusted PQL to 0.2 to 0.4, 3x mdl
Rev. 4 by piccioner (7/31/02 4:28:23 PM) Limits Data updated :
Rev. 5. by LindauerF (9/9/02 11:11:21 AM) keep default recovery limits for LCS/MS
Rev. 6 by piccioner (3/7/2003 11:54:16 AM) Limits Data updated :mdl from Lab:2003:481
Rev. 7. by HowardW (9/29/2003 9:31:58 AM) Add PDS samp type as per Tim Gramling (Califorina Audit response).
Rev. 8. by HowardW (10/6/2003 1:06:51 PM) Add "L" (Serial Dilution) samp type as per Tim Gramling (Califorina Audit response).

Units: µg/L **Mercury**

Or	AT	Analyte Name	CAS#	Testcode Specs									
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD		
0	A	Mercury	7439-97-6	0.0598	0.4	1	80-120	20	1	80-120	20		

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8015B_MISC_W

TPH-Petroleum Hydrocarbons by Method 8015B

Comments: DRO or other petroleum product

Made: 12/4/2000 Rev: 2

Updated: 10/13/2003 1:19:08 PM

Updateby: piccioner

History: Test Code Created to supplement DRO tests for other TPH analytes bydrosd'On:12/4/00 10:13:36 PM
Rev. 1. by PiccioneR (11/19/01 5:20:55 PM) correct M:M:P from 3520 to 3510
Rev. 2. by PiccioneR (10/13/2003 1:18:44 PM) mineral spirits mdl from 10/8/03 study mdl seq 1242; adjust pql to 0.250 mg/L

Units: mg/L **GC Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs									
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD		
0	A	Diesel Fuel		0.0821	0.1	1	47-125	20	1	70-130	20		
0	A	Fuel Oil		0	0	0	0	0	0	0	0		
0	A	Kerosene		0	0	0	0	0	0	0	0		
0	A	Mineral Spirits		0.124	0.25	0	0	0	0	0	0		
0	A	Waste Oil		0	0	0	0	0	0	0	0		
1	S	o-Terphenyl	84-15-1	0	0	0.02	48-147	0	0.02	48-147	0		

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8015B_MISC_S

TPH-Petroleum Hydrocarbons by Method 8015B

Comments: Misc other petroleum product

Made: 12/4/2000 Rev: 1

Updated: 5/3/2002 11:47:21 AM

Updateby: piccioner

History: Test Code Created to supplement DRO test corrected for other TPH analytes bydrosd'On:12/4/00 10:29:10 PM
Rev. 1. by piccioner (5/3/02 11:47:21 AM) Limits Data updated :C10-C28. F000-10-2. 25 g to 1 mL. Meets AF 3.1. Does not meet Iowa OA-2 indicated method value of 3 mg/kg.

Units: mg/Kg **GC Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs									
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD		
0	A	Diesel Fuel		3.46	4	40	57-133	35	40	60-130	30		
0	A	Fuel Oil		0	0	0	0	0	0	0	0		
0	A	Kerosene		0	0	0	0	0	0	0	0		
0	A	Mineral Spirits		0	0	0	0	0	0	0	0		
0	A	Waste Oil		0	0	0	0	0	0	0	0		
0	S	o-Terphenyl	84-15-1	0	0	0.8	63-133	0	0.8	63-133	0		

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8082_3580A_O

PCBs by Method 8082

Comments:

Made: 4/1/1999 Rev: 3 History:
Updated: 6/8/2001 11:10:13 AM
Updateby: howardw

Rev. 1. by TEO (5/30/00 2:27:22 PM) Set Never Moisture Correct Flag
Rev. 2. by TEO (5/1/01 1:13:49 PM) fixing default values
Rev. 3. by HowardW (6/8/01 11:08:08 AM) Update Units to mg/Kg.

Units: mg/Kg **GC Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Aroclor 1016	12674-11-2	5	5	50	50-150	35	50	0	35
0	A	Aroclor 1221	11104-28-2	10	10	50	50-150	35	50	0	35
0	A	Aroclor 1232	11141-16-5	5	5	50	50-150	35	50	0	35
0	A	Aroclor 1242	53469-21-9	5	5	50	50-150	35	50	0	35
0	A	Aroclor 1248	12672-29-6	5	5	50	50-150	35	50	0	35
0	A	Aroclor 1254	11097-69-1	5	5	50	50-150	35	50	0	35
0	A	Aroclor 1260	11096-82-5	5	5	50	50-150	35	50	0	35
0	S	Decachlorobiphenyl	2051-24-3	0	0	2	50-150	0	2	50-150	0
0	S	Tetrachloro-m-xylene	877-09-8	0	0	2	50-150	0	2	50-150	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8082_3510C_W

PCBs by Method 8082

Comments:

Made: 3/26/1999 Rev: 6 History:
Updated: 9/10/2002 6:24:40 PM
Updateby: piccioner

Rev. 1. by WHH (2/5/01 3:57:50 PM) Update MDLs.
Rev. 2. by TEO (4/19/01 10:38:38 AM) entered prep method
Rev. 3. by LindauerF (6/11/02 11:44:30 AM) update recovery limits for target compounds only
Rev. 4. by LindauerF (9/7/02 10:06:43 AM) update RPD value
Rev. 5 by piccioner (9/10/02 6:11:11 PM) Limits Data updated :Lab:2002:413
Rev. 6 by piccioner (9/10/02 6:24:40 PM) Limits Data updated :Lab:2002:404. Edited Text11 field from W:OLM04.2PPCB:OLM04.2PPCB to W:8082:3510C; no GPC to put into testcodes having M:M:P of the latter for Aroclors.

Units: µg/L **GC Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Aroclor 1016	12674-11-2	0.201	0.5	5	47-114	20	5	47-114	20
0	A	Aroclor 1221	11104-28-2	0.285	1	0	0	0	0	0	0
0	A	Aroclor 1232	11141-16-5	0.185	0.5	0	0	0	0	0	0
0	A	Aroclor 1242	53469-21-9	0.202	0.5	0	0	0	0	0	0
0	A	Aroclor 1248	12672-29-6	0.111	0.5	0	0	0	0	0	0
0	A	Aroclor 1254	11097-69-1	0.152	0.5	0	0	0	0	0	0
0	A	Aroclor 1260	11096-82-5	0.22	0.5	5	58-112	20	5	58-112	20
0	S	Decachlorobiphenyl	2051-24-3	0	0	0.2	18-112	0	0.2	18-112	0
0	S	Tetrachloro-m-xylene	877-09-8	0	0	0.2	32-110	0	0.2	32-110	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8082_3550B_S

PCBs by Method 8082

Comments:

Made: 3/26/1999 9:14:19 Rev: 13 History:
Updated: 10/15/2003 10:29:35 AM
Updateby: PiccioneR

Rev. 1. by WHH (2/5/01 3:59:56 PM) Update MDLs.
Rev. 2. by TEO (4/19/01 10:40:15 AM) entered prep method
Rev. 3. by LindauerF (6/11/02 11:40:50 AM) update recovery limits
Rev. 4. by LindauerF (6/11/02 11:48:45 AM) set surrogate recovery limits to old limits
Rev. 5. by LindauerF (9/7/02 10:05:19 AM) ass RPD value
Rev. 6 by piccioner (9/9/02 4:47:27 PM) Limits Data updated :Lab:2002:426 (used with 433 and 436)
Rev. 7 by piccioner (9/10/02 12:20:05 PM) Limits Data updated :Lab:2002:406; edited Text11 in transfer file from S:OLM04.2PPCB:OLM04.2PPCB to S:SW8082:SW3550B; no GPC. Used with Lab:2002:433 and 426

Units: µg/Kg **GC Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Aroclor 1016	12674-11-2	15	20	167	70-111	35	167	70-111	35
0	A	Aroclor 1221	11104-28-2	24.8	40	0	0	0	0	0	0
0	A	Aroclor 1232	11141-16-5	14.3	20	0	0	0	0	0	0
0	A	Aroclor 1242	53469-21-9	12.1	20	0	0	0	0	0	0
0	A	Aroclor 1248	12672-29-6	4.1	20	0	0	0	0	0	0
0	A	Aroclor 1254	11097-69-1	14.2	20	0	0	0	0	0	0
0	A	Aroclor 1260	11096-82-5	14.9	20	167	70-115	35	167	70-115	35
0	S	Decachlorobiphenyl	2051-24-3	0	0	6.67	31-167	0	6.67	31-167	0
0	S	Tetrachloro-m-xylene	877-09-8	0	0	6.67	42-153	0	6.67	42-153	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

C_8260B_5030B_W_014

TCL and STARS VOCs by GCMS Method 8260B

Comments:

Made: 12/6/2000 Rev: 8
Updated: 8/22/2003 6:51:10 PM
Updateby: PiccioneR

History: Test Code Created bybogolint'On:12/06/2000 5:07:07 PM
Rev. by piccioner (8/15/01 4:51:05 PM) Limits Data updated :Changed pql for those less than mdl: dioxane, acetonitrile, acrolein, ethanol, isobutanol,methacrylonitrile, t-BuOH.
Rev. by piccioner (9/21/01 12:40:57 PM) Limits Data updated :raised pql for ClBz, CH3Cl, Cl2C=CCl2, Cl2C=CHCl, vinyl chloride back to low standard used
Rev. by piccioner (9/21/01 2:47:29 PM) Limits Data updated :increase pql for CH3Br and CH3CH2Cl back to level of low standard
Rev. 1. by HowardW (1/11/02 1:16:05 PM) Add tert-Butylbenzene to Limits list.
Rev. 2. by PiccioneR (1/24/02 3:13:13 PM) bring low limits that are >87%, to a more reasonable 85%. Limits tight. E.g. change vinyl acetate from low 98 % to 85%, 1,1-dichloroethene 92, 1,2-dichloroethen total 88, cis-1,2-dichloroethene 89, cis-1,3-dichloropropene 88,

Units: µg/L **GCMS Volatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD		
0	A	1,1,1-Trichloroethane	71-55-6	0.351	5	50	80-120	20	50	80-120	20		
0	A	1,1,2,2-Tetrachloroethane	79-34-5	0.249	5	50	80-120	20	50	80-120	20		
0	A	1,1,2-Trichloroethane	79-00-5	0.192	5	50	80-120	20	50	80-120	20		
0	A	1,1-Dichloroethane	75-34-3	0.183	5	50	80-120	20	50	80-120	20		
0	A	1,1-Dichloroethene	75-35-4	0.973	5	50	80-120	20	50	80-120	20		
0	A	1,2,4-Trimethylbenzene	95-63-6	0.148	5	50	80-120	20	50	80-120	20		
0	A	1,2-Dichlorobenzene	95-50-1	0.129	5	50	80-120	20	50	80-120	20		
0	A	1,2-Dichloroethane	107-06-2	0.235	5	50	80-120	20	50	80-120	20		
0	A	1,2-Dichloroethene, Total	540-59-0	0.403	5	100	80-120	20	100	80-120	20		
0	A	1,2-Dichloropropane	78-87-5	0.291	5	50	80-120	20	50	80-120	20		
0	A	1,3,5-Trimethylbenzene	108-67-8	0.161	5	50	80-120	20	50	80-120	20		
0	A	1,3-Dichlorobenzene	541-73-1	0.145	5	50	80-120	20	50	80-120	20		
0	A	1,4-Dichlorobenzene	106-46-7	0.156	5	50	80-120	20	50	80-120	20		
0	A	2-Butanone	78-93-3	1.33	10	50	74-126	20	50	74-126	20		
0	A	2-Chloroethyl vinyl ether	110-75-8	0.433	10	50	47-138	20	50	47-138	20		
0	A	2-Hexanone	591-78-6	0.774	10	50	75-120	20	50	75-120	20		
0	A	4-Methyl-2-pentanone	108-10-1	0.189	10	50	80-121	20	50	80-121	20		
0	A	Acetone	67-64-1	5.49	10	50	51-143	20	50	51-143	20		
0	A	Benzene	71-43-2	0.506	5	50	80-120	20	50	80-120	20		
0	A	Bromodichloromethane	75-27-4	0.507	5	50	80-120	20	50	80-120	20		
0	A	Bromoform	75-25-2	0.237	5	50	80-120	20	50	80-120	20		
0	A	Bromomethane	74-83-9	1.45	10	50	80-120	20	50	80-120	20		
0	A	Carbon disulfide	75-15-0	0.202	5	50	73-120	20	50	73-120	20		
0	A	Carbon tetrachloride	56-23-5	0.228	5	50	80-120	20	50	80-120	20		

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

C_8260B_5030B_W_014

TCL and STARS VOCs by GCMS Method 8260B

Comments:

Made: 12/6/2000 Rev: 8
Updated: 8/22/2003 6:51:10 PM
Updateby: PiccioneR

History: Test Code Created bybogolint'On:12/06/2000 5:07:07 PM
Rev. by piccioner (8/15/01 4:51:05 PM) Limits Data updated :Changed pql for those less than mdl: dioxane, acetonitrile, acrolein, ethanol, isobutanol,methacrylonitrile, t-BuOH.
Rev. by piccioner (9/21/01 12:40:57 PM) Limits Data updated :raised pql for ClBz, CH3Cl, Cl2C=CCl2, Cl2C=CHCl, vinyl chloride back to low standard used
Rev. by piccioner (9/21/01 2:47:29 PM) Limits Data updated :increase pql for CH3Br and CH3CH2Cl back to level of low standard
Rev. 1. by HowardW (1/11/02 1:16:05 PM) Add tert-Butylbenzene to Limits list.
Rev. 2. by PiccioneR (1/24/02 3:13:13 PM) bring low limits that are >87%, to a more reasonable 85%. Limits tight. E.g. change vinyl acetate from low 98 % to 85%, 1,1-dichloroethene 92, 1,2-dichloroethen total 88, cis-1,2-dichloroethene 89, cis-1,3-dichloropropene 88,

Units: µg/L **GCMS Volatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Chlorobenzene	108-90-7	0.157	5	50	80-120	20	50	80-120	20
0	A	Chloroethane	75-00-3	0.483	10	50	80-120	20	50	80-120	20
0	A	Chloroform	67-66-3	0.168	5	50	80-120	20	50	80-120	20
0	A	Chloromethane	74-87-3	0.839	10	50	80-120	20	50	80-120	20
0	A	cis-1,2-Dichloroethene	156-59-2	0.231	5	50	80-120	20	50	80-120	20
0	A	cis-1,3-Dichloropropene	10061-01-5	0.14	5	50	80-120	20	50	80-120	20
0	A	Dibromochloromethane	124-48-1	0.122	5	50	80-120	20	50	80-120	20
0	A	Ethylbenzene	100-41-4	0.127	5	50	80-120	20	50	80-120	20
0	A	Isopropylbenzene	98-82-8	0.179	5	50	80-120	20	50	80-120	20
0	A	m,p-Xylene	108-38-3	0.344	5	100	80-120	20	100	80-120	20
0	A	Methyl tert-butyl ether	1634-04-4	0.263	5	50	80-120	20	50	80-120	20
0	A	Methylene chloride	75-09-2	0.304	5	50	80-120	20	50	80-120	20
0	A	n-Butylbenzene	104-51-8	0.144	5	50	80-120	20	50	80-120	20
0	A	n-Propylbenzene	103-65-1	0.182	5	50	80-120	20	50	80-120	20
0	A	Naphthalene	91-20-3	0.506	5	50	75-138	20	50	75-138	20
0	A	o-Xylene	95-47-6	0.154	5	50	80-120	20	50	80-120	20
0	A	p-Isopropyltoluene	99-87-6	0.155	5	50	80-120	20	50	80-120	20
0	A	sec-Butylbenzene	135-98-8	0.197	5	50	80-120	20	50	80-120	20
0	A	Styrene	100-42-5	0.15	5	50	80-120	20	50	80-120	20
0	A	tert-Butylbenzene	98-06-6	0.209	5	50	80-120	20	50	80-120	20
0	A	Tetrachloroethene	127-18-4	0.188	5	50	80-120	20	50	80-120	20
0	A	Toluene	108-88-3	0.262	5	50	80-120	20	50	80-120	20
0	A	trans-1,2-Dichloroethene	156-60-5	0.194	5	50	80-120	20	50	80-120	20
0	A	trans-1,3-Dichloropropene	10061-02-6	0.139	5	50	80-120	20	50	80-120	20

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

C_8260B_5030B_W_014

TCL and STARS VOCs by GCMS Method 8260B

Comments:

Made: 12/6/2000 Rev: 8 History: Test Code Created bybogolint'On:12/06/2000 5:07:07 PM
Rev. by piccioner (8/15/01 4:51:05 PM) Limits Data updated :Changed pql for those less than mdl: dioxane, acetonitrile, acrolein, ethanol, isobutanol,methacrylonitrile, t-BuOH.
Rev. by piccioner (9/21/01 12:40:57 PM) Limits Data updated :raised pql for ClBz, CH3Cl, Cl2C=CCl2, Cl2C=CHCl, vinyl chloride back to low standard used
Rev. by piccioner (9/21/01 2:47:29 PM) Limits Data updated :increase pql for CH3Br and CH3CH2Cl back to level of low standard
Rev. 1. by HowardW (1/11/02 1:16:05 PM) Add tert-Butylbenzene to Limits list.
Rev. 2. by PiccioneR (1/24/02 3:13:13 PM) bring low limits that are >87%, to a more reasonable 85%. Limits tight. E.g. change vinyl acetate from low 98 % to 85%, 1,1-dichloroethene 92, 1,2-dichloroethen total 88, cis-1,2-dichloroethene 89, cis-1,3-dichloropropene 88,

Updated: 8/22/2003 6:51:10 PM

Updateby: PiccioneR

Units: µg/L **GCMS Volatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Trichloroethene	79-01-6	0.279	5	50	80-120	20	50	80-120	20
0	A	Trichlorofluoromethane	75-69-4	0.455	5	50	43-161	20	50	43-161	20
0	A	Vinyl acetate	108-05-4	1.57	10	50	80-157	20	50	80-157	20
0	A	Vinyl chloride	75-01-4	0.354	10	50	80-120	20	50	80-120	20
0	A	Xylenes, Total	1330-20-7	0.344	5	150	80-120	20	150	80-120	20
0	S	1,2-Dichloroethane-d4	17060-07-0	0	0	50	82-124	0	50	82-124	0
0	S	4-Bromofluorobenzene	460-00-4	0	0	50	87-115	0	50	87-115	0
0	S	Dibromofluoromethane	1868-53-7	0	0	50	85-119	0	50	85-119	0
0	S	Toluene-d8	2037-26-5	0	0	50	85-115	0	50	85-115	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8260B_STARS_S

VOCs, STARS List by GCMS Method 8260B

Comments:

Made: 3/25/1999 Rev: 5 History:
Updated: 9/8/2003 1:12:07 PM
Updateby: howardw

Rev. by piccioner (10/3/01 2:16:35 PM) Limits Data updated :8260B 5030B S mdl
Rev. by piccioner (3/20/02 4:30:57 PM) Limits Data updated :update from Jake + Linus + Perry
Rev. 1. by LindauerF (9/9/02 10:33:44 AM) update LCS/MS limits
Rev. 2. by HowardW (10/18/2002 2:46:12 PM) Update UQL.
Rev. 3 by piccioner (3/27/2003 5:45:32 PM) Limits Data updated :mdl from Lab:2003:529 stepped, CH2Br2 CCl2F2 missing
Rev. 4 by PiccioneR (6/27/2003 5:25:41 PM) Limits Data updated: mdl from Lab:2003:529 complete Jake Perry
Rev. 5. by HowardW (9/8/2003 1:11:02 PM) Update PQLs as per Tony Bogolin.

