PHASE II REMEDIAL INVESTIGATION WORK PLAN

M. WALLACE AND SON, INC. SCRAPYARD COBLESKILL, NEW YORK

Prepared For:

Niagara Mohawk Power Corporation
Syracuse, New York

April 1994

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

Report

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1.0 - Introduction

1.1 Preface

This document presents a detailed Work Plan for conducting a Phase II Remedial Investigation (RI), including a Human Health Risk Assessment (RA) and a Feasibility Study (FS) for the M. Wallace and Son, Inc. Scrapyard site located in Cobleskill, New York. This Phase II RI Work Plan (Work Plan) has been prepared in accordance with the Consent Order (Case No. 85-CV-219) entered into between NMPC and the New York State Department of Law (NYSDOL; and a February 16, 1994 letter from NYSDOL to Niagara Mohawk Power Corporation (NMPC) presenting the NYSDOL, New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) comments on the proposed Phase II RI Work Plan. This Work Plan presents a detailed description of the Phase II RI, including a Human Health RA, and FS activities that will be implemented to address the following:

- Data gaps identified during the Phase I RI;
- Potential human health risks at the site (if any); and
- Potential remedial alternatives.

1.2 Background Information

This section presents a description of the location of the site followed by a summary of the results from the Phase I RI conducted at the site.

1.2.1 Location

The site is located at the intersection of New York State Route 10 (Elm Street) and West Street in the Village of Cobleskill, Schoharie County, New York. The location of the M. Wallace and Son, Inc. Scrapyard is shown on Figure 1.

The Phase I RI focused on the section of the M. Wallace and Son, Inc. Scrapyard located north of Route 10 (the "site") which encompasses an area of approximately 6.6 acres. The site is bordered by West Street to the west; Route 10 to the south; several apartments and residential housing to the east; and a high school athletic field to the north. The site can be divided into two general areas, as follows:

- The "lower" section of the site consisting of a concrete and metal building, an active scrapyard area, and a quarry pond formed in a former limestone quarry; and

- The "upper" section of the site, consisting of several formerly used scrap metal stockpiles and an area known as the "electrical equipment gut area," where electrical equipment was reportedly disassembled.

A site map showing the location of features at the site is presented as Figure 2.

1.2.2 Summary of Phase I RI

The Phase I RI was conducted between January and August 1993, and was performed in accordance with the Phase I Remedial Investigation, M. Wallace and Son, Inc., Scrapyard Work Plan, prepared by Blasland & Bouck Engineers, P.C. The Phase I RI Work Plan was approved by the NYSDOL and the NYSDEC in April 1993. The Phase I RI Report, submitted to the NYSDEC and NYSDOL in January 1994, presented a detailed description of the Phase I RI activities which were implemented to assess the

presence and extent of chemical constituents in soil, sediment, surface water, and ground water at the site and in surface water and sediment off site.

Based upon the activities performed and the analytical data collected during the Phase I RI activities, the following is a list of each media studied and the highlights of the Phase I RI findings:

Media	Findings
Surface Soil	• Polychlorinated biphenyl (PCB) concentrations were detected up to 164 ppm.
	• Concentrations of the following inorganic parameters on the order of one magnitude greater than concentrations reported in the background sample, SSMW-7S, ranged from: - Cadmium (5.6 to 68.8 ppm) - Copper (231 to 4,740 ppm) - Lead (149 to 9,700 ppm) - Mercury (0.82 to 19.6 ppm); and - Zinc (764 to 6,750 ppm).
	• The highest total semi-volatile organic compound (SVOC) concentration was 129.1 ppm.
	• SVOC tentatively identified compound (TIC) concentrations were detected up to 555 ppm.
Subsurface Soil	• PCB concentrations were detected up to 16.2 ppm.
	• Concentrations of the following inorganic parameters on the order of one magnitude greater than concentrations reported in the background subsurface sample, TPMW-7S ranged from: - Cadmium (not detected to 47.2 ppm); - Copper (191 to 6,780 ppm); and - Lead (108 to 36,600 ppm).
	• The highest total SVOC concentration was 3.9 ppm.
	• SVOC TIC concentrations were detected up to 322.5 ppm.
	• Total volatile organic compound (VOC) and SVOC concentrations for sample TPC-12A, located in the southwest corner of the site, were reported at 1,168 ppm and 46 ppm, respectively.
On-Site Sediment	• PCB concentrations were detected up to 63 ppm.
	• SVOC TIC concentrations were detected up to 732 ppm.
Off-Site Sediment - Cobleskill Creek	• PCBs were detected in sample SD-50A from Cobleskill Creek at 0.18 ppm; however, according to Fish and Wildlife Impact Analysis (FWIA), the potential for adverse ecological effects on aquatic biota is minimal.

