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workplan.HW.932008.1992-09-01.Preliminary-site-Ass-All.pdf

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Project Site numbers will be proceeded by the following:

Municipal Brownfields - B
Superfund - HW
Spills - SP
ERP - E
VCP - V
BCP - C

PRELIMINARY SITE ASSESSMENT

# WORK PLAN ADDENDUM I

## Cayuga Island Site, Niagara Falls
## Niagara County, New York
## (Site Registry No. 9-32-008)

**Dvirka and Bartilucci**

**Consulting Engineers**

SEPTEMBER 1992

# PRELIMINARY SITE ASSESSMENT WORK PLAN

## ADDENDUM I FOR SUPPLEMENTAL INVESTIGATION PROGRAM

## FIELD OPERATION AND INVESTIGATION PLAN
## QUALITY ASSURANCE/QUALITY CONTROL PLAN
## AND
## HEALTH AND SAFETY PLAN

PRELIMINARY SITE ASSESSMENT
FOR THE
CAYUGA ISLAND SITE
NIAGARA FALLS, NEW YORK

(SITE REGISTRY NO. 9-32-008)

PREPARED FOR
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

BY
DVIRKA AND BARTILUCCI
CONSULTING ENGINEERS
SYOSSET, NEW YORK

SEPTEMBER 1992

# PRELIMINARY SITE ASSESSMENT WORK PLAN
# CAYUGA ISLAND SITE
# ADDENDUM I

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ADDENDUM I

CAYUGA ISLAND SITE
NIAGARA FALLS, NEW YORK

(SITE REGISTRY NO. 9-32-008)

Approved by:

Project Manager _____ Date: _____
Dvirka and Bartilucci Consulting Engineers

Project QA/QC Officer _____ Date: _____
Dvirka and Bartilucci Consulting Engineers

Project Director _____ Date: _____
Dvirka and Bartilucci Consulting Engineers

Project Manager _____ Date: _____
New York State Department of Environmental Conservation

Project Director _____ Date: _____
New York State Department of Environmental Conservation

# Section 1

# 1.0 INTRODUCTION

This document is an addendum to the Preliminary Site Assessment Work Plan for the Cayuga Island Site, Niagara Falls, New York dated February, 1992. The initial work plan was prepared to conduct the preliminary site assessment and included a Field Operation and Investigation Plan, a Quality Assurance/Quality Control Plan and a Health and Safety Plan. The Work Plan Addendum is prepared in order to conduct a supplemental investigation and contains only changes or additions to the original work plan, as necessary.

# Section 2

## 2.0 SUMMARY OF EXISTING INFORMATION

The primary focus of the initial Preliminary Site Assessment (PSA) was on the western and southern portions of Cayuga Island. It has been reported that prior to 1930, the western end of Cayuga Island was extended approximately 250 yards into the Niagara River by depositing clean fill and industrial material (sand, abrasives and broken concrete). From 1958 to 1962 the western end was widened by placement of clean fill and industrial wastes. The companies who may have been the source of these materials are reported to be Carborundum, Union Carbide, Hooker, Olin and Pittsburgh Metallurgical.

Results of the PSA indicated the presence of various types of materials in the fill including concrete fragments, trace metal fragments, tar paper, brick fragments, asphalt, trash, slag, ash and cinders, while one sample in the western portion indicated the presence of a small white granular material in the fill. The material found in the borings varied from one sample to the next indicating a nonhomogeneous characteristic of the fill.

Results of the analytical results from the initial PSA indicated that low levels of contaminants were found in the southern portion of Cayuga Island while elevated concentrations were detected in the fill material in the western area.

Specifically, one sample in the western portion indicated PCBs at 140 mg/kg. Elevated levels of lead and mercury detected in the western portion of the island, the highest being 774 mg/kg and 133 mg/kg, respectively. Based upon this information, additional investigation was recommended to be conducted in the western portion of the island to further define the extent of contamination.

# Section 3

# 3.0 SCOPING OF THE SUPPLEMENTAL INVESTIGATION

## 3.1 Approach and Objectives

The approach to this supplemental investigation is to conduct additional investigation concerning the fill deposited in the western portion of Cayuga Island.

## 3.2 Field Investigation

The supplemental investigation will include the following:

- o Test Borings
- o Soil Sampling
- o Air Monitoring
- o Surveying of the Boring Locations

A total of 12 additional borings will be constructed in the overburden to a depth of approximately 8 feet. One subsurface soil sample will be collected from each boring for chemical analysis. In addition, surface soil samples will be obtained at selected boring locations.

Further description of sampling procedures, frequency and locations are described in detail in the Field Activities Plan in Section 5.0 of this report. A summary of the field investigation program is provided in Table 3-1.