Units: µg/Kg **GCMS Volatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	1,2,4-Trimethylbenzene	95-63-6	0.768	5	50	75-125	35	50	75-125	35
0	A	1,3,5-Trimethylbenzene	108-67-8	0.944	5	50	75-125	35	50	75-125	35
0	A	Benzene	71-43-2	0.111	5	50	75-125	35	50	75-125	35
0	A	Ethylbenzene	100-41-4	0.823	5	50	75-125	35	50	75-125	35
0	A	Isopropylbenzene	98-82-8	0.941	5	50	75-125	35	50	75-125	35
0	A	m,p-Xylene	108-38-3	2.88	10	100	75-125	35	100	75-125	35
0	A	Methyl tert-butyl ether	1634-04-4	0.938	5	50	75-125	35	50	75-125	35
0	A	n-Butylbenzene	104-51-8	0.224	5	50	75-125	35	50	75-125	35
0	A	n-Propylbenzene	103-65-1	0.893	5	50	75-125	35	50	75-125	35
0	A	Naphthalene	91-20-3	0.669	5	50	75-125	35	50	75-125	35
0	A	o-Xylene	95-47-6	0.926	5	50	75-125	35	50	75-125	35
0	A	p-Isopropyltoluene	99-87-6	0.835	5	50	75-125	35	50	75-125	35
0	A	sec-Butylbenzene	135-98-8	0.752	5	50	75-125	35	50	75-125	35
0	A	tert-Butylbenzene	98-06-6	0.921	5	50	75-125	35	50	75-125	35
0	A	Toluene	108-88-3	0.986	5	50	75-125	35	50	75-125	35
0	A	Xylenes, Total	1330-20-7	2.88	15	150	75-125	35	150	75-125	35
0	S	1,2-Dichloroethane-d4	17060-07-0	0	0	50	77-119	0	50	77-119	0
0	S	4-Bromofluorobenzene	460-00-4	0	0	50	88-124	0	50	88-124	0
0	S	Dibromofluoromethane	1868-53-7	0	0	50	83-117	0	50	83-117	0
0	S	Toluene-d8	2037-26-5	0	0	50	84-119	0	50	84-119	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8270C_3520C_TCL_W

Semivolatile Organics by Method 8270C

Comments:

Made: 12/4/2001 Rev: 10
Updated: 3/28/2003 4:43:07 PM
Updateby: piccioner

History: Test Code Created (Copied from 1_8270C_3520C_W) by HowardW On:12/4/01 4:31:17 PM
Rev. 1. by PiccioneR (1/16/02 2:24:40 PM) 2,4-DNT from CC # 77
Rev. 2. by PiccioneR (2/6/02 9:54:53 AM) new limits from CC81
Rev. 3. by HowardW (2/27/02 10:00:35 AM) Update of LCS/LCSD and MS/MSD Specs to reflect short list spike compounds.
Rev. 4 by piccioner (4/17/02 4:09:43 PM) Limits Data updated :This upload only from Kim and Molly
Rev. 5 by piccioner (5/13/02 4:42:38 PM) Limits Data updated :From Lab:2002:421 study non-AFCEE
Rev. 6. by LindauerF (9/9/02 8:58:37 AM) update LCS/MS limits
Rev. 7. by DrosD (1/10/03 5:44:46 PM) TestCode Spec spike amounts for LCS/LCSD/MS/MSD updated to midpoint of curve.
Rev. 8. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.

Units: µg/L **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs									
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD		
0	A	1,1'-Biphenyl	92-52-4	1.44	10	0	0	20	0	0	20		
0	A	1,2,4-Trichlorobenzene	120-82-1	1.49	10	40	40-110	20	40	40-110	20		
0	A	1,2-Dichlorobenzene	95-50-1	1.79	10	0	27-110	20	0	27-110	20		
0	A	1,3-Dichlorobenzene	541-73-1	1.94	10	0	30-110	20	0	30-110	20		
0	A	1,4-Dichlorobenzene	106-46-7	2.1	10	40	36-110	20	40	36-110	20		
0	A	2,2'-Oxybis(1-chloropropane)	108-60-1	2.4	10	0	0	20	0	0	20		
0	A	2,4,5-Trichlorophenol	95-95-4	2.55	25	0	40-113	20	0	40-113	20		
0	A	2,4,6-Trichlorophenol	88-06-2	3.15	10	0	35-124	20	0	35-124	20		
0	A	2,4-Dichlorophenol	120-83-2	2.66	10	0	33-116	20	0	33-116	20		
0	A	2,4-Dimethylphenol	105-67-9	2.97	10	0	10-110	20	0	10-110	20		
0	A	2,4-Dinitrophenol	51-28-5	3.03	25	0	12-135	20	0	12-135	20		
0	A	2,4-Dinitrotoluene	121-14-2	1.8	10	40	40-110	20	40	40-110	20		
0	A	2,6-Dinitrotoluene	606-20-2	1.6	10	0	42-110	20	0	42-110	20		
0	A	2-Chloronaphthalene	91-58-7	2.21	10	0	18-133	20	0	18-133	20		
0	A	2-Chlorophenol	95-57-8	2.86	10	40	42-110	20	40	42-110	20		
0	A	2-Methylnaphthalene	91-57-6	1.77	10	0	44-110	20	0	44-110	20		
0	A	2-Methylphenol	95-48-7	3.35	10	0	26-111	20	0	26-111	20		
0	A	2-Nitroaniline	88-74-4	1.94	25	0	24-141	20	0	24-141	20		
0	A	2-Nitrophenol	88-75-5	3.21	10	0	31-115	20	0	31-115	20		
0	A	3,3'-Dichlorobenzidine	91-94-1	3.95	20	0	10-123	20	0	10-123	20		
0	A	3-Nitroaniline	99-09-2	2.05	25	0	13-139	20	0	13-139	20		
0	A	4,6-Dinitro-2-methylphenol	534-52-1	2.57	25	0	28-134	20	0	28-134	20		
0	A	4-Bromophenyl phenyl ether	101-55-3	2.19	10	0	23-145	20	0	23-145	20		
0	A	4-Chloro-3-methylphenol	59-50-7	2.47	10	40	37-110	20	40	37-110	20		

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8270C_3520C_TCL_W

Semivolatile Organics by Method 8270C

Comments:

Made: 12/4/2001 Rev: 10
Updated: 3/28/2003 4:43:07 PM
Updateby: piccioner

History: Test Code Created (Copied from 1_8270C_3520C_W) by HowardW On:12/4/01 4:31:17 PM
Rev. 1. by PiccioneR (1/16/02 2:24:40 PM) 2,4-DNT from CC # 77
Rev. 2. by PiccioneR (2/6/02 9:54:53 AM) new limits from CC81
Rev. 3. by HowardW (2/27/02 10:00:35 AM) Update of LCS/LCSD and MS/MSD Specs to reflect short list spike compounds.
Rev. 4 by piccioner (4/17/02 4:09:43 PM) Limits Data updated :This upload only from Kim and Molly
Rev. 5 by piccioner (5/13/02 4:42:38 PM) Limits Data updated :From Lab:2002:421 study non-AFCEE
Rev. 6. by LindauerF (9/9/02 8:58:37 AM) update LCS/MS limits
Rev. 7. by DrosD (1/10/03 5:44:46 PM) TestCode Spec spike amounts for LCS/LCSD/MS/MSD updated to midpoint of curve.
Rev. 8. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.

Units: µg/L **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	4-Chloroaniline	106-47-8	1.85	10	0	10-119	20	0	10-119	20
0	A	4-Chlorophenyl phenyl ether	7005-72-3	1.8	10	0	24-141	20	0	24-141	20
0	A	4-Methylphenol	106-44-5	2.7	10	0	28-111	20	0	28-111	20
0	A	4-Nitroaniline	100-01-6	2.29	25	0	16-144	20	0	16-144	20
0	A	4-Nitrophenol	100-02-7	3.41	25	40	36-116	20	40	36-116	20
0	A	Acenaphthene	83-32-9	1.33	10	40	34-110	20	40	34-110	20
0	A	Acenaphthylene	208-96-8	1.29	10	0	23-131	20	0	23-131	20
0	A	Acetophenone	98-86-2	1.58	10	0	0	20	0	0	20
0	A	Anthracene	120-12-7	1.12	10	0	18-133	20	0	18-133	20
0	A	Atrazine	1912-24-9	1.84	10	0	0	20	0	0	20
0	A	Benz(a)anthracene	56-55-3	1.34	10	0	29-146	20	0	29-146	20
0	A	Benzaldehyde	100-52-7	1.88	10	0	0	20	0	0	20
0	A	Benzo(a)pyrene	50-32-8	1.14	10	0	21-139	20	0	21-139	20
0	A	Benzo(b)fluoranthene	205-99-2	1.96	10	0	35-136	20	0	35-136	20
0	A	Benzo(g,h,i)perylene	191-24-2	1.5	10	0	55-113	20	0	55-113	20
0	A	Benzo(k)fluoranthene	207-08-9	1.91	10	0	37-138	20	0	37-138	20
0	A	Benzoic acid	65-85-0	4.3	25	0	14-121	20	0	14-121	20
0	A	Benzyl alcohol	100-51-6	2.17	10	0	30-124	20	0	30-124	20
0	A	Bis(2-chloroethoxy)methane	111-91-1	2.35	10	0	24-130	20	0	24-130	20
0	A	Bis(2-chloroethyl)ether	111-44-4	2.24	10	0	18-125	20	0	18-125	20
0	A	Bis(2-ethylhexyl)phthalate	117-81-7	3.03	10	0	41-146	20	0	41-146	20
0	A	Butyl benzyl phthalate	85-68-7	1.36	10	0	34-143	20	0	34-143	20
0	A	Caprolactam	105-60-2	1.17	10	0	0	20	0	0	20
0	A	Carbazole	86-74-8	1.29	10	0	38-122	20	0	38-122	20

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8270C_3520C_TCL_W

Semivolatile Organics by Method 8270C

Comments:

Made: 12/4/2001 Rev: 10
Updated: 3/28/2003 4:43:07 PM
Updateby: piccioner

History: Test Code Created (Copied from 1_8270C_3520C_W) by HowardW On:12/4/01 4:31:17 PM
Rev. 1. by PiccioneR (1/16/02 2:24:40 PM) 2,4-DNT from CC # 77
Rev. 2. by PiccioneR (2/6/02 9:54:53 AM) new limits from CC81
Rev. 3. by HowardW (2/27/02 10:00:35 AM) Update of LCS/LCSD and MS/MSD Specs to reflect short list spike compounds.
Rev. 4 by piccioner (4/17/02 4:09:43 PM) Limits Data updated :This upload only from Kim and Molly
Rev. 5 by piccioner (5/13/02 4:42:38 PM) Limits Data updated :From Lab:2002:421 study non-AFCEE
Rev. 6. by LindauerF (9/9/02 8:58:37 AM) update LCS/MS limits
Rev. 7. by DrosD (1/10/03 5:44:46 PM) TestCode Spec spike amounts for LCS/LCSD/MS/MSD updated to midpoint of curve.
Rev. 8. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.

Units: µg/L **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Chrysene	218-01-9	1.3	10	0	31-144	20	0	31-144	20
0	A	Di-n-butyl phthalate	84-74-2	2.34	10	0	30-146	20	0	30-146	20
0	A	Di-n-octyl phthalate	117-84-0	3.44	10	0	29-137	20	0	29-137	20
0	A	Dibenz(a,h)anthracene	53-70-3	1.37	10	0	59-112	20	0	59-112	20
0	A	Dibenzofuran	132-64-9	1.41	10	0	47-110	20	0	47-110	20
0	A	Diethyl phthalate	84-66-2	1.34	10	0	53-110	20	0	53-110	20
0	A	Dimethyl phthalate	131-11-3	2.05	10	0	20-147	20	0	20-147	20
0	A	Fluoranthene	206-44-0	1.8	10	0	29-142	20	0	29-142	20
0	A	Fluorene	86-73-7	1.37	10	0	24-133	20	0	24-133	20
0	A	Hexachlorobenzene	118-74-1	1.65	10	0	47-113	20	0	47-113	20
0	A	Hexachlorobutadiene	87-68-3	1.61	10	0	30-110	20	0	30-110	20
0	A	Hexachlorocyclopentadiene	77-47-4	1.31	25	0	19-110	20	0	19-110	20
0	A	Hexachloroethane	67-72-1	1.9	10	0	27-110	20	0	27-110	20
0	A	Indeno(1,2,3-cd)pyrene	193-39-5	3.46	10	0	56-114	20	0	56-114	20
0	A	Isophorone	78-59-1	1.59	10	0	48-110	20	0	48-110	20
0	A	N-Nitrosodi-n-propylamine	621-64-7	1.99	10	40	16-110	20	40	16-110	20
0	A	N-Nitrosodimethylamine	62-75-9	1.81	10	0	11-125	20	0	11-125	20
0	A	N-Nitrosodiphenylamine	86-30-6	1.67	10	0	10-141	20	0	10-141	20
0	A	Naphthalene	91-20-3	1.47	10	0	36-110	20	0	36-110	20
0	A	Nitrobenzene	98-95-3	1.82	10	0	43-110	20	0	43-110	20
0	A	Pentachlorophenol	87-86-5	3.2	25	40	15-145	20	40	15-145	20
0	A	Phenanthrene	85-01-8	1.3	10	0	28-144	20	0	28-144	20
0	A	Phenol	108-95-2	3.66	10	40	40-110	20	40	40-110	20
0	A	Pyrene	129-00-0	1.07	10	40	25-135	20	40	25-135	20

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8270C_3520C_TCL_W

Semivolatile Organics by Method 8270C

Comments:

Made: 12/4/2001 Rev: 10
Updated: 3/28/2003 4:43:07 PM
Updateby: piccioner

History: Test Code Created (Copied from 1_8270C_3520C_W) by HowardW On:12/4/01 4:31:17 PM
Rev. 1. by PiccioneR (1/16/02 2:24:40 PM) 2,4-DNT from CC # 77
Rev. 2. by PiccioneR (2/6/02 9:54:53 AM) new limits from CC81
Rev. 3. by HowardW (2/27/02 10:00:35 AM) Update of LCS/LCSD and MS/MSD Specs to reflect short list spike compounds.
Rev. 4 by piccioner (4/17/02 4:09:43 PM) Limits Data updated :This upload only from Kim and Molly
Rev. 5 by piccioner (5/13/02 4:42:38 PM) Limits Data updated :From Lab:2002:421 study non-AFCEE
Rev. 6. by LindauerF (9/9/02 8:58:37 AM) update LCS/MS limits
Rev. 7. by DrosD (1/10/03 5:44:46 PM) TestCode Spec spike amounts for LCS/LCSD/MS/MSD updated to midpoint of curve.
Rev. 8. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.

Units: µg/L **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	S	2,4,6-Tribromophenol	118-79-6	0	0	60	32-162	0	60	32-162	0
0	S	2-Fluorobiphenyl	321-60-8	0	0	50	38-129	0	50	38-129	0
0	S	2-Fluorophenol	367-12-4	0	0	60	15-142	0	60	15-142	0
0	S	Nitrobenzene-d5	4165-60-0	0	0	50	45-118	0	50	45-118	0
0	S	Phenol-d5	4165-62-2	0	0	60	18-136	0	60	18-136	0
0	S	Terphenyl-d14	1718-51-0	0	0	50	10-154	0	50	10-154	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8270C_3550B_TCL_S

Semivolatile Organics by Method 8270C

Comments:

Made: 12/4/2001 Rev: 6

Updated: 7/7/2003 4:43:15 PM

Updateby: Howardw

History: Test Code Created (Copied from 1_8270C_3550B_S) by HowardW On:12/4/01 4:46:05 PM
Rev. by piccioner (8/14/02 1:06:47 PM) Limits Data updated :Lab:2002:416
Rev. 1. by LindauerF (9/9/02 8:26:56 AM) update LCS/MS limits
Rev. 2. by PiccioneR (10/3/2002 3:43:05 PM) revise 3,3'-dichlorobenzidine pql from 670 to 830 (low std)
Rev. 3. by DrosD (1/10/03 5:44:46 PM) TestCode Spec spike amounts for LCS/LCSD/MS/MSD updated to midpoint of curve.
Rev. 4. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.
Rev. 5 by piccioner (5/20/2003 3:34:08 PM) Limits Data updated :from mdl Lab:2003:520
Rev. 6. by HowardW (7/7/2003 4:41:52 PM) Remove Bis(2-chloroisopropyl)ether from limits list as this is the same compund as 2,2'-Oxybis(1-chloropropane).

Units: µg/Kg **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD		
0	A	1,1'-Biphenyl	92-52-4	16.9	330	0	0	35	0	0	35		
0	A	1,2,4-Trichlorobenzene	120-82-1	23.7	330	1330	50-110	35	1330	50-110	35		
0	A	1,2-Dichlorobenzene	95-50-1	27.8	330	0	49-110	35	0	49-110	35		
0	A	1,3-Dichlorobenzene	541-73-1	40.2	330	0	47-110	35	0	47-110	35		
0	A	1,4-Dichlorobenzene	106-46-7	37.1	330	1330	44-110	35	1330	44-110	35		
0	A	2,2'-Oxybis(1-chloropropane)	108-60-1	24.9	330	0	0	35	0	0	35		
0	A	2,4,5-Trichlorophenol	95-95-4	22.3	830	0	50-111	35	0	50-111	35		
0	A	2,4,6-Trichlorophenol	88-06-2	28.7	330	0	52-111	35	0	52-111	35		
0	A	2,4-Dichlorophenol	120-83-2	23	330	0	49-110	35	0	49-110	35		
0	A	2,4-Dimethylphenol	105-67-9	63.5	330	0	20-123	35	0	20-123	35		
0	A	2,4-Dinitrophenol	51-28-5	74.5	330	0	19-110	35	0	19-110	35		
0	A	2,4-Dinitrotoluene	121-14-2	41.4	330	1330	37-110	35	1330	37-110	35		
0	A	2,6-Dinitrotoluene	606-20-2	25.8	330	0	48-111	35	0	48-111	35		
0	A	2-Chloronaphthalene	91-58-7	21.4	330	0	52-110	35	0	52-110	35		
0	A	2-Chlorophenol	95-57-8	26.8	330	1330	25-127	35	1330	25-127	35		
0	A	2-Methylnaphthalene	91-57-6	32.4	330	0	48-110	35	0	48-110	35		
0	A	2-Methylphenol	95-48-7	35	330	0	41-114	35	0	41-114	35		
0	A	2-Nitroaniline	88-74-4	34.6	830	0	35-130	35	0	35-130	35		
0	A	2-Nitrophenol	88-75-5	32.7	330	0	49-110	35	0	49-110	35		
0	A	3,3'-Dichlorobenzidine	91-94-1	300	830	0	30-119	35	0	30-119	35		
0	A	3-Nitroaniline	99-09-2	121	830	0	14-110	35	0	14-110	35		
0	A	4,6-Dinitro-2-methylphenol	534-52-1	38.3	830	0	43-110	35	0	43-110	35		
0	A	4-Bromophenyl phenyl ether	101-55-3	27	330	0	58-114	35	0	58-114	35		
0	A	4-Chloro-3-methylphenol	59-50-7	36.8	330	1330	28-131	35	1330	28-131	35		

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8270C_3550B_TCL_S

Semivolatile Organics by Method 8270C

Comments:

Made: 12/4/2001 Rev: 6
Updated: 7/7/2003 4:43:15 PM
Updateby: Howardw

History: Test Code Created (Copied from 1_8270C_3550B_S) by HowardW On:12/4/01 4:46:05 PM
Rev. by piccioner (8/14/02 1:06:47 PM) Limits Data updated :Lab:2002:416
Rev. 1. by LindauerF (9/9/02 8:26:56 AM) update LCS/MS limits
Rev. 2. by PiccioneR (10/3/2002 3:43:05 PM) revise 3,3'-dichlorobenzidine pql from 670 to 830 (low std)
Rev. 3. by DrosD (1/10/03 5:44:46 PM) TestCode Spec spike amounts for LCS/LCSD/MS/MSD updated to midpoint of curve.
Rev. 4. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.
Rev. 5 by piccioner (5/20/2003 3:34:08 PM) Limits Data updated :from mdl Lab:2003:520
Rev. 6. by HowardW (7/7/2003 4:41:52 PM) Remove Bis(2-chloroisopropyl)ether from limits list as this is the same compund as 2,2'-Oxybis(1-chloropropane).