Media	Findings
Off-Site Sediment - Storm Water Drainage System	• PCBs were detected in 3 out of the 10 samples collected from the storm water drainage system at levels ranging from 0.68 ppm to 4.3 ppm.
On-Site Surface Water	• PCBs were detected in unfiltered samples ranging from 0.267 ppb to 0.315 ppb; PCBs were detected in 3 filtered samples ranging from 0.067 ppb to 0.074 ppb.
Off-Site Surface Water	• No detections of PCBs or mercury above the contract required quantitation limit.
Ground Water	• PCBs were not detected in the total and filtered ground-water samples collected from monitoring wells MW-1 through MW-4, MW-6, MW-7, and MW-9 through MW-11.
	• Target Analyte List (TAL) inorganic parameters were detected in the ground-water samples collected at monitoring wells MW-1 through MW-4, MW-6, MW-7, and MW-9 through MW-11.
	• The general ground-water flow direction in the overburden and bedrock is towards the quarry pond. The pumping at the quarry pond appears to influence the ground-water flow direction in both the overburden and the bedrock ground-water flow systems.
	• SVOC TICs were detected in all ground-water samples and ranged from a total of 3 ppb to 1,057 ppb.
Ground Water	• Separate-phase oil was observed on the top of the water table at the following monitoring well/corehole locations: MW-5, MW-8 (C-3), C-10, C-13, and C-14.
	• A void encountered at an approximate depth of 47.5 to 54.9 feet below ground level at corehole C-14 could be indicative of a ground-water conduit system that discharges at the quarry pond or at other locations southwest of the site in the Cobleskill Creek valley.
Ecological Risk Assessment	• Based on PCB results from nine sediment samples from Cobleskill Creek, the potential for adverse ecological effects on aquatic biota in Cobleskill Creek is minimal. Based on this assessment, further biological investigations are not warranted.
Assessment of Air Emissions	• Site perimeter air monitoring was not conducted during the Phase I RI activities because PCBs were not detected in the air monitoring samples collected during implementation of the Interim Remedial Measure (IRM). However, in accordance with the HASP, air monitoring was conducted for particulates and VOCs in the worker's breathing zone during Phase I RI activities.

Based on a review of the Phase I RI data, the following data gaps were identified and presented in the Phase I RI Report:

- The southwestern extent of the separate-phase oil present on the ground-water surface within the bedrock needs to be defined; and

- The potential presence of PCBs in the surface soils along specific sections of the northeastern site property line requires further investigation.

To address the aforementioned data gaps identified based on the evaluation of the Phase I RI data and the NYSDEC and NYSDOH comments presented in NYSDOL's February 16, 1994 letter, a Phase II RI will be conducted. Upon completion of the Phase II RI field activities and receipt of final validated analytical data, NMPC will conduct a baseline Human Health RA and a FS. The objectives of the Phase II RI, including a Human Health RA, and FS are discussed below.

1.3 Project Objectives

1.3.1 Phase II RI

The overall objective of the Phase II RI is to provide data that will address the Phase I RI data gaps presented in Subsection 1.2.2 and assist in determining the scope of future remedial activities which may be implemented at the site. Based on the overall objective, the following specific objectives have been established for the Phase II RI:

1. Evaluate the potential presence of PCBs in the surface soil along specific sections of the northeastern site property line;

2. Define the presence and extent of PCBs in the soil associated with the leach field located directly south of the concrete and metal building on the site (Figure 2);

3. Define the southwestern extent of separate phase oil present on the ground-water surface with
bedrock ground-water system;

4. Provide data for completion of the Human Health RA which will evaluate potential risks (if a
human health posed by the chemical constituents at the site; and

5. Provide data for preparation of a FS to determine appropriate remedial actions (if an
implementation at the site or at off-site locations.

1.3.2 Human Health RA

Specific objectives of the Human Health RA are to:

- Provide an analysis of baseline human health risks and help determine the need for remedial act
at the site;

- Provide a basis for determining the levels of chemicals that can remain on-site and still be ade
protective of public health;

- Provide a basis for comparing potential health impacts of various remedial alternatives; a

- Provide a consistent process for evaluating and documenting potential public health threat

1.3.3 Feasibility Study

The primary objective of the FS is to identify and evaluate remedial alternatives that ar
specific site conditions, protective of human health and the environment, and are con
Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

of the FS is to recommend appropriate remedial alternatives that cost-effectively satisfy the remedi objectives developed for the site.

1.4 Scope of Work Plan

The Work Plan is organized into the following sections:

Section	Purpose
Section 1.0 - Introduction	Provides background information on the site, as well as the objectives of the Phase II RI, Human Health RA and FS.
Section 2.0 - Work Plan Rationale	Establishes the specific data requirements to meet the Phase II RI objectives, describes how the data from the Phase II RI will be used, and the quality of data required.
Section 3.0 - Phase II Remedial Investigation	Describes the Phase II RI activities including performance of field investigations and evaluation of field data.
Section 4.0 - Human Health Risk Assessment	Describes the Human Health RA components, including data evaluation, exposure assessment, toxicity assessment, and risk characterization.
Section 5.0 - Remedial Investigation Report	Presents a description of the items to be included in the final RI report.
Section 6.0 - Feasibility Study	Describes the FS components, including the selection and screening of remedial alternatives an detailed evaluation of remedial alternatives.
Section 7.0 - Project Schedule	Provides a tentative schedule for completion of th Phase II RI, including a Human Health RA, and FS.