Table 3-1

SUPPLEMENTAL
INVESTIGATION SUMMARY
AT THE CAYUGA ISLAND SITE

| Program Element | Cayuga Island |
|---|---|
| Borehole Construction | Twelve boreholes will be constructed to a depth of 8 feet using a tripod. Split spoon sampling will be obtained continuously. |
| Subsurface Soil Sampling | One sample per borehole will be analyzed for TCL pesticides/PCBs, lead, mercury and extracted for EPTOX analysis. |
| Surface Soil Sampling | Six surface soil samples will be collected, four in conjunction with the 12 borings and two surface soil samples in the western portion. Samples will be analyzed for TCL pesticides/PCBs, lead, mercury and extracted for EPTOX analysis. |
| Surveying | The 12 borings and six surface soil samples will be located (horizontal control only) on the base map prepared for the Preliminary Site Assessment. |

# Section 4

# 4.0 PROJECT MANAGEMENT

## 4.1 Project Schedule and Key Milestones/Reports

The project schedule of the supplemental investigation at the Cayuga Island site is provided in Figure 4-1. This schedule shows only the schedule to complete the additional subtasks.

Key milestones for the supplemental investigation are identified in order to monitor work progress. The following is the list of the milestones proposed for the remaining portion of the project and as illustrated in Figure 4-1.

Milestone 1 Submittal of the draft addendum to the Preliminary Site Assessment Work Plan, Field Operations Plan, Quality Assurance/Quality Control Plan and Health and Safety Plan

Milestone 2 Submittal of the Draft supplemental investigation Report

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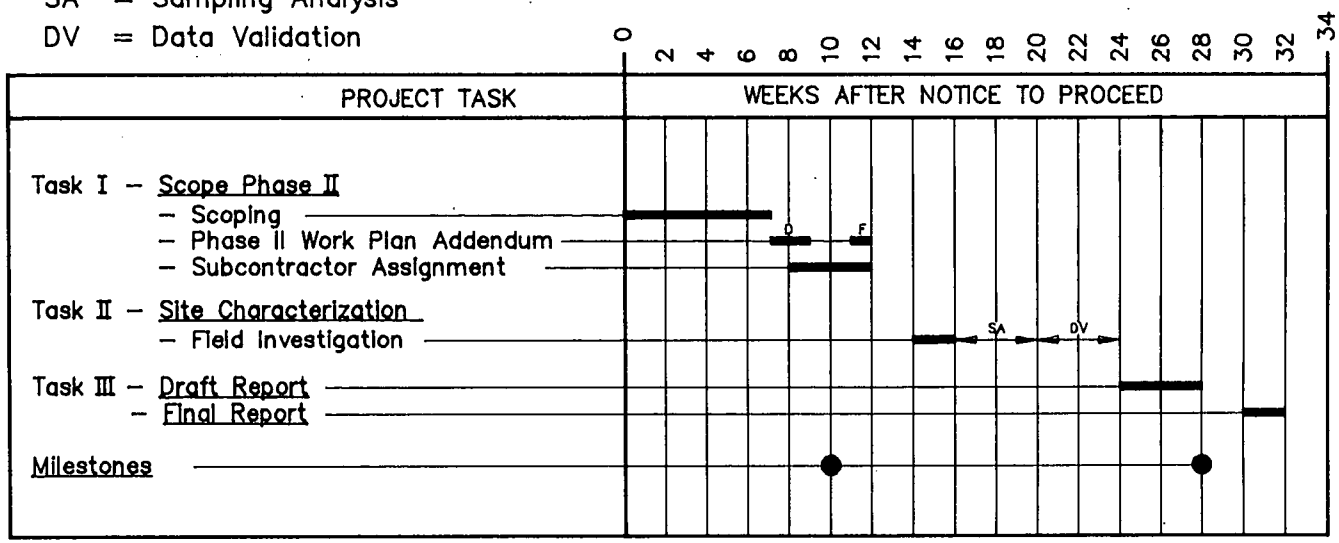
# FIGURE 4-1
# PROJECT SCHEDULE
## FOR
## CAYUGA ISLAND SITE SUPPLEMENTAL INVESTIGATION
## NIAGARA FALLS, NEW YORK

LEGEND

= Planned Activity
D = Draft Report
F = Final Report
SA = Sampling Analysis
DV = Data Validation