Units: µg/Kg **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	4-Chloroaniline	106-47-8	445	330	0	70-110	35	0	70-110	35
0	A	4-Chlorophenyl phenyl ether	7005-72-3	31.1	330	0	55-110	35	0	55-110	35
0	A	4-Methylphenol	106-44-5	31	330	0	42-114	35	0	42-114	35
0	A	4-Nitroaniline	100-01-6	90.2	830	0	16-112	35	0	16-112	35
0	A	4-Nitrophenol	100-02-7	45.7	830	1330	31-124	35	1330	31-124	35
0	A	Acenaphthene	83-32-9	25.6	330	1330	41-110	35	1330	41-110	35
0	A	Acenaphthylene	208-96-8	22.7	330	0	59-110	35	0	59-110	35
0	A	Acetophenone	98-86-2	23.6	330	0	0	35	0	0	35
0	A	Anthracene	120-12-7	19.6	330	0	59-110	35	0	59-110	35
0	A	Atrazine	1912-24-9	41.4	330	0	0	35	0	0	35
0	A	Benz(a)anthracene	56-55-3	31.2	330	0	63-110	35	0	63-110	35
0	A	Benzaldehyde	100-52-7	165	300	0	0	35	0	0	35
0	A	Benzo(a)pyrene	50-32-8	23.8	330	0	55-110	35	0	55-110	35
0	A	Benzo(b)fluoranthene	205-99-2	43.6	330	0	55-113	35	0	55-113	35
0	A	Benzo(g,h,i)perylene	191-24-2	77.7	330	0	50-125	35	0	50-125	35
0	A	Benzo(k)fluoranthene	207-08-9	56	330	0	49-125	35	0	49-125	35
0	A	Benzoic acid	65-85-0	77.2	830	0	26-110	35	0	26-110	35
0	A	Benzyl alcohol	100-51-6	37.6	330	0	39-119	35	0	39-119	35
0	A	Bis(2-chloroethoxy)methane	111-91-1	24.5	330	0	45-113	35	0	45-113	35
0	A	Bis(2-chloroethyl)ether	111-44-4	25.5	330	0	42-110	35	0	42-110	35
0	A	Bis(2-ethylhexyl)phthalate	117-81-7	38.6	330	0	59-112	35	0	59-112	35
0	A	Butyl benzyl phthalate	85-68-7	43.5	330	0	56-118	35	0	56-118	35
0	A	Caprolactam	105-60-2	68.2	330	0	0	35	0	0	35
0	A	Carbazole	86-74-8	34.1	330	0	47-114	35	0	47-114	35

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8270C_3550B_TCL_S

Semivolatile Organics by Method 8270C

Comments:

Made: 12/4/2001 Rev: 6
Updated: 7/7/2003 4:43:15 PM
Updateby: Howardw

History: Test Code Created (Copied from 1_8270C_3550B_S) by HowardW On:12/4/01 4:46:05 PM
Rev. by piccioner (8/14/02 1:06:47 PM) Limits Data updated :Lab:2002:416
Rev. 1. by LindauerF (9/9/02 8:26:56 AM) update LCS/MS limits
Rev. 2. by PiccioneR (10/3/2002 3:43:05 PM) revise 3,3'-dichlorobenzidine pql from 670 to 830 (low std)
Rev. 3. by DrosD (1/10/03 5:44:46 PM) TestCode Spec spike amounts for LCS/LCSD/MS/MSD updated to midpoint of curve.
Rev. 4. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.
Rev. 5 by piccioner (5/20/2003 3:34:08 PM) Limits Data updated :from mdl Lab:2003:520
Rev. 6. by HowardW (7/7/2003 4:41:52 PM) Remove Bis(2-chloroisopropyl)ether from limits list as this is the same compund as 2,2'-Oxybis(1-chloropropane).

Units: µg/Kg **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Chrysene	218-01-9	27.2	330	0	61-110	35	0	61-110	35
0	A	Di-n-butyl phthalate	84-74-2	40.2	330	0	49-121	35	0	49-121	35
0	A	Di-n-octyl phthalate	117-84-0	40.9	330	0	47-115	35	0	47-115	35
0	A	Dibenz(a,h)anthracene	53-70-3	92	330	0	56-123	35	0	56-123	35
0	A	Dibenzofuran	132-64-9	17.8	330	0	52-110	35	0	52-110	35
0	A	Diethyl phthalate	84-66-2	40.9	330	0	48-113	35	0	48-113	35
0	A	Dimethyl phthalate	131-11-3	19.9	330	0	54-110	35	0	54-110	35
0	A	Fluoranthene	206-44-0	63	330	0	53-110	35	0	53-110	35
0	A	Fluorene	86-73-7	32.4	330	0	57-110	35	0	57-110	35
0	A	Hexachlorobenzene	118-74-1	20.3	330	0	46-122	35	0	46-122	35
0	A	Hexachlorobutadiene	87-68-3	29.8	330	0	45-110	35	0	45-110	35
0	A	Hexachlorocyclopentadiene	77-47-4	47.9	830	0	12-124	35	0	12-124	35
0	A	Hexachloroethane	67-72-1	25.2	330	0	43-110	35	0	43-110	35
0	A	Indeno(1,2,3-cd)pyrene	193-39-5	94	330	0	50-124	35	0	50-124	35
0	A	Isophorone	78-59-1	20.3	330	0	40-119	35	0	40-119	35
0	A	N-Nitrosodi-n-propylamine	621-64-7	30.2	330	1330	30-110	35	1330	30-110	35
0	A	N-Nitrosodimethylamine	62-75-9	24.1	330	0	19-130	35	0	19-130	35
0	A	N-Nitrosodiphenylamine	86-30-6	16.1	330	0	55-110	35	0	55-110	35
0	A	Naphthalene	91-20-3	30.8	330	0	54-110	35	0	54-110	35
0	A	Nitrobenzene	98-95-3	25.8	330	0	41-116	35	0	41-116	35
0	A	Pentachlorophenol	87-86-5	89.4	830	1330	40-129	35	1330	40-129	35
0	A	Phenanthrene	85-01-8	28	330	0	64-110	35	0	64-110	35
0	A	Phenol	108-95-2	23.4	330	1330	45-110	35	1330	45-110	35
0	A	Pyrene	129-00-0	60.4	330	1330	23-135	35	1330	23-135	35

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_8270C_3550B_TCL_S

Semivolatile Organics by Method 8270C

Comments:

Made: 12/4/2001 Rev: 6
Updated: 7/7/2003 4:43:15 PM
Updateby: Howardw

History: Test Code Created (Copied from 1_8270C_3550B_S) by HowardW On:12/4/01 4:46:05 PM
Rev. by piccioner (8/14/02 1:06:47 PM) Limits Data updated :Lab:2002:416
Rev. 1. by LindauerF (9/9/02 8:26:56 AM) update LCS/MS limits
Rev. 2. by PiccioneR (10/3/2002 3:43:05 PM) revise 3,3'-dichlorobenzidine pql from 670 to 830 (low std)
Rev. 3. by DrosD (1/10/03 5:44:46 PM) TestCode Spec spike amounts for LCS/LCSD/MS/MSD updated to midpoint of curve.
Rev. 4. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.
Rev. 5 by piccioner (5/20/2003 3:34:08 PM) Limits Data updated :from mdl Lab:2003:520
Rev. 6. by HowardW (7/7/2003 4:41:52 PM) Remove Bis(2-chloroisopropyl)ether from limits list as this is the same compund as 2,2'-Oxybis(1-chloropropane).

Units: µg/Kg **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	S	2,4,6-Tribromophenol	118-79-6	0	0	2000	32-130	0	2000	32-130	0
0	S	2-Fluorobiphenyl	321-60-8	0	0	1667	27-123	0	1667	27-123	0
0	S	2-Fluorophenol	367-12-4	0	0	2000	36-135	0	2000	36-135	0
0	S	Nitrobenzene-d5	4165-60-0	0	0	1667	25-122	0	1667	25-122	0
0	S	Phenol-d5	4165-62-2	0	0	2000	36-128	0	2000	36-128	0
0	S	Terphenyl-d14	1718-51-0	0	0	1667	51-116	0	1667	51-116	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_9012A_CN_W

Cyanide, Total by Method 9012A

Comments:

Made: 3/26/1999 Rev: 10 History:
Updated: 9/25/2003 2:18:59 PM
Updateby: PiccioneR

Rev. 1. by TEO (5/24/00 4:06:09 PM) added LCS1 (low)
Rev. 2. by WHH (12/4/00 11:08:55 AM) Update MDL
Rev. 3. by TEO (12/19/00 1:27:41 PM) added LCS2 spec type
Rev. 4. by DrosD (6/20/01 2:13:28 PM) add lcs1/lcs2 S and W spec types
Rev. 5 by piccioner (11/1/01 3:10:26 PM) Limits Data updated :mdl update
Rev. 6. by LindauerF (9/9/02 10:57:44 AM) update LCS/MS limits
Rev. 7. by LindauerF (11/26/2002 4:37:48 PM) update CCV limits per GAC.65, rev.13
Rev. 8 by piccioner (12/5/2002 5:30:55 PM) Limits Data updated :mdl from Lab:2002:470

Units: mg/L **WetChemistry**

			Testcode Specs								
			MDL	PQL	LCS SPK			LCS LIMITS			MS SPK	MS LIMITS
Or	AT	Analyte Name	CAS#									
0	A	Cyanide	57-12-5	0.00313	0.01	0.2	0.2	90-110	82-122	0.6	90-110	0.1	82-122

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_9012A_CN_S

Cyanide, Total by Method 9012A

Comments: LCS Analyzed as a Water Sample

Made: 3/26/1999 Rev: 13 History:
Updated: 8/21/2003 4:01:57 PM
Updateby: LindauerF

Rev. 1. by TEO (5/24/00 4:00:47 PM) added LCS1 and LCS3, low and soil
Rev. 2. by TEO (1/17/01 3:46:38 PM) added LCS2 per M O'Brien
Rev. 3. by DJD (5/14/01 2:38:42 PM) add LCSW samptype to properly report units
Rev. 4. by HowardW (6/12/01 3:12:34 PM) Update MDL.
Rev. 5. by DrosD (6/20/01 2:14:44 PM) add lcs1/lcs2 S and W spec types
Rev. 6 by piccioner (11/1/01 3:15:02 PM) Limits Data updated :update mdl
Rev. 7. by LindauerF (9/9/02 11:00:01 AM) update LCS/MS limits
Rev. 8. by OhnmeissT (11/26/02 11:17:38 AM) replaces LCS1/2S with LCS1/2W

Units: mg/Kg **WetChemistry**

Or	AT	Analyte Name	CAS#	Testcode Specs MDL	PQL	LCS SPK			LCS LIMITS			MS SPK	MS LIMITS
C	A	Cyanide	57-12-5	0.244	0.5	20	0.2	90-110	79-130	0.6	90-110	5	79-130

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_9012A-7.3.3_RCN_S

Reactive Cyanide by Method 9012A-7.3.3

Comments:

Made: 4/5/1999 Rev: 6 History:
Updated: 2/26/2003 2:34:10 PM
Updateby: piccioner

Rev. 1. by OhnmeissT (9/25/01 11:13:35 AM) added ICV and ICB
Rev. 2. by HowardW (2/11/02 12:36:26 PM) Change Hold time to 14 days.
Rev. 3. by OhnmeissT (7/30/02 10:54:39 AM) cleared init wtand final vol
Rev. 4. by OhnmeissT (7/30/02 2:06:29 PM) updated initwt and finvol
Rev. 5. by LindauerF (11/26/2002 4:33:58 PM) update CCV limits per GAC.65, rev.13
Rev. 6. by PiccioneR (2/26/2003 2:33:32 PM) mdl derived from water mdl from 2002:470, adjusted for 10 g sample collected in 50-mL trap

Units: mg/Kg **WetChemistry**

Or	AT	Analyte Name	CAS#	Testcode Specs									
				MDL	PQL	LCS SPK	LCS LIMITS						
0	A	Reactive Cyanide	57-12-5	0.0086	0.05	1000	1-125						

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_9034-7.3.4_RS_S

Reactive Sulfide by Method 9034-7.3.4

Comments:

Made: 4/5/1999 Rev: 5 History:
Updated: 2/20/2003 3:07:55 PM
Updateby: piccioner

Rev. 1. by HowardW (2/11/02 12:35:23 PM) Change Hold time to 7 days.
Rev. 2. by HowardW (4/4/02 3:48:41 PM) Add prep code.
Rev. 3. by PiccioneR (7/22/02 4:59:13 PM) change pql to 5 based on 10 g sample, typical N, 0.1 titration difference
Rev. 4. by PiccioneR (9/13/02 2:29:53 PM) change pql to 125 mg/kg based on 10 g sample, 0.025 N, titration of 10 mL of 50 mL trap solution, titration to 0.1 mL and 5x leeway for the procedure.
Rev. 5. by PiccioneR (2/20/2003 3:07:44 PM) mdl set to value without 5-fold buffer, i.e. at 25

Units: mg/Kg	WetChemistry	Testcode Specs									
		MDL	PQL	LCS SPK	LCS LIMITS						
Or AT	Analyte Name	CAS#									
0 A	Reactive Sulfide		25	125	570	1-125					

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_9040B_PH_W

pH by Method 9040B

Comments:

Made: 6/10/1999 Rev: 1 History:
Updated: 5/1/2002 2:06:55 PM Rev. 1. by HowardW (5/1/02 2:06:14 PM) Update MDL to equal PQL.
Updateby: howardw

Units: S.U.	WetChemistry	Testcode Specs									
		MDL	PQL								
Or AT Analyte Name	CAS#										
0 A pH		0.1	0.1								

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_9045C_pH_S

pH by Method EPA 9045C

Comments:

Made: 3/26/1999 Rev: 3 History:
Updated: 11/19/2002 10:50:59 AM
Updateby: Howardw

Rev. 1. by HowardW (3/4/02 3:41:17 PM) Update Holdtime to 5 days as per QA.
Rev. 2. by LenzC (7/8/2002 12:16:25 PM) Set MDL to PQL for reporting
Rev. 3. by HowardW (11/19/2002 10:50:39 AM) Set hold time to 5 days as per SOP.

Units: S.U.	WetChemistry	Testcode Specs								
		MDL	PQL							
Or AT	Analyte Name	CAS#								
0 A	pH		0.1	0.1						

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_1311_6010B_L

TCLP Metals by ICP Method 6010B

Comments:

Made: 3/16/1999 Rev: 20
Updated: 11/11/2002 2:44:47 PM
Updateby: piccioner

History: Admin Updated UQLs to reflect current upper quantitaion limits 05/09/00 3:00PM
Rev. 2. by WHH (6/13/00 4:12:40 PM) Update Recovery Limits
Rev. 3. by TEO (10/10/00 12:48:12 PM) added TCLPMBLK sampType
Rev. 4. by TEO (10/19/00 8:27:17 AM) adding PDS as a SampType
Rev. 5. by WHH (2/5/01 9:41:36 AM) Update MDL.
Rev. 6. by WHH (2/12/01 11:11:57 AM) Update ICV.
Rev. 7. by DJD (3/15/01 1:34:51 PM) Add Dup Spec Type
Rev. 8. by HumphreyR (6/11/01 4:56:40 PM) Manual Update of MDL and PQL
Rev. 9. by HumphreyR (6/11/01 5:01:54 PM) updateexp date

Units: mg/L **Metals**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	Arsenic	7440-38-2	0.00347	0.1	1	80-120	20	1	50-150	20
0	A	Barium	7440-39-3	0.00029	0.06	1	80-120	20	1	50-150	20
0	A	Cadmium	7440-43-9	0.000206	0.015	1	80-120	20	1	50-150	20
0	A	Chromium	7440-47-3	0.000312	0.03	1	80-120	20	1	50-150	20
0	A	Lead	7439-92-1	0.00149	0.15	1	80-120	20	1	50-150	20
0	A	Selenium	7782-49-2	0.00562	0.1	1	80-120	20	1	50-150	20
0	A	Silver	7440-22-4	0.000881	0.03	0.05	80-120	20	0.05	50-150	20

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_1311_7470A_L

TCLP Mercury by Method 7470A

Comments:

Made: 3/15/1999 Rev: 8 History:
Updated: 10/6/2003 1:23:50 PM
Updateby: howardw

Rev. 1. by TEO (4/26/00 1:33:23 PM) changed ICV,MS,and MSD pike true values
Rev. 2. by TEO (4/26/00 1:37:36 PM) spk true values LCS, MS, and MSD change
Rev. 3. by TEO (5/2/00 3:23:00 PM) change convfac
Rev. 4. by TEO (10/9/00 12:03:24 PM) added LCSD specType
Rev. 5. by PiccioneR (3/13/02 5:07:16 PM) update mdl from 7/9/01 study
Rev. 6. by PiccioneR (7/16/02 4:04:34 PM) change pql to match regular testcode. Processed same way as regular test.
Rev. 7. by HowardW (7/31/2002 8:09:16 AM) Change LCS,LCSD,MS, and MSD spike values to 0.001, as per Jen Warf.
Rev. 8. by HowardW (10/6/2003 1:22:52 PM) Add PDS and "L" (Serial Dilution) samp types as per Tim Gramling (Californa Audit

Units: mg/L	Mercury	Testcode Specs									
		MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD		
Or AT	Analyte Name	CAS#									
C A	Mercury	7439-97-6	0.000104	0.0004	0.001	80-120	20	0.001	50-150	20	

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_1311_8260B_MEOH

TCLP VOCs, MeOH Extract by GCMS Method 8260B

Comments:

Made: 9/13/2001 Rev: 3
Updated: 7/16/2003 4:08:37 PM
Updateby: piccioner

History: Test Code Created (Copied from 1_8260B_MEOH) by howardw On:9/13/01 10:49:34 AM
Rev. 1. by HowardW (9/18/01 12:01:50 PM) Add Default prep.
Rev. 2. by PiccioneR (7/15/2003 5:12:32 PM) adjust mdl pql to report in TCLP units of mg/L; mdl derived from soil MeOH mdl 4g to 10 mL MeOH, then back calculate based on 1 mL non-aqueous sample diluted to 10 mL with MeOH. Starting point Lab mdl study 581
Rev. 3. by PiccioneR (7/16/2003 4:08:32 PM) QA also changed spike amount from 6.25 mg/kg to 25 mg/L based on above calculation and reporting units to mg/L

Units: mg/L **GCMS Volatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	1,1-Dichloroethene	75-35-4	0.1212	2.5	25	70-130	35	25	70-130	35
0	A	1,2-Dichloroethane	107-06-2	0.0988	2.5	25	70-130	35	25	70-130	35
0	A	2-Butanone	78-93-3	0.2604	5	25	70-130	35	25	70-130	35
0	A	Benzene	71-43-2	0.0584	2.5	25	70-130	35	25	70-130	35
0	A	Carbon tetrachloride	56-23-5	0.0668	2.5	25	70-130	35	25	70-130	35
0	A	Chlorobenzene	108-90-7	0.0612	2.5	25	70-130	35	25	70-130	35
0	A	Chloroform	67-66-3	0.0768	2.5	25	70-130	35	25	70-130	35
0	A	Tetrachloroethene	127-18-4	0.0788	2.5	25	70-130	35	25	70-130	35
0	A	Trichloroethene	79-01-6	0.118	2.5	25	70-130	35	25	70-130	35
0	A	Vinyl chloride	75-01-4	0.1992	5	25	70-130	35	25	70-130	35
0	S	1,2-Dichloroethane-d4	17060-07-0	0	0	25	70-130	0	25	70-130	0
0	S	4-Bromofluorobenzene	460-00-4	0	0	25	70-130	0	25	70-130	0
0	S	Dibromofluoromethane	1868-53-7	0	0	25	70-130	0	25	70-130	0
0	S	Toluene-d8	2037-26-5	0	0	25	70-130	0	25	70-130	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_1311_8260B_L

TCLP VOCs by Method 8260B

Comments:

Made: 3/24/1999 2:17:37 Rev: 8 History:
Updated: 2/27/2003 1:56:51 PM
Updateby: humphreyr

Rev. 1. by WHH (6/16/00 3:03:00 PM) Update MCLs
Rev. 2. by WHH (10/27/00 10:20:26 AM) Update Surrogate limits.
Rev. 3. by WHH (5/3/01 9:30:22 AM) Update MDLs.
Rev. 4. by HowardW (9/20/01 9:55:17 AM) Add DL sample type.
Rev. 5. by HowardW (11/2/01 10:59:49 AM) Add Sample Type of LCSD.
Rev. 6. by PiccioneR (3/13/02 3:26:53 PM) add MMP
Rev. 7 by piccioner (3/13/02 4:13:02 PM) Limits Data updated :from 2001 study changing value and units to mg/L
Rev. 8. by HumphreyR (2/27/03 1:56:23 PM) Edit Surr TXT_PQL

Units: mg/L GCMS Volatiles

				Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
Or	AT	Analyte Name	CAS#								
0	A	1,1-Dichloroethene	75-35-4	0.000625	0.005	0.05	61-135	20	0.05	61-135	20
0	A	1,2-Dichloroethane	107-06-2	0.000642	0.005	0.05	80-134	20	0.05	80-134	20
0	A	2-Butanone	78-93-3	0.00114	0.01	0.05	46-169	20	0.05	46-169	20
0	A	Benzene	71-43-2	0.000535	0.005	0.05	82-131	20	0.05	82-131	20
0	A	Carbon tetrachloride	56-23-5	0.000677	0.005	0.05	81-132	20	0.05	81-132	20
0	A	Chlorobenzene	108-90-7	0.000392	0.005	0.05	77-128	20	0.05	77-128	20
0	A	Chloroform	67-66-3	0.000445	0.005	0.05	81-130	20	0.05	81-130	20
0	A	Tetrachloroethene	127-18-4	0.000582	0.005	0.05	76-127	20	0.05	76-127	20
0	A	Trichloroethene	79-01-6	0.000625	0.005	0.05	82-120	20	0.05	82-120	20
0	A	Vinyl chloride	75-01-4	0.000517	0.01	0.05	43-159	20	0.05	43-159	20
0	S	1,2-Dichloroethane-d4	17060-07-0	0	0	0.05	82-124	0	0.05	82-124	0
0	S	4-Bromofluorobenzene	460-00-4	0	0	0.05	87-115	0	0.05	87-115	0
0	S	Toluene-d8	2037-26-5	0	0	0.05	85-115	0	0.05	85-115	0

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_1311_8270C_O

TCLP Semivolatile Organics by Method 8270C

Comments:

Made: 9/5/2001 Rev: 3
Updated: 1/24/2003 5:35:16 PM
Updateby: DrosD

History: Test Code Created by howardw'On:9/5/01 1:24:11 PM
Rev. 1. by OhnmeissT (4/10/02 3:46:43 PM) no changes, need spikes, limits for LCS/D
Rev. 2. by OhnmeissT (4/11/02 8:46:32 AM) added LCS/D per Dave Ennis
Rev. 3. by DrosD (1/24/03 5:35:16 PM) TestCode UQL updated based on new 5pt curve range.