Dvirka and Bartilucci
CONSULTING ENGINEERS

# Section 5

# 5.0 FIELD OPERATION AND INVESTIGATION PLAN

## 5.1 Field Activities Plan

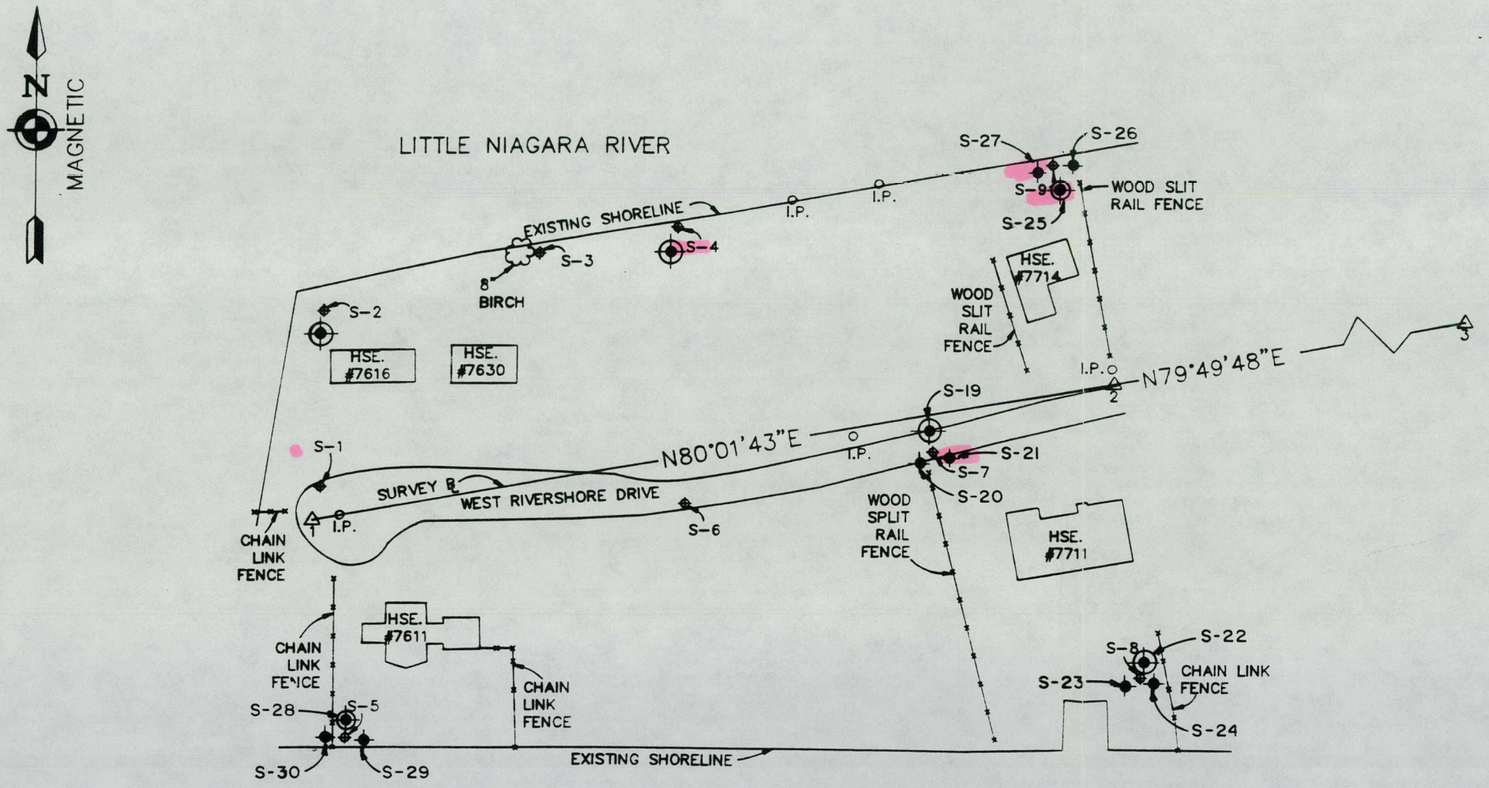
### 5.1.1 Borehole Construction

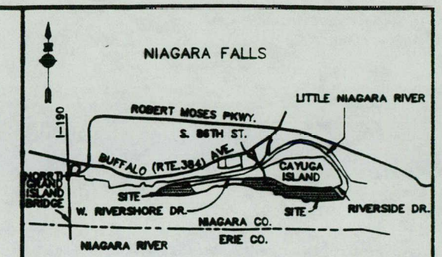
A total of twelve additional boreholes will be constructed on the western portion of the Cayuga Island site. The location of the additional borings are provided in Figure 5-1. One subsurface soil sample from each borehole will be collected and analyzed for TCL pesticides/PCBs, lead, mercury and extracted for EPTOX analysis. Soil samples obtained from the split spoons will be observed for geologic characteristics and visual contamination, and screened with a Century OVA and/or a PhotoVac MicroTip. The data obtained from this screening will be used to select one split spoon soil sample from each of the 12 boring locations for chemical analysis. Any sample with a meter measurement over 5 units (ppm) will be retained for chemical analysis. All subsurface soil samples selected for chemical analysis will be collected from within the unsaturated zone. The borings will be constructed using the tripod method of borehole construction, if possible. For the borings to be constructed on the right of way of West Rivershore Drive, hollow stem augers will be utilized. Table 5-1 indicates the properties and owners for the proposed boring locations.

### 5.1.2 Surface Soil Sampling

Six surface soil samples will be collected on the western portion of the island. The location of these samples are shown on Figure 5-2. Four of the samples will be collected from the first split spoon during construction of the boring. Two additional samples will be collected at separate locations on the western portion to further define surface soil quality. Each sample will be analyzed for TCL pesticides/PCBs, lead, mercury and extracted for EPTOX analysis. Site-specific sampling procedures are described in detail in Section 6.0.

12 + 6 = 18 samples.




LOCATION MAP
N.T.S.

| COORDINATE TABLE | | |
|---|---|---|
| Station | Northing | Easting |
| S-1 | 4325.5 | 5041.6 |
| S-2 | 4447.4 | 5043.3 |
| S-3 | 4487.1 | 5188.2 |
| S-4 | 4505.4 | 5280.0 |
| S-5 | 4151.4 | 5059.2 |
| S-6 | 4313.8 | 5286.0 |
| S-7 | 4349.8 | 5453.3 |
| S-8 | 4193.7 | 5593.6 |
| S-9 | 4549.1 | 5532.9 |
| BASELINE 1 | 4302.45 | 5036.31 |
| BASELINE 2 | 4397.17 | 5575.09 |

LEGEND

- PROPOSED SOIL BORING LOCATIONS
- PROPOSED SURFACE SOIL LOCATIONS
- EXISTING SOIL BORING LOCATIONS

NOTE : COORDINATES SHOWN HEREON WERE REFERENCED TO MAGNETIC NORTH AND AN ASSUMED COORDINATE SYSTEM.

# BORING LOCATION MAP
# WESTERN PORTION

Dvirka and Bartilucci CONSULTING ENGINEERS

FIGURE 5-1

Prepared for:
Dvirka and Bartilucci, Consult.Engrs.
6800 Jericho Turnpike
Syosset, New York 11791

Prepared by:
OM P. POPLI, P.E.,P.L.S.
2140 South Clinton Avenue
Rochester, New York 14618
Tel. No. 716-442-6940

| DATE | SCALE | SHEET |
|---|---|---|
| MAY 1992 | 1"= 100' | 1 |

Table 5-1

BOREHOLE LOCATIONS - PROPERTY OWNERS
CAYUGA ISLAND, NIAGARA FALLS

| Boring Number | Street Address | Property Owner |
|---|---|---|
| S-19 | Right of Way in Front of 7707 West Rivershore Drive | City of Niagara Falls |
| S-20 | Right of Way in Front of 7707 West Rivershore Drive | City of Niagara Falls |
| S-21 | Right of Way in Front of 7707 West Rivershore Drive | City of Niagara Falls |
| S-22 | 7711 West Rivershore Drive | Mr. Walter Janik |
| S-23 | 7711 West Rivershore Drive | Mr. Walter Janik |
| S-24 | 7711 West Rivershore Drive | Mr. Walter Janik |
| S-25 | 7714 West Rivershore Drive | Mr. Stanley Kasper |
| S-26 | 7714 West Rivershore Drive | Mr. Stanley Kasper |
| S-27 | 7714 West Rivershore Drive | Mr. Stanley Kasper |
| S-28 | 7611 West Rivershore Drive | Mr. Richard Cekalski |
| S-29 | 7611 West Rivershore Drive | Mr. Richard Cekalski |
| S-30 | 7611 West Rivershore Drive | Mr. Richard Cekalski |

# Section 6

# QUALITY ASSURANCE AND QUALITY CONTROL PLAN
# APPROVAL FORM

## (ADDENDUM I)

## CAYUGA ISLAND
## PRELIMINARY SITE
## ASSESSMENT

Approved by:

QA/QC Officer _____ Date: _____
Dvirka and Bartilucci Consulting Engineers

Project Manager _____ Date: _____
Dvirka and Bartilucci Consulting Engineers

QA/QC Officer _____ Date: _____
NYSDEC, Division of Hazardous Waste Remediation

# 6.0 ADDENDUM TO QUALITY ASSURANCE AND QUALITY CONTROL PLAN

The sections provided below have been revised to reflect the work to be conducted during the supplemental investigation at Cayuga Island. All sample analysis and data validation are to be conducted under the New York State Department of Environmental Conservation 1989 Analytical Services Protocol. Any additional information not provided in this addendum is contained in the Preliminary Site Assessment (PSA) Work Plan dated February 1992.

## 6.1 Monitoring Network Design and Rationale

The study area is subdivided into two segments for sampling as follows:

1. Twelve boreholes will be constructed on-site and the subsurface soil sampled.
2. Six surface soil samples will be collected on-site.

Air monitoring will be conducted during all field activities. Delineation of the location of the sampling points is illustrated in Figure 5-1.

As described above, samples will be obtained from the following matrices, each followed by a brief discussion of the sampling and location rationale.

- o Subsurface Soil - A total of 12 subsurface soil samples will be collected by continuous split spoon sampling. One sample will be taken from each borehole.
- o Surface Soil - Six surface soil samples will be collected from the site.
- o Air - Field monitoring for total organic vapors and particulates will be conducted during all field activities.