Units: mg/L **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs									
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD		
0	A	1,4-Dichlorobenzene	106-46-7	100	100	300	20-120	35	300	20-120	35		
0	A	2,4,5-Trichlorophenol	95-95-4	500	500	300	20-120	35	300	20-120	35		
0	A	2,4,6-Trichlorophenol	88-06-2	100	100	300	20-120	35	300	20-120	35		
0	A	2,4-Dinitrotoluene	121-14-2	100	100	300	20-120	35	300	20-120	35		
0	A	2-Methylphenol	95-48-7	100	100	300	20-120	35	300	20-120	35		
0	A	4-Methylphenol/3-Methylphenol	106-44-5	200	200	600	20-120	35	600	20-120	35		
0	A	Hexachlorobenzene	118-74-1	100	100	300	20-120	35	300	20-120	35		
0	A	Hexachlorobutadiene	87-68-3	100	100	300	20-120	35	300	20-120	35		
0	A	Hexachloroethane	67-72-1	100	100	300	20-120	35	300	20-120	35		
0	A	Nitrobenzene	98-95-3	100	100	300	20-120	35	300	20-120	35		
0	A	Pentachlorophenol	87-86-5	500	500	300	20-120	35	300	20-120	35		
0	A	Pyridine	110-86-1	1000	1000	300	20-120	35	300	20-120	35		
0	S	2,4,6-Tribromophenol	118-79-6	0	0	400	40-150	0	400	40-150	0		
0	S	2-Fluorobiphenyl	321-60-8	0	0	400	40-150	0	400	40-150	0		
0	S	2-Fluorophenol	367-12-4	0	0	400	40-150	0	400	40-150	0		
0	S	Nitrobenzene-d5	4165-60-0	0	0	400	40-150	0	400	40-150	0		
0	S	Phenol-d5	4165-62-2	0	0	400	40-150	0	400	40-150	0		
0	S	Terphenyl-d14	1718-51-0	0	0	400	40-150	0	400	40-150	0		

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-
(716) 685-8080

Test Code - Spec Limits Report

1_1311_8270C_L

TCLP Semivolatile Organics by Method 8270C

Comments:

Made: 3/12/1999 Rev: 18 History:
Updated: 9/18/2003 12:16:36 PM
Updateby: lindauerf

Rev. 1. by WHH (7/13/00 1:45:22 PM) Update PQL's
Rev. 2. by TEO (7/17/00 12:04:41 PM) updated MDLs,OK'd MDLs w/R. Piccone
Rev. 3. by WHH (10/2/00 4:44:39 PM) Update recovery limits.
Rev. 4. by WHH (11/15/00 1:48:38 PM) Update UQL for 4-Methylphenol/3-Methylphenol.
Rev. 5. by HowardW (6/14/01 1:47:06 PM) Update test Factors.
Rev. 6. by OhnmeissT (08/28/2001 3:02:33 PM) corrected surr spike amt
Rev. 7. by PiccioneR (11/21/01 2:00:59 PM) update limits from CC job 8270C 1311 011121 except stet hexachlorobenzene, pentachlorophenol, and pyridine and increase UCL for phenol-d5 surr to 60.

Units: mg/L **GCMS Semivolatiles**

Or	AT	Analyte Name	CAS#	Testcode Specs							
				MDL	PQL	LCS SPK	LCS LIMITS	LCSD RPD	MS SPK	MS LIMITS	MSD RPD
0	A	1,4-Dichlorobenzene	106-46-7	0.0239	0.1	0.2	14-92	20	0.2	14-92	20
0	A	2,4,5-Trichlorophenol	95-95-4	0.0462	0.5	0.2	23-100	20	0.2	23-100	20
0	A	2,4,6-Trichlorophenol	88-06-2	0.0477	0.1	0.2	21-101	20	0.2	21-101	20
0	A	2,4-Dinitrotoluene	121-14-2	0.0207	0.1	0.2	23-100	20	0.2	23-100	20
0	A	2-Methylphenol	95-48-7	0.0453	0.1	0.2	27-80	20	0.2	27-80	20
0	A	4-MethylPhenol/3-Methylphenol	106-44-5	0.0492	0.3	0.4	25-73	20	0.4	25-73	20
0	A	Hexachlorobenzene	118-74-1	0.0213	0.1	0.2	17-81	20	0.2	17-81	20
0	A	Hexachlorobutadiene	87-68-3	0.0229	0.1	0.2	10-89	20	0.2	10-89	20
0	A	Hexachloroethane	67-72-1	0.0206	0.1	0.2	10-87	20	0.2	10-87	20
0	A	Nitrobenzene	98-95-3	0.0269	0.1	0.2	21-99	20	0.2	21-99	20
0	A	Pentachlorophenol	87-86-5	0.0441	0.5	0.2	21-104	20	0.2	21-104	20
0	A	Pyridine	110-86-1	0.0126	0.1	0.2	13-62	20	0.2	13-62	20
0	S	2,4,6-Tribromophenol	118-79-6	0	0	0.3	27-108	0	0.3	27-108	0
0	S	2-Fluorobiphenyl	321-60-8	0	0	0.25	21-94	0	0.25	21-94	0
0	S	2-Fluorophenol	367-12-4	0	0	0.3	17-54	0	0.3	17-54	0
0	S	Nitrobenzene-d5	4165-60-0	0	0	0.25	23-110	0	0.25	23-110	0
0	S	Phenol-d5	4165-62-2	0	0	0.3	13-41	0	0.3	13-41	0
0	S	Terphenyl-d14	1718-51-0	0	0	0.25	41-134	0	0.25	41-134	0

D Surveyor

Surveying Subcontractor Quotations

Vendor	Task 1 Property Boundary	Task 2 Site Features & Base Map	Total Cost	Estimated Duration
Klettke Land Surveyors, P.C.	Cost not provided	**$7,679.00**	$7,679.00	5 day
Lu Engineers	$7,838.01	**$7,656.23**	$15,494.24	4 day
Naybor Land Surveying	Declined to bid			
Wendel Duchscherer Survey	$1,250.00	**$4,960.00**	$6,210.00	Unknown
Woodbury Surveying	Declined to bid			

D.1 Scope of Work – Exhibit #1 Surveyor

EXHIBIT 1
Scope of Work for Surveying Services
Fourth Street Inactive Waste Site
Buffalo, New York
September 24, 2003

Ecology and Environment Engineering, P.C. (E & E) has been assigned the project of developing a remedial design for the above-referenced site for the New York State Department of Environmental Conservation (NYSDEC).

Background

The site was a former manufactured gas plant and is contaminated with by-products associated with operation of the plant. Surface contamination consisting of elevated levels of polycyclic aromatic hydrocarbons (PAHs) is located within a fenced-in area east of a parking lot that is used for a school located south of the site. Nine monitoring wells containing various degrees of PAH and benzene, toluene, ethylbenzene, and xylene (BTEX) contamination are located at the site. Vegetation covers the area so dust and contaminated soil should not be a concern. E & E will be installing up to 25 additional boreholes as well as other environmental data collection locations. Basic level D personal protective equipment is required. The winning bidder is required to prepare a health and safety plan based on these and other physical hazards prior to award of a subcontract.

Scope of Work (SOW):

Services required for this SOW include:

- Conducting a property search and identifying site boundaries;
- Surveying and gathering horizontal and vertical data for nine monitoring wells, 25 boreholes, and up to 12 other sample locations;
- Marking utilities identified by E & E's historical data review; and
- Determining location and rim and invert elevations for all manholes and utility access points identified at the site (currently assumed to be 20 locations).

Provision of these services is to be inclusive of all necessary labor, travel, per diem, equipment, expendables, and other direct charges to complete this SOW as described below:

Utility Search

E & E will perform a background utility search to identify underground utilities within the site. The surveyor will be responsible for obtaining data gathered by E & E and incorporating it into the drawings developed under this scope of work. The utility information will be related to present and past utilities and will include electrical, storm, gas, and sanitary sewer lines. It is anticipated that some older utilities may be associated with the former site activities.

On-Site Surveying

Surveying services shall include performing a property search and identifying the property boundaries. Location and elevation information shall be obtained for the environmental

sampling locations and utilities identified above. A minimum of five horizontal reference points shall be established throughout the site.

The surveying services shall also include the establishment of horizontal location of key site features such as roadways, parking areas, and other above ground appurtenances. The surveyor will be required to create a site base map based on the survey data and other available information provided by E & E such as existing tax maps, aerial photos, etc. The map shall be submitted to E & E in both hard copy and electronic (AutoCAD) formats. One draft copy shall be submitted for review by E & E. Upon incorporation of E & E's comments, if any, the subcontractor shall provide a final version of the map.

Survey Description
Surveying will be undertaken to establish the following:

- Vertical Control - Elevations, to the nearest ±0.1 feet, will be established for all ground shots and utility rim and invert elevations. Monitoring well inner casing elevations require a control accuracy of ±0.05 foot and will be reported to the nearest 0.01 foot. Elevations will be determined relative to a National Geodetic Survey (NGS) station monument or New York State (NYS)-approved monument. A reference to an existing NGS or NYS monument likely exists from previous efforts conducted at the site. If a monument does not exist within close proximity to the site such that it cannot be referenced within one day's effort, a reference elevation will be assigned to a site benchmark installed at the site by the subcontractor.

- Horizontal Control – Coordinates are to be given in the State Plane Coordinate System to an accuracy of ±0.5 feet. If horizontal control is not available, local control shall be established using the site benchmark installed at the site by the subcontractor.

The subcontractor will record all fieldwork in a clear, legible, and complete manner. The field record will contain a complete description of the nature and location of both new and any existing control points used. The record will include a sketch of the point locations and the monument witness points. The subcontractor will provide to E & E a copy of the field survey book at the completion of all survey work. The book will contain all field notes, notations, and descriptions, used and compiled during the field survey. Legible photocopies will be accepted. Electronic notebook data is also acceptable as a supplement.

In addition, E & E may request that the surveyor gather additional information on the physical/natural features of the site including, but not limited to, vegetative cover (wooded area, heavy brush, light brush, grass) at the time of the survey. These will not be surveyed but will be noted in general nature only and obtained for the sole purpose of providing a more illustrative site map.

The surveyor's map is to be prepared as a CAD drawing using AutoCAD 2002 or later version. Copies of all site maps must be supplied as AutoCAD drawings on paper and electronically.

The following are the minimal acceptable cartographic specifications:

- Map Border and neat line;
- Title box in lower right corner listing subcontractor's name as surveyor, and E & E's name as Project Engineer;
- Legend;
- Map Symbols;
- North Arrow (North according to NYS Plane Coordinate system will be aligned to the vertical dimension of the sheet. True north should be approximately aligned with the vertical.)
- Coordinate Reference Points (latitude and longitude coordinates for a central point in the site are to be given on the site location map figure in NYS Plane coordinates NAD27 feet, selected to minimize interface with pre-existing data). In order to incorporate electronic data into the GIS, at least two reference State Plane coordinate points must be given within the bounds of the site map.
- Bar Scale (A bar scale is required and should be suitable to depict significant features of the site. The bar scale must be designed so that it can be used with an engineers scale.);
- Surveyed Site Map (pertinent surveyed features and data will be incorporated into the site map as described above).

Project Schedule:
It is anticipated that fieldwork and surveying will begin in October 2003. Sampling will be completed in early December 2003. Following E & E's receipt of NYSDEC's notice to proceed, E & E will modify the project schedule, as necessary, and notify the subcontractor. The subcontractor will provide the following deliverables within 15 business days following the fieldwork:

- Draft and final site survey map physical features consistent with the above SOW.
- One copy of detailed survey field notes.
- Electronic file(s) of the site survey map for further development by E & E.

Exhibit 2
Cost Schedule For
Professional Surveying Services
Fourth Street Inactive Waste Site
Buffalo, New York

Costing compliant with NYSDEC Form 2.11(e).

A.Direct Salary Costs

Professional Responsibility Level	Labor Classification	Avg. Reimbursement Rate	Max. Reimbursement Rate	Est. # Hours	Est. Direct Salary Cost (Avg. Reimb. Rate)
Mgt. Engineer	NSPE VIII		$54.21		$0.00
Sr. Engineer	NSPE III		$25.12		$0.00
Engr. Tech.	NSPE I		$17.49		$0.00
Total Direct Salary Costs					$0.00

B. Indirect Costs

Amount budgeted for indirect costs is:

C. Maximum Reimbursement Rates for Direct Non-Salary Costs

	Item	Maximum Reimbursement	Unit	Number of Units	Total Estimated Cost
1	Travel				
	Overnight Expenses	$ 80.00	Night		$ -
	Dinner Only	$ 24.00	Dinner		$ -
	Breakfast Only	$ 6.00	Breakfast		$ -
	Mileage	$ 0.36	Mile		$ -
	Total Travel				$ -
2	Supplies				
	Postage	$ 17.00	Lump Sum		$ -
	Level D Protection	$ 15.00	Day		$ -
	Total Station w/Tripod	$ 146.00	Day		$ -
	Miscellaneous Expenses	$ 50.00	Lump Sum		$ -
	Reproduction	$ 0.05	Each Copy		$ -
	Total Supplies				$ -
	Total Travel and Supplies Cost				$ -

D. Fixed Fee

The Fixed Fee is:

D.2 Copy of Surveyor Level of Effort and Proposal

KLETTKE LAND SURVEYORS, P.C.

NEAL R. KLETTKE L.S. - MATTHEW F. KLETTKE L.S.
2470 STOELTING ST. (BERGHOLZ), NIAGARA FALLS, NEW YORK, 14304
(716) 731-5613 FAX (716) 731-9607

FAX TRANSMITTAL SHEET

To Rich Watt
Ecology & Environment
From Neal Klettke

Date 10.3.2003
Fax No. 684.0844

Total number of pages including this cover sheet 2

Proposal for 4th Street follows.

If any questions, I should be in Am afternoon.

Thanks,

Neal

IF THERE IS ANY PROBLEM WITH THIS TRANSMITTAL OR IF YOU ARE NOT THE INTENDED RECIEVER, PLEASE CONTACT THIS OFFICE AT (716) 731-5613

KLETTKE LAND SURVEYORS, P.C.

Neal R. Klettke, L.S. – Matthew F. Klettke, L.S.
2470 Stoelting St. (Bergholz), Niagara Falls, N.Y. 14304
(716) 731-5513 FAX (716) 731-9607

October 3, 2003

Mr. Richard M. Watt, P.G.
Ecology & Environment, Inc.
368 Pleasant View Drive
Lancaster, NY 14086

Re: Fourth Street Inactive Waste Site - Buffalo, NY

Dear Mr. Watt:

In response to your RFP of September 30, we arrive at a cost estimate of $7679.00 for surveying services, exclusive of property boundary work. This quote is based on our standard rate structure applied to time estimates, illustrated as follows:

Field Crew Rates – include all equipment & travel costs.

2-person crew (conventional total station / level):	$1215.00/day	x 1 day	=	$1215.00
1-person (robotic total station / GPS):	1026.00/day	4 days		4104.00

Office Rates

Licensed Land Surveyor:	$60.00/hour	x 8 hrs.	=	480.00
Computation:	40.00/hour	10 hrs.		400.00
AutoCAD:	50.00/hour	24 hrs.		1200.00
Printing:	$5.00/sheet x 24 sheets x 2 occasions:			240.00
Delivery Charges:	$20.00 x 2 occasions:			40.00
		Total:		**$7679.00**

In order to provide a responsible quote on boundary work, we would need legal descriptions of the properties and to know if title abstracts are available.

Our general policy with digital deliverables is to provide such without our title block and the surveyor's signature and seal. Signed and embossed prints will be considered validated deliverables. We currently are running AutoCAD version 2000i.

I trust this proposal is adequate to address your needs at the Fourth Street site. If there are any questions, please call at 731-5613.

We look forward to being of continued service to Ecology and Environment. Thank you.

Sincerely:

Neal R. Klettke, L.S.

LU ENGINEERS
Civil and Environmental

FAX MEMORANDUM

TO: **Mr. Richard Watt**
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, New York 14086
Fax no. 1-716-684-0844

FROM: **James L. Mueller, L.S.**
2230 Penfield Road
Penfield, NY 14526
(P) 585-377-1450 (F) 585-377-1266
(e-mail) jmueller@luengineers.com

SUBJECT: **Fourth Street Inactive Waste Site, Buffalo, NY**

DATE: **October 2, 2003**

PAGES: **3** (Including Cover)

In response to your RFP, dated September 30, 2003, and subsequent e-mails addressing the scope, for surveying and mapping for the referenced project the following formwork is attached;

Schedule 2.11(e) - Surveying Price Schedule for Contaminant Area and Adjacent Area only
Schedule 2.11(e) - Surveying Price Schedule Including Boundary and Topographic Survey of Both Parcels

These originals are being mailed.

If you have any questions, please contact me.

Thank you.

Schedule 2.11 (e)

Cost-Plus-Fixed Fee Subcontractors

Fourth Street Inactive Waste Site, Buffalo, NY **Survey of Contaminant Area and Adjacent Area Only**

I.	NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	
	Lu Engineers	Surveying and Field Work	$	7,656.23

A.Direct Salary Costs

Professional Responsibility Level	Labor Classification	Avg. Reimbursement Rate	Max. Reimbursement Rate	Est. # Hours	Est. Direct Salary Cost (Avg. Reimb. Rate)	
Task 1 - HASP						
Mgt. Engineer	NSPE VIII	$ 47.35	$ 47.74	1	$	47.35
Sr. Engineer	NSPE III	$ 24.52	$ 26.22	8	$	196.16
Task 2 - Survey Contaminant Area and Base Map Development						
Mgt. Engineer	NSPE VIII	$ 47.35	$ 47.74	8	$	378.80
Sr. Engineer	NSPE III	$ 24.52	$ 26.22	64	$	1,569.28
Technician	NSPE I	$ 16.33	$ 17.82	32	$	522.56
Task 3 - Optional - Boundary / Topographic Survey For Both Parcels						
Mgt. Engineer	NSPE VIII	$ 47.35	$ 47.74	n/a		
Sr. Engineer	NSPE III	$ 24.52	$ 26.22	n/a		
Technician	NSPE I	$ 16.33	$ 17.82	n/a		
Total Direct Salary Costs					$	2,714.15

B. Indirect Costs

Amount budgeted for indirect costs is:	$	3,446.97

C. Maximum Reimbursement Rates for Direct Non-Salary Costs

	Item	Max. Reimb. Rate	Unit	# Units	Total Est. Cost	
1	Travel					
	Overnight Expenses	$ 80.00	Night	0	$	-
	Dinner Only	$ 24.00	Dinner	0	$	-
	Breakfast Only	$ 6.00	Breakfast	0	$	-
	Mileage	$ 0.36	Mile	700	$	252.00
	Total Travel				$	252.00
2	Supplies					
	Postage	$ 17.00	Lump Sum	2	$	34.00
	Level D Protection	$ 15.00	Day	7	$	105.00
	Total Station w/Tripod	$ 146.00	Day	3	$	438.00
	Miscellaneous Expenses	$ 50.00	Lump Sum	1	$	50.00
	Reproduction	$ 0.05	Each Copy	0	$	-
	Total Supplies				$	627.00
	Total Travel and Supplies Cost				$	879.00

D. Fixed Fee

The Fixed Fee is:	$	616.11

Schedule 2.11 (e)

Cost-Plus-Fixed Fee Subcontractors

Fourth Street Inactive Waste Site, Buffalo, NY **Includes Boundary and Topographic Survey of Both Parcels**

L	NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE
	Lu Engineers	Surveying and Field Work	$ 15,494.24

A.Direct Salary Costs

Professional Responsibility Level	Labor Classification	Avg. Reimbursement Rate	Max. Reimbursement Rate	Est. # Hours	Est. Direct Salary Cost (Avg. Reimb. Rate)
Task 1 - HASP					
Mgt. Engineer	NSPE VIII	$ 47.35	$ 47.74	1	$ 47.35
Sr. Engineer	NSPE III	$ 24.52	$ 26.22	8	$ 196.16
Task 2 - Survey Contaminant Area and Base Map Development					
Mgt. Engineer	NSPE VIII	$ 47.35	$ 47.74	8	$ 378.80
Sr. Engineer	NSPE III	$ 24.52	$ 26.22	64	$ 1,569.28
Technician	NSPE I	$ 16.33	$ 17.82	32	$ 522.56
Task 3 - Optional Boundary / Topographic Survey For Both Parcels					
Mgt. Engineer	NSPE VIII	$ 47.35	$ 47.74	8	$ 378.80
Sr. Engineer	NSPE III	$ 24.52	$ 26.22	76	$ 1,863.52
Technician	NSPE I	$ 16.33	$ 17.82	36	$ 587.88
	Total Direct Salary Costs				$ 5,544.35

B. Indirect Costs

Amount budgeted for indirect costs is: $ 7,041.32

C. Maximum Reimbursement Rates for Direct Non-Salary Costs

	Item	Max. Reimb. Rate	Unit	# Units	Total Est. Cost
1	Travel				
	Overnight Expenses	$ 80.00	Night	0	$ -
	Dinner Only	$ 24.00	Dinner	0	$ -
	Breakfast Only	$ 6.00	Breakfast	0	$ -
	Mileage	$ 0.36	Mile	1500	$ 540.00
	Total Travel				$ 540.00
2	Supplies				
	Postage	$ 17.00	Lump Sum	2	$ 34.00
	Level D Protection	$ 15.00	Day	10	$ 150.00
	Total Station w/Tripod	$ 146.00	Day	6	$ 876.00
	Miscellaneous Expenses	$ 50.00	Lump Sum	1	$ 50.00
	Reproduction	$ 0.05	Each Copy	0	$ -
	Total Supplies				$ 1,110.00
	Total Travel and Supplies Cost				$ 1,650.00

D. Fixed Fee

The Fixed Fee is: $ 1,258.57

ecology and environment, inc.
International Specialists in the Environment

ATTORNEY CLIENT COMMUNICATION - PRIVILEGED AND CONFIDENTIAL
ATTORNEY WORK PRODUCT AND OTHER APPLICABLE PRIVILEGES ASSERTED

Ecology and Environment, Inc.
368 Pleasant View Drive, Lancaster, New York 14086
Phone 716-684-8060 Fax 716-684-0844

CONFIDENTIALITY NOTICE:

Date: October 1, 2003	**Project Code:** 0699 6813
Fax Number: 716-937-9526	**Time:** 8:50 AM
To: Deborah Naybor	**Total Number of Pages (Including Transmission Form):** 7
Company: Naybor Land Surveying	
From: Rick Watt	

If this fax is incomplete or illegible, please call (716) 684-8060 for retransmission.