For a detailed discussion of the sampling program and selection of sample matrices and locations, see Section 5.0 of the initial Work Plan.

## 6.2 Monitoring Parameters

Sample analysis for borehole and surface soil samples will consist of the Target Compound List (TCL) pesticides/PCBs identified in the 1989 NYSDEC Analytical Services Protocols (ASP), as well as lead and mercury. Additionally, each sample will also be extracted for possible EPTOX analysis. EPTOX analysis will be dependent upon metals concentration results as defined in Table 6-2.

Table 6-1 presents a summary of the parameters/sample fraction to be monitored together with the sample location, type of sample, sample matrix, number of samples, frequency of sample collection, type of sample container, method of sample preservation, holding time and analytical method. Table 6-2 indicates the criteria for EPTOX analysis.

## 6.3 Data Quality Requirements and Assessment

Data quality requirements and assessments are provided in Section 6.25 of the PSA work plan, which includes the detection limit for each parameter and sample matrix. Note that quantification limits, estimated accuracy, accuracy protocol estimate precision and precision protocol are determined by the laboratory and will be in conformance with the requirements of the 1989 NYSDEC ASP, where applicable. Table 6-3 presents a summary of the data quality requirements.

The methods of analysis will be in accordance with the 1989 NYSDEC Analytical Services Protocols. Specific analytical procedures and laboratory QA/QC descriptions are not included in this QA/QC plan, but are available upon request. The laboratory will be NYSDOH ELAP certified for organic and inorganic analyses and also be NYSDOH CLP certified.

### 6.3.1 Data Representativeness

Representative samples will be collected as follows:

- Soil Borings - Samples will be obtained using a split spoon sampler. Twelve boreholes will be constructed to a depth of eight feet using a tripod. One sample will be obtained per borehole. Each sample will be analyzed for TCL pesticides/PCBs, lead and mercury and an EPTOX extraction will be performed.
- Surface Soil - Six samples will be obtained 0 to 6 inches below the surface using a disposable sterile polystyrene scoop. Each sample will be analyzed for TCL pesticides/PCBs, lead and mercury and an EPTOX extraction will be performed.
- Equipment Calibration - Field equipment used for air monitoring will be calibrated daily before use according to the manufacturer's procedures contained in Appendix A of the PSA work plan.
- Equipment Decontamination - Sampling equipment will be decontaminated prior to use at each location according to the NYSDEC approved procedures described in Section 6.8 of the PSA QA/QC Plan.

Table 6-1

CAYUGA ISLAND SITE PRELIMINARY SITE ASSESSMENT
SUMMARY OF MONITORING PARAMETERS

| Sample Location | Sample Type | Sample Matrix | Sample Fraction | Number of Samples | Frequency | Container Type/Size/No. | Sample Preservation | Maximum Holding Time | Analytical Method |
|---|---|---|---|---|---|---|---|---|---|
| Boreholes | Grab | Subsurface Soil | Pesticides/PCBs | 12 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 5 days after VTSR for extraction, 40 days after extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | Grab | Subsurface Soil | Lead | 12 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 6 months after VTSR for analysis | SW-846, Method 7421 |
| | Grab | Subsurface Soil | Mercury | 12 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after VTSR for Hg analysis | SW-846, Method 7470 |
| | | Subsurface Soil | EPTOX Extraction | 12 | 1 | Glass, clear/ 150 mL/3 ICHEM 200 series or equivalent | Cool to 4°C | 14 days after VTSR for EPTOX extraction | SW846, Method 1310 |
| | | EPTOX Extract | Pesticides | * | 1 | Glass, amber/ 1 L/2 ICHEM 200 series or equivalent | Cool to 4°C | 7 days after EPTOX extraction for pesticide extraction; 40 days after pesticide extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | | EPTOX Extract | Lead, Mercury | * | 1 | Glass, amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after EPTOX extraction for Hg analysis and 180 days after EPTOX extraction for lead analysis | SW-846, Method 7470 for mercury SW-846, Method 7421 for lead |

VTSR - Verified Time of Sample Receipt at the laboratory.

*Dependent on results of the soil sample analysis.

Table 6-1 (continued)

CAYUGA ISLAND SITE PRELIMINARY SITE ASSESSMENT
SUMMARY OF MONITORING PARAMETERS

| Sample Location | Sample Type | Sample Matrix | Sample Fraction | Number of Samples | Frequency | Container Type/Size/No. | Sample Preservation | Maximum Holding Time | Analytical Method |
|---|---|---|---|---|---|---|---|---|---|
| Surface Soil (0-6 inches) | Grab | Surface Soil | Pesticides/PCBs | 6 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 5 days after VTSR for extraction, 40 days after extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | Grab | Surface Soil | Lead | 6 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 6 months after VTSR for analysis | SW-846, Method 7421 |
| | Grab | Surface Soil | Mercury | 6 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after VTSR for Hg analysis | SW-846, Method 7470 |
| | | Surface Soil | EPTOX Extraction | 6 | 1 | Glass, clear/ 150 mL/3 ICHEM 200 series or equivalent | Cool to 4°C | 14 days after VTSR for EPTOX extraction | SW846, Method 1310 |
| | | EPTOX Extract | Pesticides | * | 1 | Glass, amber/ 1 L/2 ICHEM 200 series or equivalent | Cool to 4°C | 7 days after EPTOX extraction for pesticide extraction; 40 days after pesticide extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | | EPTOX Extract | Lead, Mercury | * | 1 | Glass, amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after EPTOX extraction for Hg analysis and 180 days after EPTOX extraction for lead analysis | SW-846, Method 7470 for mercury SW-846, Method 7421 for lead |

VTSR - Verified Time of Sample Receipt at the laboratory.

*Dependent on results of the soil sample analysis.

Table 6-1 (continued)

CAYUGA ISLAND SITE PRELIMINARY SITE ASSESSMENT
SUMMARY OF MONITORING PARAMETERS

| Sample Location | Sample Type | Sample Matrix | Sample Fraction | Number of Samples | Frequency | Container Type/Size/No. | Sample Preservation | Maximum Holding Time | Analytical Method |
|---|---|---|---|---|---|---|---|---|---|
| Site/Study Area | Matrix Spike | Soil | Pesticides/PCBs | 1 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 5 days after VTSR for extraction, 40 days after extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | | Soil | Lead | 1 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 6 months after VTSR for lead analysis | SW-846, Method 7421 |
| | | Soil | Mercury | 1 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after VTSR for Hg analysis | SW-846, Method 7470 |
| | | Soil | EPTOX Extraction | 1 | 1 | Glass, clear/ 150 mL/3 ICHEM 200 series or equivalent | Cool to 4°C | 14 days after VTSR for EPTOX extraction | SW846, Method 1310 |
| | | EPTOX Extract | Pesticides | 1 | 1 | Glass, clear/ 1L/2 ICHEM 200 series or equivalent | Cool to 4°C | 7 days after EPTOX extraction for pesticide extraction; 40 days after pesticide extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | | EPTOX Extract | Lead and Mercury | 1 | 1 | Glass, clear/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after EPTOX extraction for Hg analysis and 180 days after EPTOX extraction for lead analysis | SW-846, Method 7470 for mercury SW-846, Method 7421 for lead |

VTSR - Verified Time of Sample Receipt at the laboratory

Table 6-1 (continued)

CAYUGA ISLAND SITE PRELIMINARY SITE ASSESSMENT
SUMMARY OF MONITORING PARAMETERS

| Sample Location | Sample Type | Sample Matrix | Sample Fraction | Number of Samples | Frequency | Container Type/Size/No. | Sample Preservation | Maximum Holding Time | Analytical Method |
|---|---|---|---|---|---|---|---|---|---|
| Site/Study Area | Matrix Spike Duplicate | Soil | Pesticides/PCBs | 1 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 5 days after VTSR for extraction, 40 days after extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | | Soil | Pesticides | 1 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 6 months after VTSR for lead analysis | SW-846, Method 7421 |
| | | Soil | Mercury | 1 | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after VTTSR for Hg analysis | SW-846, Method 7470 |
| | | Soil | EPTOX Extraction | 1 | 1 | Glass, clear/ 150 mL/3 ICHEM 200 series or equivalent | Cool to 4°C | 14 days after VTSR for EPTOX extraction | SW846, Method 1310 |
| | | EPTOX Extract | Pesticides | 1 | 1 | Glass, clear/ 1L/2 ICHEM 200 series or equivalent | Cool to 4°C | 7 days after EPTOX extraction for pesticide extraction; 40 days after pesticide extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | | EPTOX Extract | Lead and Mercury | 1 | 1 | Glass, clear/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after EPTOX extraction for Hg analysis and 180 days after EPTOX extraction for lead analysis | SW-846, Method 7470 for mercury SW-846, Method 7421 for lead |

VTSR - Verified Time of Sample Receipt at the laboratory.

Table 6-1 (continued)

CAYUGA ISLAND SITE PRELIMINARY SITE ASSESSMENT
SUMMARY OF MONITORING PARAMETERS

| Sample Location | Sample Type | Sample Matrix | Sample Fraction | Number of Samples | Frequency | Container Type/Size/No. | Sample Preservation | Maximum Holding Time | Analytical Method |
|---|---|---|---|---|---|---|---|---|---|
| Site/Study Area | Field Blank | Water | Pesticides/PCBs | 1* | 1 | Glass, Amber/ 1L/2 ICHEM 300 series or equivalent | Cool to 4°C | 5 days after VTSR for extraction 40 days after extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | Field Blank | Water | Mercury | 1* | 1 | Plastic/1L/1 ICHEM 300 series or equivalent | $HNO_3$ to pH <2 Cool to 4°C | 26 days after VTSR for Hg analysis | SW-846, Method 7470 |
| | Field Blank | Water | Lead | 1* | 1 | Plastic/1L/1 ICHEM 300 series or equivalent | $HNO_3$ to pH <2 Cool to 4°C | 6 months after VTSR for lead analysis | SW-846, Method 7421 |

VTSR - Verified Time of Sample Receipt at the laboratory

*Based on sampling with split spoon (F.B. not required on disposable scoops used for surface soil sampling).