☐ Hardcopy to follow by mail.

Please see attached request for cost proposal. Note that a blank subcontract agreement has not been included. If you would like to see one prior to providing your proposal, please contact me at rwatt@ene.com or 716-684-8060. I have requested a quick turnaround on the price in the attached cover letter. If this presents a significant problem, please contact me to discuss. Thank you.

No thanks. We're too busy to bid this project.

WENDEL DUCHSCHERER
ARCHITECTS & ENGINEERS

Towne Square, 6417 Dysinger Road, Lockport, New York 14094
P 716.433.5993 F 716.433.7604

FACSIMILE

Date **October 2, 2003**

To **Richard Watt**

Firm **Ecology and Environment**

Fax Number **716-684-0844**

From **Marshall D. Wilson**

Subject **FOURTH STREET INACTIVE SITE- SURVEY/MAPPING ESTIMATE**

TOTAL NUMBER OF PAGES TO FOLLOW THIS TRANSMITTAL **6**

Project Name

WD Project Number

Comments

Richard,

Please phone with any questions.

Marshall D. Wilson

☐ Original Will Not Be Mailed

☒ Original Will Be Mailed By ☒ Regular Mail ☐ Other

WENDEL DUCHSCHERER
SURVEY

October 2, 2003

Ecology and Environment Engineering, P.C.
368 Pleasant View Drive
Lancaster, New York 14086

Attention: Richard M. Watt

SUBJECT: FOURTH STREET INACTIVE WASTE SITE

Dear Mr. Watt:

We have estimated a lump sum fee of $4,960.00 to provide survey and mapping for the project referenced above. The fee breakdown and scope is outlined in "Exhibits 1 & 2" in your request for proposal, dated September 30, 2003, attached hereto, and our assumptions listed below. As you have requested, the costs associated with identifying property lines has been removed from your "Exhibits 1 & 2", referenced above, and is outlined in our additional fees listed below.

Additional fees:

Property Line Identification:		$1,700.00 (Lump Sum)
Prevailing wage rates (if applicable)		$ 560.00
	Total	$2,260.00 (Lump Sum)

If prevailing wage rates are to apply to this project, an additional cost of $1,250.00 will be applied to the lump sum fee of $4,960.00, equating to a total lump sum fee of $6,210.00.

Assumptions:

- All utility research will be provided.
- All wells, manholes and utilities to be surveyed will be accessible at the time of survey.
- Title documentation for easements, leases, permits and all rights-of-others will be provided to Wendel Duchscherer. Costs associated with obtaining these documents are not included in this fee.
- Preparation of Title Searches is not included in this fee.
- Site access and mobilization will be unobstructed.

If tentatively selected for this work, Wendel Duchscherer Survey will reserve the right to review and present amendments to the Subcontract Agreement. We will commence work upon mutual approval and receipt of the signed Subcontract Agreement.

Towne Square · 6417 Dysinger Road P 716.433.5993 W www.wd-ae.com
Lockport · New York 14094 F 716.433.7604

Please contact us at 716-433-5993 with any questions or to discuss any of the information provided herein.

We appreciate the opportunity to provide you with this information and look forward to helping you with a successful completion of this project.

Sincerely,

WENDEL DUCHSCHERER SURVEY

Peter J. Welsby, P.L.S.
Principal

Marshall D. Wilson, P.L.S.
Project Manager

September 30, 2003

EXHIBIT 1
Scope of Work for Surveying Services
Fourth Street Inactive Waste Site
Buffalo, New York

Ecology and Environment Engineering, P.C. (E & E) has been assigned the project of developing a remedial design for the above-referenced site for the New York State Department of Environmental Conservation (NYSDEC).

Background
The site was a former manufactured gas plant and is contaminated with by-products associated with operation of the plant. Surface contamination consisting of elevated levels of polycyclic aromatic hydrocarbons (PAHs) is located within a fenced-in area east of a parking lot that is used for a school located south of the site. Nine monitoring wells containing various degrees of PAH and benzene, toluene, ethylbenzene, and xylene (BTEX) contamination are located at the site. Vegetation covers the area so dust and contaminated soil should not be a concern. E & E will be installing up to 25 additional boreholes as well as other environmental data collection locations. Basic level D personal protective equipment is required. The winning bidder is required to prepare a health and safety plan based on these and other physical hazards prior to award of a subcontract.

Scope of Work (SOW):
Services required for this SOW include:

- ~~Conducting a property search and identifying site boundaries;~~
- Surveying and gathering horizontal and vertical data for nine monitoring wells, 25 boreholes, and up to 12 other sample locations;
- Marking utilities identified by E & E's historical data review; and
- Determining location and rim and invert elevations for all manholes and utility access points identified at the site (currently assumed to be 20 locations).

Provision of these services is to be inclusive of all necessary labor, travel, per diem, equipment, expendables, and other direct charges to complete this SOW as described below:

Utility Search
E & E will perform a background utility search to identify underground utilities within the site. The surveyor will be responsible for obtaining data gathered by E & E and incorporating it into the drawings developed under this scope of work. The utility information will be related to present and past utilities and will include electrical, storm, gas, and sanitary sewer lines. It is anticipated that some older utilities may be associated with the former site activities.

On-Site Surveying
Surveying services shall include performing ~~a property search and identifying the property boundaries~~. Location and elevation information shall be obtained for the environmental sampling locations and utilities identified above. A minimum of five horizontal reference points shall be established throughout the site.

The surveying services shall also include the establishment of horizontal location of key site features such as roadways, parking areas, and other above ground appurtenances.

The surveyor will be required to create a site base map based on the survey data and other available information provided by E & E such as existing tax maps, aerial photos, etc. The map shall be submitted

September 30, 2003

to E & E in both hard copy and electronic (AutoCAD) formats. One draft copy shall be submitted for review by E & E. Upon incorporation of E & E's comments, if any, the subcontractor shall provide a final version of the map.

Survey Description
Surveying will be undertaken to establish the following:

- Vertical Control - Elevations, to the nearest ±0.1 feet, will be established for all ground shots and utility rim and invert elevations. Monitoring well inner casing elevations require a control accuracy of ±0.05 foot and will be reported to the nearest 0.01 foot. Elevations will be determined relative to a National Geodetic Survey (NGS) station monument or New York State (NYS)-approved monument. A reference to an existing NGS or NYS monument likely exists from previous efforts conducted at the site. If a monument does not exist within close proximity to the site such that it cannot be referenced within one day's effort, a reference elevation will be assigned to a site benchmark installed at the site by the subcontractor.

- Horizontal Control – Coordinates are to be given in the State Plane Coordinate System to an accuracy of ±0.5 feet. If horizontal control is not available, local control shall be established using the site benchmark installed at the site by the subcontractor.

The subcontractor will record all fieldwork in a clear, legible, and complete manner. The field record will contain a complete description of the nature and location of both new and any existing control points used. The record will include a sketch of the point locations and the monument witness points. The subcontractor will provide to E & E a copy of the field survey book at the completion of all survey work. The book will contain all field notes, notations, and descriptions, used and compiled during the field survey. Legible photocopies will be accepted. Electronic notebook data is also acceptable as a supplement.

In addition, E & E may request that the surveyor gather additional information on the physical/natural features of the site including, but not limited to, vegetative cover (wooded area, heavy brush, light brush, grass) at the time of the survey. These will not be surveyed but will be noted in general nature only and obtained for the sole purpose of providing a more illustrative site map.

The surveyor's map is to be prepared as a CAD drawing using AutoCAD 2002 or later version. Copies of all site maps must be supplied as AutoCAD drawings on paper and electronically.

The following are the minimal acceptable cartographic specifications:

- Map Border and neat line;
- Title box in lower right corner listing subcontractor's name as surveyor, and E & E's name as Project Engineer;
- Legend;
- Map Symbols;
- North Arrow (North according to NYS Plane Coordinate system will be aligned to the vertical dimension of the sheet. True north should be approximately aligned with the vertical.)

September 30, 2003

- Coordinate Reference Points (latitude and longitude coordinates for a central point in the site are to be given on the site location map figure in NYS Plane coordinates NAD27 feet, selected to minimize interface with pre-existing data). In order to incorporate electronic data into the GIS, at least two reference State Plane coordinate points must be given within the bounds of the site map.
- Bar Scale (A bar scale is required and should be suitable to depict significant features of the site. The bar scale must be designed so that it can be used with an engineers scale.);
- Surveyed Site Map (pertinent surveyed features and data will be incorporated into the site map as described above).

Project Schedule:
It is anticipated that fieldwork and surveying will begin in October 2003. Sampling will be completed in early December 2003. Following E & E's receipt of NYSDEC's notice to proceed, E & E will modify the project schedule, as necessary, and notify the subcontractor. The subcontractor will provide the following deliverables within 15 business days following the fieldwork:

- Draft and final site survey map physical features consistent with the above SOW.
- One copy of detailed survey field notes.
- Electronic file(s) of the site survey map for further development by E & E.

Exhibit 2
Cost Schedule For
Professional Surveying Services
Fourth Street Inactive Waste Site
Buffalo, New York

Costing compliant with NYSDEC Form 2.11(e).

A.Direct Salary Costs

Professional Responsibility Level	Labor Classification	Avg. Reimbursement Rate	Max. Reimbursement Rate	Est. # Hours	Est. Direct Salary Cost (Avg. Reimb. Rate)
Mgt. Engineer	NSPE VIII		$54.21	3.5	$ 142.00
Sr. Engineer	NSPE III		$25.12	7.5	$ 192.00
Engr. Tech.	NSPE I		$17.49	99.0	$ 1258.00
Total Direct Salary Costs					$ 1592.00

B. Indirect Costs

Amount budgeted for indirect costs is: $ 3158.00

C. Maximum Reimbursement Rates for Direct Non-Salary Costs

Item	Maximum Reimbursement	Unit	Number of Units	Total Estimated Cost
1 Travel				
Overnight Expenses	$ 80.00	Night		$ N/A -
Dinner Only	$ 24.00	Dinner		$ N/A -
Breakfast Only	$ 6.00	Breakfast		$ N/A -
Mileage	$ 0.36	Mile		$ 160 -00
Total Travel				$ 160 -00
2 Supplies				
Postage	$ 17.00	Lump Sum		$ N/A -
Level D Protection	$ 15.00	Day		$ N/A -
Total Station w/Tripod	$ 146.00	Day		$ N/A -
Miscellaneous Expenses	$ 50.00	Lump Sum		$ 50 -00
Reproduction	$ 0.05	Each Copy		$ N/A -
Total Supplies				$ N/A -
Total Travel and Supplies Cost				$ 210 -00

D. Fixed Fee

The Fixed Fee is: $ 4960.00

TOTAL P.07

WOODBURY SURVEYING AND GEOMATICS

WENDY J. WOODBURY STRAIGHT
12 EAST FIFTH STREET / DUNKIRK, NY 14048 / PH: (716) 366-1990 / FAX: (716) 366-4603

WENDY J. WOODBURY STRAIGHT, L.S. (NYS 49520)
W. JACK WOODBURY, P.E., L.S. (NYS 28545, RETIRED)
MURRAY N. SHELTON, P.E., L.S. (NYS 13174, 1893-1985)
H. JOSEPH STRAIGHT, PhD. (SUNY FREDONIA)

October 2, 2003

BY FAX

To: Mr. Richard M. Watt, P.G.
From: Wendy J. Woodbury Straight, L.S.
Re: Site Location: Buffalo, New York

Thank you for your fax of October 1 including your letter of September 30.

I regret that our current workload will not allow me to respond to your RFP, or consider the above mentioned project, at this time. We appreciate your interest in Woodbury Surveying.

E Geoprobe Contractor

Well Rehabilitation and Soil Boring Subcontractor Quotations

Vendor	Task 1 Mobe & HASP	Task 2 Well Rehab	Task 3 Boreholes	Task 4 Fence Repair	Total Cost	Est. Duration
American Auger & Ditching Co.	Declined to bid.					
C&W Environmental	$600.00	$1,586.60	$3,753.00	$1,252.00	$7,191.60	6 days
Northstar Drilling	$500.00	$1,340.00	$4,750.00	$2,100.00	$8,690.00	6 days
Nothnagle Drilling, Inc.	$1,100.00	$2,015.00	$6,460.00	$1,462.50	$11,037.50	8 days
Zebra Environmental Corp.	$800.00	$926.00	$5,368.00	$1,395.00	$8,489.00	6 days

* Added 1 day labor to Tasks 2 and 3 for C&W Environmental.

E.1 Scope of Work - Exhibit #1 Geoprobe Contractor

Exhibit 1
Scope of Work For Vertical Profiling and Monitoring Well Installation
Fourth Street Inactive Waste Site
Buffalo, New York
E & E Project Number 000699.NV13

Site Description

Ecology and Environment Engineering, P.C. has been assigned the project of developing a remedial design for the above-referenced site for the New York State Department of Environmental Conservation (NYSDEC). The site consists of a former Manufactured Gas Plant and is contaminated with by-products associated with operation of the plant. Surface contamination consisting of elevated levels of polycyclic aromatic hydrocarbons (PAHs) is located within a fenced-in area east of a parking lot that is used for a school located south of the site. Nine overburden groundwater-monitoring wells are located at the site. Previous soil borings revealed the presence of coal tar in the subsurface resulting in subsurface soil and groundwater contaminated with PAHs and benzene, toluene, ethylbenzene, and xylenes (BTEX) above cleanup goals. Vegetation covers the area so dust and contaminated soil should not be a concern.

The site is generally bound to the south by the Waterfront School, to the east by apartment complexes, to the north by a roadway and athletic fields, and the west by Fourth Street and Interstate 190.

The objective of this work assignment is to further define the extent of contamination in order to accurately define the extents of excavation.

Scope of Work

This scope of work is divided into four tasks for costing purposes: Mobilization and Health and Safety Plan development, monitoring well rehabilitation, direct push subsurface investigation, and fence repair and replacement. The subcontractor is responsible for performing all tasks as described below.

1. Mobilization and Health and Safety Plan (HASP) Development

The contractor will prepare a site-specific HASP as described in the Health and Safety Requirements section of this Exhibit. Costs associated with mobilization to the site, including travel, if any, are to be included in this task.

2. Well Rehabilitation

During previous studies at this site, ten monitoring wells (MW) have been installed. MW-1 was previously abandoned. All are 2-inch internal diameter PVC overburden wells between approximately 16 and 23 feet deep. Currently, many of the wells require some type of rehabilitation to repair problems and prevent additional potential damage to the wells. A summary of the necessary repairs to the wells is provided in the following table:

In addition to these repairs, additional grout will be added around the PVC casing in MW-6 where it has settled.

The subcontractor will be responsible for providing all labor, materials, and tools to complete these repairs. Protective well casings will be repaired by removing the old casing and associated concrete without disturbing the PVC well and installing a new casing and concrete. Existing well grout or concrete will serve as a footer for the new concrete; therefore, this bonding surface will be kept as clean as possible during construction to minimize freeze/thaw heaving. Material specifications are as follows:

- *Flush-mount curb boxes*: 8-inch diameter cast iron with 9/16-inch cover bolts and 12-inch long sheet metal skirt.

- *Stick-up protective casings*: 4-inch square by 5-foot long galvanized well cover with full-length hinge and lock hasp.
- *Well caps*: PVC slip caps for 2-inch pipe.
- *J-plugs*: Lockable, 2-inch, watertight plug constructed of plastic and rubber, no steel components.

The duration of this task is anticipated to be one day.

Table 1 Well Rehabilitation Plan

Well ID	New Curb Box	New Stick-up Well Casing	New PVC Inner Cap	New J-plug	New Lock [B]
MW-2			1		1
MW-3		1	1		1
MW-4		1	1		1
MW-5				1	1
MW-6	1			1	1
MW-7				1	1
MW-8					1
MW-9					1
MW-10	1 [A]			1 [A]	1

[A] Currently, MW-10 has a stick-up well casing that has heaved and is loose. Inquiry will be made to the Waterfront School regarding what type of riser or curb box is desired.
[B] E & E will provide locks.

3. Direct-Push Subsurface Soil Sampling

Twenty boreholes (with five additional contingent boreholes) will be drilled at the site for the purposes of determining the horizontal and vertical extent of dense non-aqueous phase liquid (DNAPL) (primarily coal tar) and PAH contamination and characterizing the soil and DNAPL for disposal. Boreholes will be installed using direct-push (Geoprobe or equivalent) technology. Continuous soil cores will be collected at each location until refusal is encountered (estimated depth of 16 to 23 feet) for the purposes of geologic logging and subsurface soil sample collection. The Geoprobe Macrocore system or equivalent will be used to collect soil cores in dedicated acetate liners. E & E's field geologist will record physical observations for all soil cores and selected intervals for sub-sampling and laboratory analysis by E & E. During this task, E & E will conduct air monitoring for organic vapors and explosive conditions.

Soils consist of fill up to approximately 15 feet thick, underlain by glacial lake and till deposits. The fill has been previously described as brick, cement, and slag with a sand and silt matrix. The glacial lake deposits consist primarily of sandy silt and clay and the till is a compact mixture of clay, silt, sand, and boulders. Borehole locations may be adjusted by representatives of E & E in the field based on site features, geophysical survey results, utility mark-outs, shallow refusal, observations made during sampling, etc. The resulting investigation will be dynamic with the objective of filling data gaps as they are identified to eliminate the need for future mobilizations. For bidding purposes, it is requested that a daily unit rate be provided.

Upon completion, boreholes will be backfilled with a cement/bentonite grout by tremie pipe from the bottom up to the surface.

The anticipated duration of this task is four days.

Decontamination and Waste Management

The rig and all appurtenances must be decontaminated with high-pressure steam prior to arrival to the site. Standard operating procedures will be employed to minimize the degree of possible cross-contamination and investigation-derived waste (IDW) production. Dedicated, disposable equipment will be used to the extent practicable, including acetate sleeves for subsurface soil sampling. Non-dedicated equipment will be decontaminated in accordance with NYSDEC-approved procedures. Special attention will be given to all downhole tooling, which will be decontaminated prior to and following each use. Decontamination of large equipment will consist of:

- Removal of foreign matter; and
- High-pressure steam cleaning.

The following alternative procedure will be used for smaller equipment and may also be employed for downhole tooling:

- Initially remove all foreign matter;
- Scrub with brushes in trisodium phosphate (TSP) solution;
- Rinse with deionized or distilled water; and
- Allow to air dry.

Often, the use of household degreasers such as Pine-Sol® is required to remove coal tar. If necessary, degreasing will be performed prior to the above procedures. The operator is to provide a high-pressure steam cleaner and saw horses or pallets to be used to keep equipment being decontaminated off the ground. Specific attention shall be given to all down-hole tools and rods.