Table 6-1 (continued)

CAYUGA ISLAND SITE PRELIMINARY SITE ASSESSMENT
SUMMARY OF MONITORING PARAMETERS

| Sample Location | Sample Type | Sample Matrix | Sample Fraction | Number of Samples | Frequency | Container Type/Size/No. | Sample Preservation | Maximum Holding Time | Analytical Method |
|---|---|---|---|---|---|---|---|---|---|
| Laboratory | Blank | Soil | EPTOX Extraction | * | 1 | Glass, clear/ 1L/3 ICHEM 200 series or equivalent | Cool to 4°C | 14 days after VTSR for EPTOX extraction | SW846, Method 1310 |
| | | EPTOX Extract | Pesticides | * | 1 | Glass, clear/ 1L/2 ICHEM 200 series or equivalent | Cool to 4°C | 7 days after EPTOX extraction for pesticide extraction; 40 days after pesticide extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | | EPTOX Extract | Lead and Mercury | * | 1 | Glass, clear/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after EPTOX extraction for Hg analysis; 180 days after EPTOX extraction for lead analysis | SW-846, Method 7470 for mercury SW-846, Method 7421 for lead |

*As required in accordance with 1989 NYSDEC ASP.

Table 6-1 (continued)

CAYUGA ISLAND SITE PRELIMINARY SITE ASSESSMENT
SUMMARY OF MONITORING PARAMETERS

| Sample Location | Sample Type | Sample Matrix | Sample Fraction | Number of Samples | Frequency | Container Type/Size/No. | Sample Preservation | Maximum Holding Time | Analytical Method |
|---|---|---|---|---|---|---|---|---|---|
| Laboratory | Method Blank | Soil | Pesticides/PCBs | * | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 5 days after VTSR for extraction 40 days after extraction for analysis | 1989 NYSDEC ASP, Method 89-3 |
| | Method Blank | Soil | Lead | * | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 6 months after VTSR for lead analysis | SW-846, Method 7421 |
| | Method Blank | Soil | Mercury | * | 1 | Glass, Amber/ 150 mL/1 ICHEM 200 series or equivalent | Cool to 4°C | 26 days after VTSR for analysis | SW-846, Method 7470 |

VTSR - Verified Time of Sample Receipt at the laboratory

*As required in accordance with 1989 NYSDEC ASP. (Based upon 18 soil samples identified in the Supplemental Investigation.)

Table 6-2

CAYUGA ISLAND PRELIMINARY SITE ASSESSMENT
CRITERIA FOR EPTOX ANALYSIS

Inorganics

| EPTOX Analyte | Soil (TWA) Total Concentration (ppm) (15% available)* |
|---|---|
| Pb | 650 |
| Hg | 26 |

Organics

| EPTOX Analyte | Soil (TWA) Total Concentration (ppm) (koc derived) |
|---|---|
| Endrin | 2.2(3) |
| Lindane | 12.3(1) |
| Methoxychlor | 2760(2) |
| Toxaphene | 14.8(1) |

* EPTOX analysis shall be performed on the borehole or surface soil samples if any of the TCL concentrations exceed the values shown in this column.

(1) Values derived using Eq1 and Koc values in attachment 4 "USEPA - Superfund Public Health Evaluation Manual" EPA/540/1-86/060; October 1986, Exhibit A-1.

(2) Value derived from Eq2 and Eq1 using solubility data in "Handbook of Environmental Data on Organic Chemicals," by Karl Verschueren, Van Nostrand Reinhold, NY 1983.

(3) Value derived from Eq2 and Eq1 using solubility data in USEPA "MAIN" Data Base - Water Engineering Research Lab, Cincinnati, Ohio.

Table 6-3

DATA QUALITY REQUIREMENTS

| Parameter | Sample Matrix | CRDL* (ug/l) | Estimated Accuracy | Accuracy Protocol | Estimated Precision | Precision Protocol |
|---|---|---|---|---|---|---|
| Pesticides/PCBs | Liquid<br>Solid | 0.5-1.0<br>8.0-160 | 0.66 - 0.97 ug/l | Vol. III, Part XII, Method 608, Table 4 | 0.15 - 0.47 ug/l | Vol. III, Part XIV, Method 89-3, Table 4 |
| Metals (except cyanide) | Liquid<br>Solid | 0.2-5000<br>0.2-5000 | — | Vol. III, Part XIV, Method 200.7**, Table 4 | — | Vol. III, Part XIV, Method 200.7**, Table 4 |

*CRDL - Contract Required Detection Limits.

**and SW-846 Methods for:

| | Method |
|---|---|
| Selenium | 7740 |
| Lead | 7421 |
| Thallium | 7841 |
| Mercury | 7470 |
| Arsenic | 7060 |

### 6.3.2 Data Comparability

All data will be presented in the units designated by the methods specified by a NYSDOH ELAP and CLP certified laboratory, and the 1989 NYSDEC ASP. In addition, sample location, collection procedures and analytical methods from earlier studies will be evaluated for comparability with current procedures/methods.

### 6.3.3 Data Completeness

The acceptability of 100% of the data is desired as a goal for this project. The acceptability of less than 100% complete data, meeting all laboratory QA/QC protocols/standards, will be evaluated on a case-by-case basis.

## 6.4 Detailed Sampling Procedures

Sample locations include boreholes and surface soil. Actual locations are discussed in Section 5.0. General sampling approaches and equipment are described in Section 6.0 of the Preliminary Site Assessment Work Plan dated February, 1992. A summary of the supplemental investigation sampling program, including sample media, locations, depths, equipment, rationale and analytical parameters, is provided in Table 6-4. A description of surface soil sampling procedures is provided below.

### 6.4.1 Surface Soil

1. Be certain that the sample is noted on Location Sketch.
2. Be certain that the sampling equipment (scoop) has been decontaminated (if disposable equipment is not being used) utilizing the procedures outlined in Section 6.8 of the PSA Work Plan.
3. Remove laboratory precleaned sample bottles from cooler, label bottle with an indelible marker, fill out Sample Information Record and Chain of Custody Form (see Section 6.1 of the PSA Work Plan).
4. At the desired location, clear surface debris (e.g., rocks, twigs). Collect an adequate portion of soil from a depth of 0-6 inches using a decontaminated scoop and/or sterile wooden tongue depressor. Transfer the sample directly into the sample container.
5. Return the sample bottle to the cooler.

Table 6-4

SUMMARY OF CAYUGA ISLAND SITE SAMPLING PROGRAM

| Environmental Media | Sample Location | Sample Point | Number of Samples | Sample Depth | Equipment | Rationale | Sample Analysis |
|---|---|---|---|---|---|---|---|
| Soil | Area of suspected contamination | Boreholes (one sample from each borehole) | 12 | Dependent on visual characteristics and total organic vapor field screening | Tripod, split spoon and wooden tongue depressor | To determine soil contamination | Pesticide/PCB, mercury and lead EPTOX* 1989 NYSDEC ASP and SW846 |
| | | Surface Soils | 6 | 0-6 inches | Sterile polystyrene scoop, wooden tongue depressor | To determine soil contamination | Pesticide/PCB, mercury and lead EPTOX* 1989 NYSDEC ASP and SW846 |
| Air | At sampling locations | Sample area | During sampling | In the breathing zone and at point of sample collection | Photoionization and/or flame ionization detector, and digital dust indicator | To screen for air contamination | Total organic vapors and respirable particulates |

*EPTOX analysis is dependent on pesticide/PCB, Hg and Pb results.

6. If reusable, decontaminate the sampling equipment according to the procedures described in Section 6.8 of the PSA Work Plan.

7. Place disposable personal protective equipment and disposable sampling equipment into 55-gallon drum in the fenced area.

# Section 7

## 7.0 ADDENDUM TO HEALTH AND SAFETY PLAN

The Health and Safety Plan (HASP) for the Cayuga Island site located in the city of Niagara Falls has been reviewed based on the data provided in the Preliminary Site Assessment Report. Specifically, the concentrations of mercury, lead, PCBs as well as semivolatile compounds including PAHs detected in soil have been evaluated to determine modifications which might be required to the initial HASP. The elevated constituent concentrations in soil do not appear to cause additional concern for the exceedance of permissible exposure limits above requirements for performance of work currently contained within the document. The following calculation demonstrates this fact based on the contaminant with the highest concentration relative to the lowest permissible exposure limit:

Highest concentration of lead in soil = 774 mg/kg

OSHA permissible exposure limit = 0.05 $mg/m^3$

Concentration of soil in air required to exceed limit = Permissible exposure limit for contaminant/concentration of contaminant in soil

= 0.05 $mg/m^3$/0.000774 kg lead/kg soil

= 64.6 $mg/m^3$ of soil required to exceed lead exposure limit based upon concentration of 774 mg/kg in soil.

This value is well above the particulate exposure limit of 0.15 $mg/m^3$ established in the HASP.

The above combined with the very low headspace organic vapor readings typically less than or equal to 0.5 ppm indicates that the current HASP is adequately protective for the contaminants encountered and planned work activities.