A temporary decontamination area shall be established on site using heavy plastic sheeting or equivalent to capture decontamination wastes. Fluids generated during decontamination will be drummed for off-site disposal. Soil cuttings from borehole installation will also be drummed. Soils will be segregated from other solid materials such as acetate Geoprobe liners. All drums will be temporarily staged within a secondary containment unit constructed of bermed plastic sheeting within the fenced area of the site. For costing purposes, assume that six drums of soil and other solid wastes and one drum of decontamination fluid will be generated. E & E will be responsible for coordinating sampling and analysis in order to meet disposal requirements. However, the subcontractor will be responsible for staging drums in the fenced area and protecting them from damage and overturning.

4. Fence Repair and Replacement

Also included in this scope of work is repair and replacement of the existing construction fence. This fence is currently wood-and-wire and plastic fence ("snow fence") that encloses a triangular area containing surface soil contamination. In many areas, the existing fence is breached or otherwise damaged. The subcontractor shall replace missing or heavily damaged sections with orange plastic "snow" fence (4-foot high, orange, oval-pattern polyethylene) and repair sections as practicable. Steel fence posts (6-foot high, steel U-channel posts) will be driven into the ground at least 2 feet deep and spaced no more than 8 feet apart. Because the existing fence has not been fully inspected, assume that 400 linear feet of new plastic fence and 50 new stakes will be required.

The anticipated duration of this task is one day.

Other Project Considerations

1. All necessary equipment and supplies shall be mobilized to the job site at the beginning of the project. The majority of the site is level and access is not considered to be a problem. However, it is the driller's responsibility to assess the accessibility of the site and provide the appropriate drilling rigs and vehicles for this SOW.

2. The subcontractor shall assemble and disassemble a decontamination pad to accommodate the back end of the rig. The pad will consist, at a minimum, of double-lined plastic sheeting, bermed on all sides, with a sump for water collection and pumping.

3. The subcontractor shall arrange for use of a water source near the site, including obtaining any necessary permission and paying any necessary usage or related fees, or otherwise provide a source of potable water for decontamination.

4. The subcontractor shall provide all necessary tools, expendable supplies, and labor to complete the scope of work.

5. The subcontractor shall remove all non-contaminated solid waste (i.e., plastic sheeting, etc.) generated during operations.

6. The subcontractor shall containerize and transport (to an on site staging area) investigation-derived waste considered to be potentially contaminated.

7. The subcontractor shall provide unit prices for each activity necessary to complete this SOW. The subcontractor is expected to provide the information requested in Exhibit 2 and add appropriate line items in the spaces provided for additional equipment or supplies to complete the task. If the subcontractor has any suggestions or changes to the requested methods the subcontractor may make the changes accordingly.

8. The subcontractor will be held to the total cost as shown in Exhibit 2, especially hourly line items and number of days to complete the project, unless there is a change in the project SOW. Any changes in the SOW (such as increased number of borings or upgrading personal protection levels) will not be performed without the prior approval of E & E and its client. The subcontractor is subject to liquidated damages in the amount of $1,200/day for each work day over the proposed total number of days indicated in Exhibit 2 by the subcontractor, assuming no changes in the SOW.

9. Line items not included in Exhibit 2 will not be paid without prior approval by E & E. The subcontractor shall only invoice E & E for items in this subcontract that are actually used to complete the tasks described in Exhibits 1 and 2.

10. All work will be performed during 8-hour workdays on a 5-day workweek schedule.

11. The subcontractor is to work under the direction of the E & E Field Team Leader. E & E will perform air monitoring throughout all subsurface investigation activities. The subcontractor is required to provide all necessary respiratory protection for its crews. E & E will not provide respiratory protection equipment or supplies to the subcontractor.

Health and Safety Requirements

The subcontractor must comply with the following health and safety stipulations:

- The subcontractor will submit to E & E a completed, signed Health and Safety Plan (HASP) per federal OSHA laws prior to E & E signing the subcontract agreement. Subcontractors are responsible for writing their own HASP and shall contain procedures appropriate for the site conditions based on the information provided. A HASP fact sheet containing site-specific information will be provided to the winning bidder. E & E will review the plan for completeness and may ask for modifications if deemed necessary.

- The subcontractor will designate a responsible person for compliance of their HASP.

- The subcontractor will provide all personal protective equipment (PPE) and upgrades of PPE as specified in the HASP including costs, and the proper disposal of all spent PPE and contaminated debris.

- The subcontractor should assume that all work will be performed using a minimum of level "D" personal protection (including at a minimum hard hat, safety glasses, nitrile/latex gloves, and steel-toed boots and may also include tyvek and saranex if conditions warrant). Upgrades may be necessary; therefore, level "C" personal protective equipment must be available on site. If upgrades are required, costs will be implemented as indicated under contingent costs in Exhibit 2.

Utility Clearance

Prior to initiating intrusive subsurface activities, E & E will coordinate with the Underground Facilities Protection Organization for the purpose of identifying and locating underground utilities in accordance with New York State Code Rule 753. Due to the high number of utilities at the site, E & E will also be conducting a utility search and mapping program to further define the location and status of historical and existing utilities. In addition, a geophysical survey and historical search will be conducted in an attempt to identify locations of former structures.

Exhibit 2
Subcontractor Price Schedule
Fourth Street Inactive Waste Site
Buffalo, NY

E & E Project Number 000699.NV13
September 29, 2003

Subcontractor Name: «Company»

1. MOBILIZATION & HEALTH AND SAFETY PLAN

	Unit Cost	# Units	Extended Cost
Site-Specific Health and Safety Plan for all subcontractor activities			$_____
Mobilize Geoprobe, steam cleaner, equipment, and crew to site (including all setup procedures, decon pad assembly, etc.)			$_____
Travel costs			$_____
Level D Personal Protective Equipment			$_____
Other:		___	$_____

Subtotal: $_____

2. WELL REHABILITATION

	Unit Cost	# Units	Extended Cost
Flush-mount curb boxes, installed	/ea.	2	$_____
Stick-up protective casings, installed	/ea.	2	$_____
2-inch PVC slip cap	/ea.	3	$_____
2-inch J-plug	/ea.	4	$_____
Labor and equipment for well rehabilitation	/day	___	$_____
Other:		___	$_____

____ **Subtotal:** $_____

3. GEOPROBE SUBSURFACE SOIL SAMPLING

	Unit Cost	# Units	Extended Cost
Cost per day for rig, equipment, and crew for up to 25 boreholes using a Geoprobe Macrocore system or equivalent)	/day	___	$_____
Macrocore acetate sleeves	/ea.	125	$_____
Decontamination and waste handling	/hr	___	$_____
Open-top 55-gallon drums	/ea.	7	$_____
Other:		___	$_____

Subtotal: $_____

4. REPAIR AND REPLACE CONSTRUCTION FENCE

	Unit Cost	# Units	Extended Cost
Install steel fence posts and plastic orange "snow" fence	/day	___	$_____
Fence material, 4-foot high, orange, oval-pattern plastic	/ft	est. 400	$_____
Fence posts, 6-foot high, steel U-channel posts	/ea	est. 50	$_____
Other:		___	$_____

Subtotal: $_____

OTHER COSTS

(Please specify any additional items that you feel may be required)

	Unit Cost
Standby time	$_____/crew-hr
Rate for upgrading to Level C respiratory protection	$_____/crew-hr
Other:	
Other:	

TOTAL NOT TO EXCEED PRICE: $_____

E.2 Copy of Geoprobe Contractor Level of Effort and Proposal

SUBCONTRACTOR'S BID RESPONSE FORM

TO: American Augar & Ditching Co.
453 Route 23
Constantia, NY 13044

DATE: September 30, 2003

Re: Site Name: Fourth Street Inactive Hazardous Waste Site
Site Location: Buffalo, New York
Services: Geoprobe Subsurface Exploration and related activities
Client: NYS Dept. of Environmental Conservation
E & E Project No.: 000699.NV13

IN ORDER FOR US TO MAINTAIN AN ACCURATE AND CURRENT BIDDER'S LIST. PLEASE COMPLETE THE FOLLOWING AND RETURN TO:

Ecology and Environment, Inc.
368 Pleasantview Drive
Lancaster, NY 14086
Attn. Richard Watt

___ Bid enclosed.

✓ No bid due to the following:
Schedule Conflict.

✓ Please maintain our company on your bidder's list.

Signature: Judy Baye, Pres.

Printed name: Judy Baye

Title: President

Date: 10-6-03

000699.NV13
NV13 Drill RFP.doc

C&W Environmental, LLC

2775 Broadway, Suite 250
Cheektowaga, New York 14227
(716) 597-0001
(716) 597-0505 fax

FAX TRANSMITTAL

To:	Rick Watt	From: Patrick Mulcahy	
Company:	Ecology & Environment	Date: October 2, 2003	
Fax Number:	684-0844	No. of Pages 6 (Including Cover)	
Subject:	Price Schedule and Sample Cert. of Insurance.		

Comments:

Rick,

Attached is the Price Schedule (Exhibit 2) and a sample copy of our current Certificate of Insurance. If you have any questions or concerns please contact me at 716-597-0001 ext. 180.

Sincerely,

Patrick Mulcahy
Drilling Manager

C & W ENVIRONMENTAL, LLC

2775Broadway Suite 250 Cheektowaga, NY 14227
(716) 597-0001 Office (716) 597-0505 FAX
1-866-597-0001 (toll free)

WORK QUOTATION / AUTHORIZATION

FIRM	Ecology and Environment	CONTACT	Rick Watt
	368 Pleasant View Drive		716-684-8060
	Lancaster, NY 14086		716-684-0844 fax
DATE	October 2, 2003		

C & W Environmental, LLC will furnish all labor, equipment, supervision, and materials, unless otherwise specified, to perform the following scope of work.

Job Scope:

Provide labor and equipment to complete Geoprobe soil sampling, well rehab, and fence installation according to your scope of work, dated September 30, 2003. Attached is the breakdown of cost as you have provided in your Subcontractor Price Schedule.

Assumptions:

1. Full truck access to site.
2. Estimated 8-hours per day on-site to perform task.
3. UFPO is to be called in by E&E. We understand there is an extensive network of underground utilities (active and dead) below the subject property. We understand that E&E will provide Geoprobe sampling locations free of underground utilities and will locate all underground utilities prior to commencement of work.
4. Water not available on-site.

JOB COST: ☐ TIME & MATERIAL ☒ QUOTED $ 6,013.94

All work will conform to all local, state, and federal regulations. If this job is quoted, any disposal or other work beyond the scope of work described above, unless agreed in writing, will be billed at the current Time and Material rates. All customer containerized waste must meet US DOT "UN" packaging standards if it is a hazardous DOT material. If the packaging does not meet these standards, C & W Environmental, LLC will over pack the containers and all associated costs incurred will be charged to the customer at C & W Environmental, LLC standard Time and Material Rates.

This quotation is valid for 30 days from the above date and subject to verification thereafter. **Sales tax has been included above.** Standard payment terms are cash in advance, Visa/MasterCard, or phased billing with credit approval on net 10 days. Service charges may be imposed at 1.5 percent per month on all balances over thirty days. Customer will be responsible for all costs of collection, including, but not limited to, reasonable attorney's fees, court costs, and collection service fees.

Customer agrees to indemnify, exonerate, and hold C & W Environmental, LLC harmless against loss, damage, or expense, by reasons of suits, claims, demands, judgements, and causes of action for personal injury, death or property damage rising out of or in any way in consequence of the performance of all work undertaken by C & W Environmental, LLC, except that in no instance shall the customer be held responsible for any liability claim demand or cause of action attributable solely to the gross negligence of C & W Environmental, LLC

I agree to accept the labor, materials, and equipment utilization as reported on the C & W Environmental, LLC Daily Job Reports. **If I wish to have them reviewed, I will have a representative on site at the completion of work each day to review and sign the Daily Job Reports.** The Daily Job Report is not applicable for product only sales. **See reverse side of this form for Product Delivery Charges and Returned Products Policy.**

C & W Environmental, LLC Representative

If you accept this proposal and terms set forth on both sides of the form, please sign below and return this original copy for our files.

By: _____ Title: _____ Date:

Job Number: _____ Customer Purchase Order Number: _____

Exhibit 2
Subcontractor Price Schedule
Fourth Street Inactive Waste Site
Buffalo, NY

E & E Project Number 000699.NV13
September 29, 2003

Subcontractor Name: C&W Environmental

1. MOBILIZATION & HEALTH AND SAFETY PLAN

	Unit Cost	# Units	Extended Cost
Site-Specific Health and Safety Plan for all subcontractor activities	200.00	1	$ 200.00
Mobilize Geoprobe, steam cleaner, equipment, and crew to site (including all setup procedures, decon pad assembly, etc.)	400.00	1	$ 400.00
Travel costs	NA	—	$ NA
Level D Personal Protective Equipment	NA	—	$ NA
Other:	NA	—	$ NA

Subtotal: $ 600.00

2. WELL REHABILITATION

	Unit Cost	# Units	Extended Cost
Flush-mount curb boxes, installed	150.00/ea.	2	$ 300.00
Stick-up protective casings, installed	150.00/ea.	2	$ 300.00
2-inch PVC slip cap	3.00/ea.	3	$ 9.00
2-inch J-plug	10.40/ea.	4	$ 41.60
Labor and equipment for well rehabilitation	NA/day	—	$ NA
Other:	NA	—	$ NA

Subtotal: $ 650.60

3. GEOPROBE SUBSURFACE SOIL SAMPLING

	Unit Cost	# Units	Extended Cost
Cost per day for rig, equipment, and crew for up to 25 boreholes using a Geoprobe Macrocore system or equivalent) BASED ON SOIL CONDITIONS	700.00/day	3	$ 2,100.00
Macrocore acetate sleeves	1.80/ea.	125	$ 225.00
Decontamination and waste handling	140.00/hr	3	$ 420.00
Open-top 55-gallon drums	44.00/ea.	7	$ 308.00
Other:	NA		$ NA
Subtotal:			$ 3,053.00

4. REPAIR AND REPLACE CONSTRUCTION FENCE

	Unit Cost	# Units	Extended Cost
Install steel fence posts and plastic orange "snow" fence	936.00/day	1	$ 936.00
Fence material, 4-foot high, orange, oval-pattern plastic	0.31 /ft	est. 400	$ 124.00
Fence posts, 6-foot high, steel U-channel posts	3.84/ea	est. 50	$ 192.00
Other:	NA	—	$ NA
Subtotal:			$ 1,252.00

OTHER COSTS

(Please specify any additional items that you feel may be required)

	Unit Cost
Standby time	$ 140.00/crew-hr
Rate for upgrading to Level C respiratory protection	$ 9.40 /crew-hr
Other:	NA
Other:	NA

TOTAL SUBTOTAL $ 5,555.60
TAX (0.0825%) $ 458.34

TOTAL NOT TO EXCEED PRICE: $ 6,013.94

SUBCONTRACTOR'S BID RESPONSE FORM

TO: C&W Environmental
2775 Broadway, Suite 250
Cheektowaga, NY 14227

DATE: September 30, 2003

Re:
Site Name:	Fourth Street Inactive Hazardous Waste Site
Site Location:	Buffalo, New York
Services:	Geoprobe Subsurface Exploration and related activities
Client:	NYS Dept. of Environmental Conservation
E & E Project No.:	000699.NV13

IN ORDER FOR US TO MAINTAIN AN ACCURATE AND CURRENT BIDDER'S LIST, PLEASE COMPLETE THE FOLLOWING AND RETURN TO:

Ecology and Environment, Inc.
368 Pleasantview Drive
Lancaster, NY 14086
Attn: Richard Watt

X Bid enclosed.

___ No bid due to the following:

X Please maintain our company on your bidder's list.

Signature: Patrick J. Mulcahy

Printed name: PATRICK J. MULCAHY

Title: DRILLING MANAGER

Date: OCTOBER 2, 2003

000699.NV13
NV13 Drill RFP.doc

PRODUCER
FLOSS AGENCY INC.
PO BOX 370 6465 TRANSIT ROAD
EAST AMHERST NY 14051
PHONE: 716-688-5118
FAX: 716-688-2172
Agency Lic#: PC-735176

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE		NAIC #
INSURER A:	STEDFAST INSURANCE CO	
INSURER B:	ZURICH INSURANCE CO	
INSURER C:	AMERICAN INTERNATIONAL	
INSURER D:		
INSURER E:		

INSURED
C & W ENVIRONMENTAL, LLC
DBA ENVIRONMENTAL PRODUCTS & SERVICES OF BUFFALO
2775 BROADWAY STREET
SUITE 250
CHEEKTOWAGA NY 14227

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY COMMERCIAL GENERAL LIABILITY CLAIMS MADE / OCCUR X PROFESSIONAL LIABILITY GEN'L AGGREGATE LIMIT APPLIES PER: POLICY / PROJECT / LOC	GPL9328516-00	SEP 15 03	SEP 15 04	EACH OCCURRENCE	$ 1,000,000
					DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
					MED. EXP (Any One Person)	$ 25,000
					PERSONAL & ADV INJURY	$ 1,000,000
					GENERAL AGGREGATE	$ 2,000,000
					PRODUCTS-COMP/OP AGG.	$ 2,000,000
B	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS	BAP9328520-00	SEP 15 03	SEP 15 04	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
					BODILY INJURY (Per person)	$
					BODILY INJURY (Per accident)	$
					PROPERTY DAMAGE	$
	GARAGE LIABILITY ANY AUTO				AUTO ONLY - EA ACCIDENT	$
					OTHER THAN AUTO ONLY: EA ACC	$
					AGG	$
	EXCESS / UMBERELLA LIABILITY OCCUR / CLAIMS MADE DEDUCTIBLE X RETENTION $				EACH OCCURRENCE	$
					AGGREGATE	$
						$
						$
						$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below	WC-97I-49-30	MAY 1 03	MAY 1 04	WC STATU-TORY LIMITS / OTHER	
					E.L. EACH ACCIDENT	$ 1,000,000
					E.L. DISEASE-EA EMPLOYEE	$ 1,000,000
					E.L. DISEASE-POLICY LIMIT	$ 1,000,000
	OTHER:					

DESCRIPTION OF OPERATIONS/LOCATION/VEHICLES/EXCLUSIONS ADDED ENDORSEMENT/ SPECIAL PROVISIONS

CERTIFICATE HOLDER | ADDITIONAL INSURED; INSURER LETTER: | CANCELLATION

SAMPLE

Attention:

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Joseph M. Floss

NORTH STAR DRILLING

P.O. Box 67, Cortland, NY 13045
Phone: 607-836-8800
Fax: 607-836-6468

DIRECT PUSH (GEOPROBE) QUOTATION

Date: October 1, 2003

To: Richard Watt
Ecology and Environment, Inc.
368 Pleasantview Drive
Lancaster, NY 14086

Fax: 716-684-0844

Project: Fourth Street Inactive Hazardous Waste Site
Buffalo, New York

Scope of Work:

North Star Drilling proposes to provide all labor, equipment and material to perform Geoprobe Services in connection with the referenced project as per the Scope of Work provided in your e-mail request of September 30, 2003.

Ecology and Environment will be responsible for obtaining access to the site, selecting the sample locations and depths, and will have utilities marked and located prior to the start of work. It is understood that all holes will be accessible by our truck-mounted probe unit.

Costs:

See attached Price Schedule.

This quotation is valid for 60 days. If this proposal is acceptable, please sign below and return a copy for our records. If you have any questions, please do not hesitate to call.

North Star Drilling

Forrest C. Earl, Vice President

File: proposal\geoprobe\E&E – Fourth St. Waste Site - Buffalo

ACCEPTED BY: _____ DATE: _____
(Signature)

_____
(Print Name)

SUBCONTRACTOR'S BID RESPONSE FORM

TO: Northstar Drilling
P.O. Box 67
4710 NYS Route 41
Cortland, NY 13045

DATE: September 30, 2003

Re:

Site Name:	Fourth Street Inactive Hazardous Waste Site
Site Location:	Buffalo, New York
Services:	Geoprobe Subsurface Exploration and related activities
Client:	NYS Dept. of Environmental Conservation
E & E Project No.:	000699.NV13

IN ORDER FOR US TO MAINTAIN AN ACCURATE AND CURRENT BIDDER'S LIST, PLEASE COMPLETE THE FOLLOWING AND RETURN TO:

Ecology and Environment, Inc.
368 Pleasantview Drive
Lancaster, NY 14086
Attn: Richard Watt

__x__ Bid enclosed.

____ No bid due to the following:

x Please maintain our company on your bidder's list.

Signature: Forrest C. Earl

Printed name: Forrest C. Earl

Title: Vice President

Date: 10/01/03

Exhibit 2
Subcontractor Price Schedule
Fourth Street Inactive Waste Site
Buffalo, NY

E & E Project Number 000699.NV13
September 29, 2003

Subcontractor Name: Northstar Drilling

1. MOBILIZATION & HEALTH AND SAFETY PLAN

	Unit Cost	# Units	Extended Cost
Site-Specific Health and Safety Plan for all subcontractor activities	$100.00	1	$100.00
Mobilize Geoprobe, steam cleaner, equipment, and crew to site (including all setup procedures, decon pad assembly, etc.)	$400.00	1	$400.00
Travel costs	-	-	$0.00
Level D Personal Protective Equipment	-	-	$0.00
Other:		—	$

Subtotal: $500.00

2. WELL REHABILITATION

	Unit Cost	# Units	Extended Cost
Flush-mount curb boxes, installed	$50.00/ ea.	2	$100.00
Stick-up protective casings, installed	$50.00/ ea.	2	$100.00
2-inch PVC slip cap	0/ea.	3	$0.00
2-inch J-plug	$10.00/ ea.	4	$40.00
Labor and equipment for well rehabilitation	$1100/ /day	1	$1,100.00
Other:			$

____ **Subtotal:** 1,340.00

3. GEOPROBE SUBSURFACE SOIL SAMPLING

	Unit Cost	# Units	Extended Cost
Cost per day for rig, equipment, and crew for up to 25 boreholes using a Geoprobe Macrocore system or equivalent)	$1100/ day	4	$4,400.00
Macrocore acetate sleeves	0/ea.	125	$0.00
Decontamination and waste handling	/hr		Included
Open-top 55-gallon drums	$50.00/ ea.	7	$350.00
Other:			$

Subtotal: $4,750.00

4. REPAIR AND REPLACE CONSTRUCTION FENCE

	Unit Cost	# Units	Extended Cost
Install steel fence posts and plastic orange "snow" fence	$1100/ day	1	$1,100.00
Fence material, 4-foot high, orange, oval-pattern plastic	$1.00/ft	est. 400	$400.00
Fence posts, 6-foot high, steel U-channel posts	$12.00/ ea	est. 50	$600.00
Other:			$

Subtotal: $2,100.00

OTHER COSTS

(Please specify any additional items that you feel may be required)

	Unit Cost
Standby time	$150.00crew-hr
Rate for upgrading to Level C respiratory protection	$20.00crew-hr
Other:	
Other:	

TOTAL NOT TO EXCEED PRICE: $8,690.00

ACORD. CERTIFICATE OF LIABILITY INSURANCE

OP ID SW GEOLO-2

DATE (MM/DD/YY) 08/19/03

PRODUCER

Mang Insurance Agency Norwich
66 South Broad Street
Norwich NY 13815
Phone: 607-334-4444 Fax: 607-334-4162

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

INSURED

Geologic NY Inc &/or Geologic NY Inc d/b/a North Star Drilling or Giles Drilling
PO Box 5080
Cortland NY 13045

INSURER A: Mountain Valley Indemnity Co
INSURER B:
INSURER C:
INSURER D:
INSURER E:

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY PRO-JECT LOC	3310015341	08/08/03	08/08/04	EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS X SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS	7310015342	08/08/03	08/08/04	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
	GARAGE LIABILITY ANY AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EA ACC AGG	$ $ $
A	EXCESS LIABILITY X OCCUR CLAIMS MADE DEDUCTIBLE X RETENTION $ 10,000	X310015340	08/08/03	08/08/04	EACH OCCURRENCE AGGREGATE	$ 2,000,000 $ 2,000,000 $ $ $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	W310015343	08/08/03	08/08/04	WC STATU-TORY LIMITS X OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1000000 $ 1000000 $ 1000000
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

CERTIFICATE HOLDER N ADDITIONAL INSURED; INSURER LETTER: ___

GEOLO-1

Sample Certificate

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRA DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 10 DAYS WRITT NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SH IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OF REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Richard R Mang

1821 Scottsville-Mumford Road
Scottsville, New York 14546
Phone: (585) 538-2328
FAX: (585) 538-2357

NOTHNAGLE DRILLING INC.

Fax

To:	Ecology and Environment, Inc.	**From:**	Steve DiLaura
Attn:	Richard Watt	**Pages:**	4
Fax:	716 - 684 - 0844	**Date:**	10/1/2003
Re:		**CC:**	

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:** Rick, please call with any questions.
Thanks.
Steve

Exhibit 2
Subcontractor Price Schedule
Fourth Street Inactive Waste Site
Buffalo, NY

E & E Project Number 000699.NV13
September 29, 2003

Subcontractor Name: Nothnagle Drilling, Inc.

1. MOBILIZATION & HEALTH AND SAFETY PLAN

	Unit Cost	# Units	Extended Cost
Site-Specific Health and Safety Plan for all subcontractor activities	550.00	1	$ 550.00
Mobilize Geoprobe, steam cleaner, equipment, and crew to site (including all setup procedures, decon pad assembly, etc.)	550.00	1	$ 550.00
Travel costs	0.00	0	$ 0.00
Level D Personal Protective Equipment	0.00	0	$ 0.00
Other:			$

Subtotal: $ 1,100.00

2. WELL REHABILITATION

	Unit Cost	# Units	Extended Cost
Flush-mount curb boxes, installed	100/ea.	2	$ 200.00
Stick-up protective casings, installed	100/ea.	2	$ 200.00
2-inch PVC slip cap	5/ea.	3	$ 15.00
2-inch J-plug	25/ea.	4	$ 100.00
Labor and equipment for well rehabilitation	750 /day	2	$ 1,500.00
Other:			$

Subtotal: $ 2,015.00

3. GEOPROBE SUBSURFACE SOIL SAMPLING

	Unit Cost	# Units	Extended Cost
Cost per day for rig, equipment, and crew for up to 25 boreholes using a Geoprobe Macrocore system or equivalent)	1,200 /day	5	$ 6,000.00
Macrocore acetate sleeves	2 /ea.	125	$ 250.00
Decontamination and waste handling	0 /hr	N.A.	$ 0.00
Open-top 55-gallon drums	30 /ea.	7	$ 210.00
Other:			$
Subtotal:			$ 6,460.00

4. REPAIR AND REPLACE CONSTRUCTION FENCE

	Unit Cost	# Units	Extended Cost
Install steel fence posts and plastic orange "snow" fence	650 /day	1	$ 650.00
Fence material, 4-foot high, orange, oval-pattern plastic	1.00/ft	est. 400	$ 400.00
Fence posts, 6-foot high, steel U-channel posts	8.25 /ea	est. 50	$ 412.50
Other:			$
Subtotal:			$ 1,462.50

OTHER COSTS

(Please specify any additional items that you feel may be required)

	Unit Cost
Standby time	$ 150.00/crew-hr
Rate for upgrading to Level C respiratory protection	$ 40.00/crew-hr
Other:	
Other:	

TOTAL NOT TO EXCEED PRICE: $11,037.50

SUBCONTRACTOR'S BID RESPONSE FORM

TO: Nothnagle Drilling, Inc.
1821 Scottsville-Mumford Road
Scottsville, NY 14546-7999

DATE: September 30, 2003

Re:	Site Name:	Fourth Street Inactive Hazardous Waste Site
	Site Location:	Buffalo, New York
	Services:	Geoprobe Subsurface Exploration and related activities
	Client:	NYS Dept. of Environmental Conservation
	E & E Project No.:	000699.NV13

IN ORDER FOR US TO MAINTAIN AN ACCURATE AND CURRENT BIDDER'S LIST, PLEASE COMPLETE THE FOLLOWING AND RETURN TO:

Ecology and Environment, Inc.
368 Pleasantview Drive
Lancaster, NY 14086
Attn: Richard Watt

_X_ Bid enclosed.

____ No bid due to the following:

____ Please maintain our company on your bidder's list.

Signature: Stephen A. DiLaura

Printed name: Stephen A. DiLaura

Title: Vice President

Date: October 1, 2003

000699.NV13
NV13 Drill RFP.doc

FAX TRANSMITTAL COVER SHEET

TO: MR RICK WATT DATE: 10/2/03

COMPANY: E + E FAX #: 716 684 0844

FROM: MATT EDNIE # OF PAGES: 4 (INCLUDING COVER PAGE)

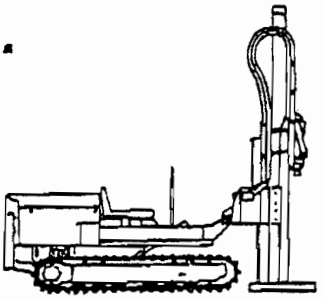
RE: BID FORM

Subsurface Sampling, Injection and Data Collection for Environmental Professionals

- ☐ Headquarters: Lynbrook, NY (NYC Area)
  Phone: 516-596-6300
  Fax: 516-596-4422
- ☐ Albany, New York
  Phone: 518-456-9922
  Fax: 518-456-4009
- ☐ Niagara Falls, New York
  Phone: 716-731-1511
  Fax: 716-731-1332
- ☐ Sutton, Massachusetts
  Phone: 508-581-9880
  Fax: 508-581-9881
- ☐ Boca Raton, Florida
  Phone: 561-338-5995
  Fax: 561-338-9255
- ☐ New Jersey
  Phone: 732-291-8276
  Fax: 732-291-8277
- ☐ St. Catharines, Ontario, Canada
  Phone: 800-776-2438
  Fax: 516-596-4422
- ☐ Tampa, Florida
  Phone: 813-655-1717
  Fax: 813-654-9398

- Fleet of 20 Geoprobe Units Including Vans, 4x4s, ATVs, Propane-Powered Remote Units, 54DT & 66DT Tracks and Case 540 Skid Steer.

Think Stripes... Call ZEBRA First.



Serving the East Coast from Maine to Florida

Exhibit 2
Subcontractor Price Schedule
Fourth Street Inactive Waste Site
Buffalo, NY

E & E Project Number 000699.NV13
September 29, 2003

Subcontractor Name: Zebra Environmental Corp.

1. MOBILIZATION & HEALTH AND SAFETY PLAN

	Unit Cost	# Units	Extended Cost
Site-Specific Health and Safety Plan for all subcontractor activities	100	1	$ 100.00
Mobilize Geoprobe, steam cleaner, equipment, and crew to site (including all setup procedures, decon pad assembly, etc.)	250	1	$ 250.00
Travel costs	75	6	$ 450.00
Level D Personal Protective Equipment	—	—	$ —
Other:			$
Subtotal:			$ 800.00

2. WELL REHABILITATION

	Unit Cost	# Units	Extended Cost
Flush-mount curb boxes, installed	69 /ea.	2	$ 138.00
Stick-up protective casings, installed	85 /ea.	2	$ 170.00
2-inch PVC slip cap	4 /ea.	3	$ 12.00
2-inch J-plug	14 /ea.	4	$ 56.00
Labor and equipment for well rehabilitation	550/day	1	$ 550.00
Other:			$
____ **Subtotal:**			$ 926.00

3. GEOPROBE SUBSURFACE SOIL SAMPLING

	Unit Cost	# Units	Extended Cost
Cost per day for rig, equipment, and crew for up to 25 boreholes using a Geoprobe Macrocore system or equivalent)	1,100/day	4	$ 4,400
Macrocore acetate sleeves	5 /ea.	125	$ 625
Decontamination and waste handling	/hr	—	$ —
Open-top 55-gallon drums	49 /ea.	7	$ 343
Other:			$

Subtotal: $ 5,368.00

4. REPAIR AND REPLACE CONSTRUCTION FENCE

	Unit Cost	# Units	Extended Cost
Install steel fence posts and plastic orange "snow" fence	720/day	1	$ 720
Fence material, 4-foot high, orange, oval-pattern plastic	100/100/ft	est. 4[illegible]	$ 400
Fence posts, 6-foot high, steel U-channel posts	5.50/ea	est. 50	$ 275
Other:			$

Subtotal: $ 1,395.00

OTHER COSTS

(Please specify any additional items that you feel may be required)

	Unit Cost
Standby time	$ 125 /crew-hr
Rate for upgrading to Level C respiratory protection	$ 75 /crew-hr
Other:	
Other:	

TOTAL NOT TO EXCEED PRICE: $ 8,489.00

SUBCONTRACTOR'S BID RESPONSE FORM

TO: Zebra Environmental Corp.
10 Walker Way
Albany, NY 12205

DATE: September 30, 2003

Re:
Site Name:	Fourth Street Inactive Hazardous Waste Site
Site Location:	Buffalo, New York
Services:	Geoprobe Subsurface Exploration and related activities
Client:	NYS Dept. of Environmental Conservation
E & E Project No.:	000699.NV13

IN ORDER FOR US TO MAINTAIN AN ACCURATE AND CURRENT BIDDER'S LIST, PLEASE COMPLETE THE FOLLOWING AND RETURN TO:

Ecology and Environment, Inc.
368 Pleasantview Drive
Lancaster, NY 14086
Attn: Richard Watt

X Bid enclosed.

___ No bid due to the following:

X Please maintain our company on your bidder's list.

Signature: _____

Printed name: MATTHEW EDNIE

Title: BRANCH MANAGER

Date: 10/2/03

F

Product Quotes

Summary of Product Quotes

Vendor	Amount	Item/Service	Reason for One Quote
Ashtead Rentals	$150.00/week	Heron H. Oil/Water Interface Probe (200 ft)	< $1,000
Ashtead Rentals	$260.00/week	RAE MiniRAE 2000	< $1,000
Ashtead Rentals	$75.00/week	Myron 6P Ultrameter	< $1,000
Ashtead Rentals	$350.00/week	PhotoVac MicroFid	< $1,000
GeoPlane Services	$80.00/day plus $150.00 shipping	Trimble Pathfinder Pro XRS	< $1,000
Geonics, Ltd.	$800/week plus $200 shipping	Geonics EM31-MK2 Conductivity meter	< $1,000
Geonics, Ltd.	$300/week plus $200 shipping	Geonics Allegro computer	< $1,000
Waste Management	$60.00/55 gal drum plus 450.00/trip plus tax	Soil (HAZWASTE) Disposal	< $1,000
Waste Management	$100.00/55 gal drum plus 450.00/trip plus tax	Nonhazardous Wastewater	< $1,000

G Equipment Rental Rates

ASHTEAD Technology RENTALS

FAX MESSAGE			
To:	Mr. Rick Watt Ecology & Environment Lancaster, NY	Fax:	716-684-0844
From:	John Nelson	Phone:	716-684-0860
Date:	9/17/03	Pages:	1 of 3 Three
Subject:			

Thank you for contacting Ashtead Technology Rentals. Attached is the combined product bulletin for the Heron H.Oil / Water Interface Probe and H.2OL Water Level Meter. This interface meter has a Kynar-coated measuring tape marked in increments of one-hundredths of a foot with a probe diameter of 5/8 inch. This battery operated interface meter is rated intrinsically safe by CSA / NTRL for Class 1, Groups A, B, C, and D. Each rental unit includes the H.Oil / Water Interface Meter, extra 9 volt battery, manual and carrying case. Please specify your preference of a 100 foot, 200 foot, or 300 foot unit.

***The rental rates per unit are:**

Heron H.Oil / Water Interface Probe (100 foot): $ 150.00/week & $ 375.00/four week rental period. Additional days are at $ 37.50/day. The two-day minimum rental period is $ 75.00.

Heron H.Oil / Water Interface Probe (200 foot): $ 150.00/week & $ 375.00/four week rental period. Additional days are at $ 37.50/day. The two-day minimum rental period is $ 75.00.

Heron H.Oil / Water Interface Probe (300 foot): $ 200.00/week & $ 500.00/four week rental period. Additional days are at $ 50.00/day. The two-day minimum rental period is $ 100.00.

Saturday is a rental day.
Shipping and all applicable taxes are additional.
***Availability is subject to prior rental.**

If Ashtead Technology Rentals may be of any further assistance please feel free to call.

Sincerely,

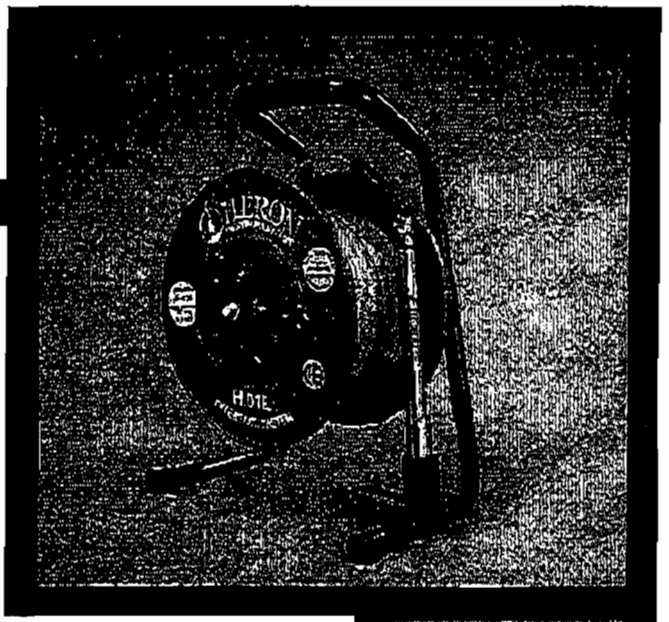
John Nelson

Ashtead Technology, Inc.
1057 East Henrietta Road, Rochester, NY 14623
800-242-3910 ▾ 585-424-2140 ▾ 585-424-2166 (fax)
environmental@ashtead-technologyusa.com
www.ashtead-technology.com
Member of the Ashtead Group plc

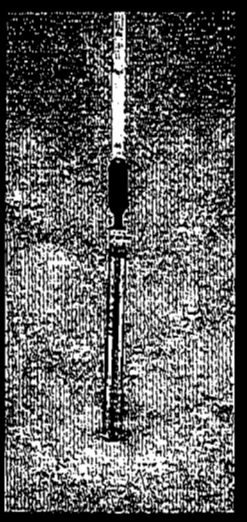
H.01L

OIL/Water Interface Meters

Industry Accepted & Approved



The **H.01L** interface meter is a PRECISION INSTRUMENT used to ACCURATLEY measure the thickness of product layers (LNAPL) as thin as 1mm (1/200ft) floating on the water table. It will also detect and measure sinking layers of product (DNAPL). The **H.01L** with it's slim 16mm (5/8in) probe is ideal for wells, piezometers and direct push equipment as narrow as 19mm (3/4in). The tape and probe will withstand attack by hydrocarbons, solvents and other contaminants. This unit is used by professionals involved with the monitoring and remediation of ground water contaminated with oil products. The **H.01L** interface meters INTRINSIC SAFETY CERTIFICATION makes it suitable for use in storage tanks and areas where explosive gases may be present.



The HERON **H.01L** is the best interface meter with unbeatable service and the longest warranty in the industry.

The **H.01L** I/F meter is a robust easy to operate instrument designed to work RELIABLY and ACCURATELY... CONSISTENTLY. The **H.01L** is easy to service in the field. The probe and the electronic module can be changed in minutes with no special tools or training.

Thousands of HERON INTERFACE meters are giving RELIABLE service and ACCURATE readings on job sites worldwide.

Some of the features that make the **HERON H.01L** I/F meter STAND ABOVE THE REST.

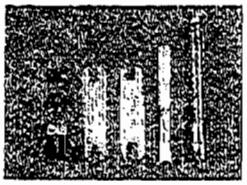
- ☐ An ACCURATE tape made to a recognized North American standard (US-GGG-T-106E)
- ☐ A tape jacketed in HYDROCARBON RESISTANT Kynar®
- ☐ Certified INTRINSICALY SAFE to CSA/NRTL standards
- ☐ Uses well proven optical technolgy
- ☐ Detects DNAPL and LNAPL layers
- ☐ Able to measure layers as thin as 1mm (1/200 ft)

TAPE ACCURACY — DRAWN TO US GGG-T-106E EEC CLASS II — GUARANTEE

- ☐ Field servicable
- ☐ Ten year warranty*
- ☐ Unbeatable service
- ☐ Carrying bag and cleaning kit included

* subject to some conditions

CHECK THE COMPETITION AND COMPARE. THEN BUY HERON



ALSO AVAILABLE:

Field support kit comprising: Spare probe, battery, panel knobs, two wrenches and a cleaning brush.

HERON INSTRUMENTS

Call 1-800-331-2032 • Fax 905-877-7297 • info@heroninstruments.com • **www.heroninstruments.com**

The HERON H.01L Interface Meter is a Top Quality Instrument

Questions & Answers

Q Why Jacket the tape with Kynar®?

A Because Kynar® resists attack by hydrocarbons, more effectively than polyethylene.

Q Why use an engineering grade tape?

A The H.01L Interface Meter is a precision measuring device and that requires an accurate stretch proof tape that enable you to measure with confidence repeatedly.

Q How Accurate?

A Accurate to plus/minus 0.01%, able to measure down to 1/200th -1 mm.

Q Why certified intrinsically safe?

A The certification of each unit protects you, your clients and staff. Frequent inspections of our facility by the certifying Agency ensures maintenance of these quality safety standards.

Q Why buy a field support kit?

A The probe is considered a consumable item. A support kit is your best insurance against probe damage and down time.

Q Why give a ten year warranty?

A This is our commitment to you and a statement of our confidence in the units.

The HERON Interface Meter is Accurate, Durable, Easy to Use ... And Safe

- For use with LNAPL & DNAPL
- Tape Conforms to N.I.S. standard (US GGG-T-106E)accurate to 0.01%
- 10 year warranty*
- Certified Intrinsically Safe
- The Best Product Support Around

** some conditions apply*

Signal Convention
Solid Tone/Light=Oil
Intermittent Tone/Light=Water

Lengths Available
From 50 ft (15m)
To 1000 ft (300m)

Weight and Dimensions

Reel Weight	5 lbs
Tape per 100ft	2.5 lb (1 kg)
Overall Height	13.5 inch (34 cm)
Width	10 inch (25 cm)
Depth	8 inch (20 cm)

Use The Best!

Quality, Accuracy, Reliabilty & Price make the HERON H.01L Interface Meters your Smart Choice

For more information
Contact Your Dealer Today

HERON INSTRUMENTS Groundwater Monitoring INC.

visit our website
www.heroninstruments.com

ASHTEAD Technology
Environmental Instrument Rentals

ASHTEAD TECHNOLOGY
1057 East Henrietta Road
Rochester, New York 14623
716-424-2140 PHONE ▲ 716-424-2166 FAX

ASHTEAD Technology RENTALS

FAX MESSAGE			
To:	Mr. Rick Watt Ecology & Environment Lancaster, NY	Fax:	716-684-0844
From:	John Nelson	Phone:	716-684-0860
Date:	9/17/03	Pages:	1 of 2
Subject:			

Thank you for contacting Ashtead Technology Rentals. Attached is the product bulletin for the RAE MiniRAE 2000 Portable VOC Monitor. This photo ionization detector (PID) is equipped with a 10.6 eV lamp and has the ability to detect many volatile organic compounds and inorganic compounds with an extended range of 0 to 10,000 ppm. This versatile PID is used in both environmental & industrial hygiene monitoring applications. Environmental monitoring applications include emergency response to hazardous spills, soil, well and head space analysis, leaking underground storage tanks, leak detection, and air monitoring for trace and toxic gases. Industrial hygiene applications include indoor air quality in new, sick and mixed usage buildings, work-place monitoring for peak, STEL and TWA. Each rental unit includes the software, download cable, zero filter, probe tip, hydrophobic filter, charger, alkaline battery holder with (4) batteries, manual & case.

***The rental rates per unit:**

RAE MiniRAE 2000 with 10.6 eV lamp (0 to 10,000 ppm): $ 260.00/week & $ 650.00/four-week rental.
Additional days are at $ 65.00/day. The two-day rental period is $ 130.00.
A single-day of rental is $ 100.00.

RAE MiniRAE Calibration Kit with (1) 100 L cylinder of 100 ppm Isobutylene, (1) 6 LPM regulator, & (1) 3 L Tedlar Bag with tubing. (Purchase Item): $ 240.00 each.

RAE MiniRAE Calibration Kit with (1) 17 L cylinder of 100 ppm Isobutylene & (1) matching flow regulator with tubing. (Purchase Item): $ 100.00 each.

Calibration kit consumables may be purchased individually:
100L cylinder of 100 ppm Isobutylene: $ 125.00 each.
Regulator for 100 L cylinder (Choice of 0.5 or 6 LPM): $ 125.00 each.
5L Tedlar Bag: $ 25.00 each.
17L cylinder of 100 ppm Isobutylene: $ 45.00 each.
Matching flow regulator for 17L cylinder: $ 55.00 each.

Saturday is a rental day.
Shipping and all applicable taxes are additional.
***Availability is subject to prior rental.**

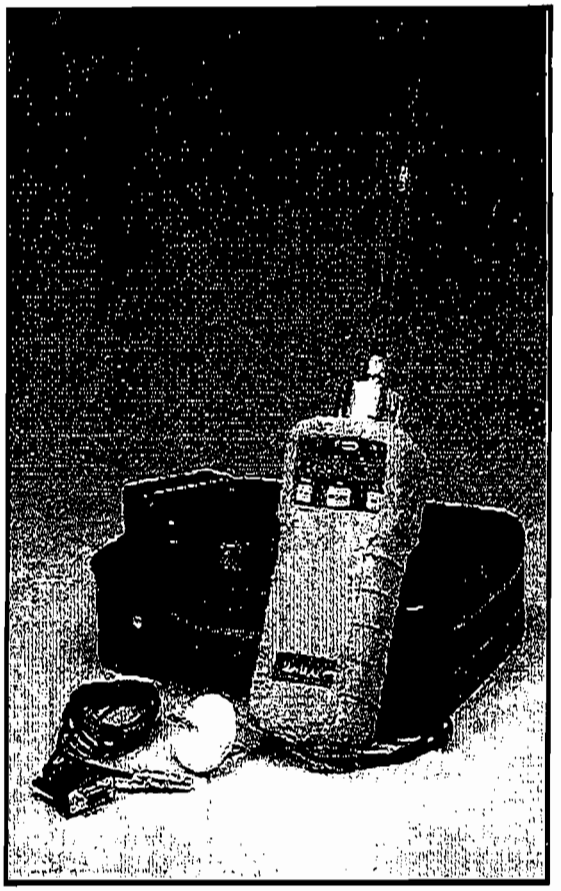
If Ashtead Technology Rentals may be of any further assistance please feel free to call.

Sincerely,

John Nelson

Ashtead Technology, Inc.
1057 East Henrietta Road, Rochester, NY 14623
800-242-3910 ▾ 585-424-2140 ▾ 585-424-2166 (fax)
environmental@ashtead-technologyusa.com
www.ashtead-technology.com
Member of the Ashtead Group plc

MiniRAE 2000
Handheld VOC Monitor



- **Intrinsically safe**
- **Smallest handheld VOC monitor**
- **Datalogging workhorse**

This VOC monitor with PID (photoionization detector) sensor weighs just over one pound, yet it's a heavyweight for leak detection, fugitive emissions monitoring to EPA Method 21 and inspecting leaking underground storage tanks. The MiniRAE 2000 is also a highly useful tool in industrial hygiene applications, including confined space entry, personnel and work place monitoring and for emergency response to hazardous spills. This rugged instrument comes with a belt clip.

With built-in correction factors for more than 100 chemicals, the MiniRAE 2000 provides excellent all-around sensitivity to most VOCs, down to 0.1 ppm. Selectable survey and hygiene modes permit the user to set appropriate alarm thresholds for STEL, TWA and low/high level peak values. Datalogging and custom software.

SPECIFICATIONS

Range	Resolution	Response Time	Accuracy
0 to 999 ppm	0.1 ppm	< 3 seconds	± 2 ppm or 10% of reading , <2000 ppm
100 to 10,000 ppm	1 ppm	< 3 seconds	± 20% pf reading > 2000 ppm Calibrated to 100 ppm isobutylene

Sampling Pump	Internal integrated flow rate 400 cc/minute Sample from 100' horizontally or vertically
Datalogging	15,000 points with time/date, header information
Approvals	UL and cUL Class I, Division 1, Groups A, B, C and D, EEx ia IIC T4
Battery	Rechargeable, field changeable NiMH battery pack, 10 hours operation
Dimensions (HWD)	2" x 3" x 8.2"
Weight	19.5 oz

The MINIRAE 2000 PID rents with download cable, zero filter, probe tip, hydrophobic filter, charger, alkaline battery adapter, case and operating manual.

ASHTEAD Technology
RENTALS

FAX MESSAGE			
To:	Mr. Rick Watt Ecology & Environment Lancaster, NY	Fax:	716-684-0844
From:	John Nelson	Phone:	716-684-0860
Date:	9/17/03	Pages:	1 of 2
Subject:			

Thank you for contacting Ashtead Technology Rentals. Attached is the product bulletin for the Myron 6P Ultrameter. This unit measures six parameters including pH (0 to 14), ORP (oxidation reduction potential, +/- 999 mV), Conductivity (0 to 9999 microSiemens and 10 to 200 milliSiemens), TDS (total dissolved solids, 0 to 9999 ppm and 10 to 200 ppt), Resistivity (10 kilohms to 30 megohms), and Temperature (32 to 160 degrees Fahrenheit) . Each rental unit is equipped with (3) pH buffers, conductivity standard, quick reference card and manual.

***The rental rates per unit are:**

Myron 6P Ultrameter: $ 75.00/week & $ 187.50/four week rental period.
Additional days are at $ 18.75/day. The two-day minimum rental period is $ 37.50.

Saturday is a rental day.
The minimum charge on all orders is $ 50.00.
Shipping and all applicable taxes are additional.
***Availability is subject to prior rental.**

If Ashtead Technology Rentals may be of any further assistance please feel free to call.

Sincerely,

John Nelson

Ashtead Technology, Inc.
1057 East Henrietta Road, Rochester, NY 14623
800-242-3910 ▾ 585-424-2140 ▾ 585-424-2166 (fax)
environmental@ashtead-technologyusa.com
www.ashtead-technology.com
Member of the Ashtead Group plc

Myron 6P Ultrameter

Multi-Parameter Water Quality Meter

- **Waterproof to three feet**
- **Four digit resolution**
- **Six parameters**

The 6P Ultrameter packages multiple parameters for water quality into a single all-purpose instrument. The 6P measures conductivity, total dissolved solids (TDS), resistivity, pH, oxidation reduction potential (ORP) and temperature. The testing features of the 6P are appropriate for environmental groundwater testing, as well as for use in boilers and cooling towers, reverse osmosis, plating and parts washing, fountain solutions for printing, irrigation water, hydroponics, process verification, deionization and others. The 6P simplifies and streamlines water quality analysis. Just fill the cell cup, push a parameter key and take the reading. The instrument is fast, accurate and waterproof to three feet. Memory stores and recalls up to 20 readings.

SPECIFICATIONS

	Range	Resolution	Accuracy
pH	0 to 14 pH	0.01 pH	± 0.01 pH
ORP	± 999 mV	± 1 mV	± 1 mV
Conductivity	0 to 9999 µS 10 to 200 µS in 5 autoranges	0.01 < 100 µS 0.1 < 1000 µS 1.0 > 1000 µS	± 1% of reading
TDS	0 to 9999 ppm 10 to 200 ppt in 5 autoranges	0.01 < 100 ppm 0.1 < 1000 ppm 1.0 > 1000 ppm	± 1% of reading
Resistivity	10KΩ to 30 MΩ	0.01 < 100 KΩ 0.1 < 1000 KΩ 0.01 > 1MΩ	± 1% of reading
Temperature	32 to160F	0.1F	± 0.1F
Protection Rating	IP67/NEMA 6		
Power	9V alkaline battery, 100 hours operation		
Dimensions	2.5" x 2.7" x 7.7"		
Weight	13.5 oz		

The Myron 6P Ultrameter rents with three pH buffers, conductivity standard, quick reference card, case and operating manual

800-242-3910

ASHTEAD Technology RENTALS

environmental@ashtead-technologyusa.com
www.ashtead-technology.com

ASHTEAD Technology RENTALS

FAX MESSAGE			
To:	Mr. Rick Watt Ecology & Environment Lancaster, NY	Fax:	716-684-0844
From:	John Nelson	Phone:	716-684-0860
Date:	9/17/03	Pages:	1 of 2
Subject:			

Thank you for contacting Ashtead Technology Rentals. Attached is the product bulletin for the GasTech GT-Series for Confined Space Entry. These units, with their built-in sample pump, help ensure worker safety in a variety of applications including the pre-testing of confined spaces, area monitoring of work sites, and testing around manufacturing processes. The GasTech GT-201 Two Gas Monitor is for Combustibles (0 to 100% LEL), & Oxygen (0 to 30%). The GT-402 Four Gas Monitor is for Combustibles (0 to 100% LEL), Oxygen (0 to 30%), Carbon Monoxide (0 to 300 ppm), and Hydrogen Sulfide (0 to 200 ppm). Concentrations are simultaneously displayed on the LCD. Date/time, alarm setpoints, battery capacity, diagnostic information, and remaining hours of datalogging are automatically displayed and one can easily recall TWA, STEL, and min/max values. Stored data can be viewed on the LCD and later downloaded to a PC or printer (optional data-retrieval kit required). These units will operate 10 hours on a full charge. Both units are equipped with a 10 inch probe with hydrophobic filter, five foot hose, battery charger, carrying strap, manual & carrying case.

***The rental rates per unit are:**
GasTech GT-201 Two Gas Monitor (LEL & O_2): $ 125.00/week & $ 312.50/four week rental period. Additional days are at $ 31.25/day. The two-day minimum rental is $ 62.50.

GasTech GT-402 Four Gas Monitor (LEL, O_2, CO & H_2S): $ 190.00/week & $ 475.00/four week rental. Additional days are at $ 47.50/day. The two-day minimum rental is $ 95.00.

GasTech Data Retrieval Kit: No Charge.

Calibration Kit for GT-201 with 100 L cylinders (1) 2.5% Methane, (1) UHP Nitrogen, (2) 3L Tedlar Bags, & (1) 6 LPM Regulator. (Purchase Item): $ 350.00 each.

Calibration Kit for GT-402 with 100 L cylinders of (1) 1.5% Methane / 18.5% Oxygen / 35 ppm Carbon Monoxide, (1) UHP Nitrogen, (1) 58 L cylinder of 25 ppm Hydrogen Sulfide, (3) 3 L Tedlar Bags, & (1) 6 LPM Regulator. (Purchase Item): $ 415.00 each.

Saturday is a rental day.
Shipping and all applicable taxes are additional.
*** Availability is subject to prior rental.**

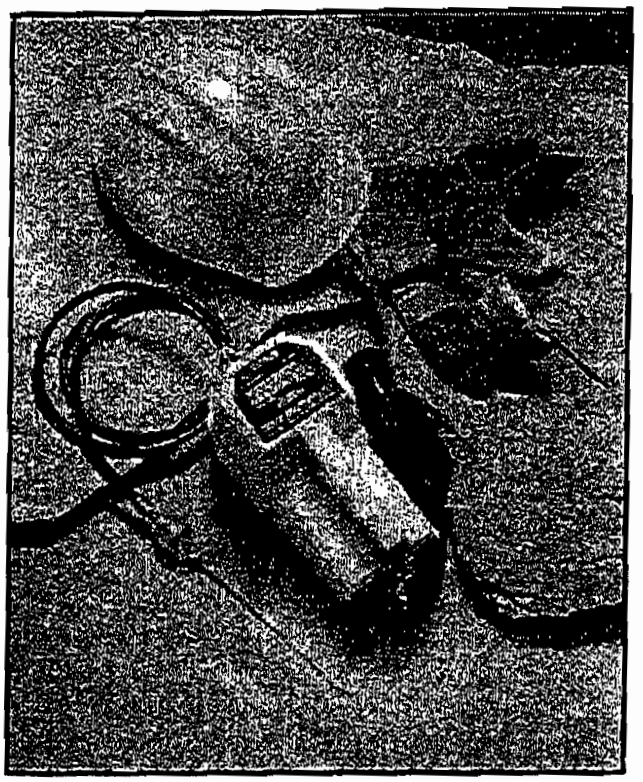
If Ashtead Technology Rentals may be of any further assistance please feel free to call.

Sincerely,

John Nelson

Ashtead Technology, Inc.
1057 East Henrietta Road, Rochester, NY 14623
800-242-3910 ▾ 585424-2140 ▾ 585-424-2166 (fax)
environmental@ashtead-technologyusa.com
www.ashtead-technology.com
Member of the Ashtead Group plc

Two and Four-Gas Monitors



- **Intrinsically safe**
- **Built-in datalogging**

GT portable gas monitors are designed for rugged, all-weather use. Use the GT 201 two-gas monitor or the GT 402 four-gas monitor to protect workers from hazardous gases in confined spaces or other work sites. The GT 201 monitors oxygen volume and hydrocarbons. The GT 402 monitors oxygen, carbon monoxide, hydrogen sulfide and hydrocarbons.

Both monitors perform across an exceptionally broad range of operating temperatures, from -4F to 113F (-20C to 45C). A two-level alarm system warns of unsafe gas levels with both audible and visual signals. Datalogging is built in and downloads to a PC or printer with the optional data retrieval kit.

SPECIFICATIONS

		GT201 & GT402	GT402
Measuring Range			
	Hydrocarbons	0 to 100% LEL in 1% increments 0 to 10,000 ppm in 20 ppm increments	
	Oxygen	0 to 30.0% vol in 0.1% increments	
	Carbon Monoxide		0 to 300 ppm in 1 ppm increments
	Hydrogen Sulfide		0 to 200 ppm in 1 ppm increments
Accuracy	LEL	± 5% of reading	
	O_2	± 0.5% vol	
	CO, H_2S,		± 10% of full scale
Response Time		90% in 30 seconds	
Power		4 Ni-Cd batteries. 10 hours operation	
Approvals		UL and CSA approved Class I, Division 1, Groups A,B,C and D	
Dimensions (HWD)		6" x 5" x 10"	
Weight		5 lbs	

The GASTECH GT201 and GT402 Portable Multi-Gas Monitors rent with probe tip with hydrophobic filter, 5' sample draw hose, wrist strap, battery charger, quick reference card, case and operating manual.

CONTACT REPORT

Meeting ☐ Telephone ☒ Other ☐

AGENCY/CO.: GeoPlane Services

ADDRESS: Houston, TX

PHONE NO.: 800-229-3114

PERSON CONTACTED: Armando Chavez

TO: NV13 File

CC:

FROM: Rick Watt

DATE: 29 Sep 2003

SUBJECT: GPS Rental Rate for Fourth Street Site in Buffalo

SUMMARY: The rental rate for the Trimble Pathfinder Pro XRS is $80 per day of use plus approximately $150 roundtrip shipping. This unit outputs a digital signal suitable for use during the geophysical survey.

CONTACT REPORT

Meeting ☐ Telephone ☒ Other ☐

AGENCY/CO.: Geonics, Ltd

ADDRESS: Mississauga, Ontario, Canada

PHONE NO.: 905-670-9580

PERSON CONTACTED: Mike Catalano

TO: NV13 File

CC:

FROM: Rick Watt

DATE: 29 Sep 2003

SUBJECT: Geophysical Equipment Rental Rate for Fourth Street Site in Buffalo

---

SUMMARY: The rental rate for the Geonics EM31-MK2 conductivity meter is $800 per week and the rental rate for the Geonics Allegro computer that accepts both the conductivity and GPS signal outputs is $300 per week. Approximate shipping rate is $200 roundtrip.

WASTE MANAGEMENT

September 19, 2003

Richard Watt
ECOLOGY & ENVIRONMENT, INC.
368 Pleasantview Drive
Lancaster, NY 14086

This quotation represents final pricing for the project listed below. Should the bid due date change, please contact Customer Service (1-800-843-3604) for any updated information.

Re: Unknown - Buffalo, NY

Dear Richard Watt:

Waste Management, Inc. is pleased to provide you with pricing for disposal per your request. Based upon the information you provided, the following summarizes our quotation.

DISPOSAL FACILITY:

CWM Chemical Services, LLC
1550 Balmer Road
Model City, NY 14107

WASTE STREAMS

1.)	Waste Description	F listed soil (meeting treatment standards for organics)
	Disposal Method	Direct Landfill
	Estimated Volume	6 55 gal drum(s)
	Disposal Cost	$60.00/55 gal drum
	Disp. Note	A completed waste profile sheet and analysis will be required for final approval. The above pricing assumes the material will meet the treatment standards for organics.
	Transportation using Box Vans	$450.00/trip
	Demurrage	$75.00/hour after 1 free hour
	Taxes	
	Local Tax	6.0% of Disposal
	Fuel Surcharge	8.0% of Transportation
	NY State sales tax	8.25% of Disposal
	NY State sales tax	8.25% of Transportation
2.)	Waste Description	Non Hazardous wastewater (no oil, no solids)
	Disposal Method	WWT
	Estimated Volume	6 55 gal drum(s)
	Disposal Cost	$100.00/55 gal drum
	Disp. Note	A completed waste profile sheet is required for final approval.
	Transportation using Box Vans	$450.00/trip
	Demurrage	$75.00/hour after 1 free hour loading
	Taxes	

SPECIAL CONDITIONS:

Waste must meet acceptability criteria at the site and comply with local, state and federal regulations, as well as the sites permit requirements. Pricing is contingent upon site and/or sample evaluation and approval.

Pricing is based solely on the information available at this time and is good for thirty (30) days from the date of this letter. Additional information may be required prior to approval.

Increases in the cost of diesel fuel may effect pricing. Refer to fuel surcharge schedule for rate information.

Payment must be received within thirty (30) days of invoicing. Payments received after thirty (30) days will accrue interest at the rate of 1.5% per month.

Following site approval, we will reconfirm your pricing and send you the appropriate Supplemental Information Document for signature.

Waste Management, Inc. wishes to thank you for allowing us to quote on your disposal needs.

Please do not hesitate to contact me at the phone number below with any questions you may have or if you require any further assistance.

Sincerely,

Eileen Carbone
(716) 754-0457
Customer Service

cc: Sue Rossi