1.5 Consistency with CERCLA

This Work Plan is consistent with the elements of a RI/FS as set forth in CERCLA, as amended, 42 960 et seq., the National Contingency Plan (NCP), and the United States Environmental Protection

(USEPA) guidance document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA", dated October 1988.

2.1 Data Requirements and Approach

This section of the Work Plan presents the basis for the specific Phase II investigation activities which will be implemented to address the Phase II RI objectives. The data collection needs and planned approaches to obtaining the data are described below with regard to the Phase II RI objectives:

1. **Evaluate the potential presence and extent of PCBs in surface soil along specific sections of the northeastern site property.**

This objective will be addressed by collecting seven additional surface soil samples along the northeastern property line to determine if PCBs are present.

2. **Define the presence and extent of PCBs in the soil associated with the leach field located directly south of the concrete and metal building on the site.**

This objective will be addressed by collecting surface and subsurface soil samples from two locations in the leach field area and submitting the samples for analysis for PCBs.

3. **Determine the southwestern extent of separate-phase oil present on the ground-water surface within the bedrock ground-water system.**

This objective will be addressed by installing four soil boring/bedrock cores near the southwestern property line; collecting a ground-water sample for laboratory analysis from existing corehole C-12; and collecting a ground-water sample for laboratory analysis from the five residential wells adjacent to the site. If separate phase oil is not observed during and following the installation of a soil/bedrock core, then a ground-water

sample will be collected from that corehole for laboratory analysis for PCBs, Target Compound List (TCL), VOCs and SVOCs, TAL inorganics, and cyanide. If separate-phase oil is identified in any of the four soil boring/bedrock cores, then three additional off-site soil boring/bedrock cores will be installed on the west side of West Street. This objective will also be addressed by collecting a ground-water sample from existing corehole C-12 and from the five residential wells located adjacent to the site and submitting the samples for laboratory analysis for TCL VOCs and SVOCs, TAL inorganic parameters, cyanide, and PCBs. The ground-water sample collected from corehole C-12 will also be analyzed for volatile aromatic and unsaturated organic compounds using USEPA Method 503.1.

4. **Provide data for completion of a Human Health RA which will evaluate potential on-site and off-site risk (if any) posed by chemical constituents identified at the site.**

Following completion of the Phase II RI investigation activities, a Human Health RA will be prepared to evaluate potential risks to human health posed by the concentrations of constituents identified during the RI. The Human Health RA will be prepared based on the sampling results obtained from the samples collected at the site and at specific locations adjacent to the site. The RI data will be evaluated in conjunction with information on potential receptors, exposure points and exposure routes, and the potential toxicity of constituents identified during the RI.

5. **Provide data for preparation of a FS to determine appropriate remedial actions (if any) for implementation at the site or at off-site locations.**

This objective will be addressed by collecting the appropriate additional data necessary to facilitate and support the identification and evaluation of potential remedial alternatives to address the remedial objectives developed for the site and any off-site locations.

2.2 Data Quality Objectives

As described above, the Phase II RI activities will entail the collection and analysis of soil and ground-water samples. The Phase I RI Quality Assurance and Project Plan (QAPP) (April 1993) specifies the data quality and appropriate analytical procedures to achieve the desired Phase II RI data quality.

3.0 - Phase II Remedial Investigation

3.1 General

This section of the Work Plan presents a description of the activities that will be performed during the Phase II RI. The Phase II RI has been designed to generate the data needed to meet the objectives set forth in Section 1.3. The specific activities associated with the Phase II RI include a soil investigation and a ground-water investigation.

Field protocols which will be followed during completion of the soil and ground-water investigations are detailed in the Phase I RI Field Sampling Plan (FSP) (April 1993). Analytical procedures which will be followed for the samples collected as part of the Phase II RI are presented in the QAPP. As detailed in the QAPP, organic and inorganic samples collected for the Phase II investigation will be analyzed in accordance with the NYSDEC 1991 Analytical Services Protocols (ASP). Health and safety protocols which will be followed by field sampling personnel during completion of the Phase II RI tasks are presented in the Phase I RI Health and Safety Plan (HASP) (April 1993). The Phase II RI soil investigation and ground-water investigation are described in detail below.

3.2 Phase II RI Soil Investigation

The Phase II RI soil investigation will consist of the following two soil sampling programs which are described in detail below:

- Collection of surface soil samples along specific sections of the northeastern property line to evaluate the potential presence of PCBs; and

- Collection of surface and subsurface soil samples in the leach field area to assist in defining the presence and extent of PCBs in the soil associated with the leach field.

Along the northeastern property line, surface soil samples will be collected at 50-foot intervals beginning at the northeast corner of the property and ending near soil sample location S-27, where PCBs were detected during the Phase I RI at concentrations less than 1 part per million (ppm). This sampling design is consistent with the surface soil sampling performed along the northern property boundary (high school athletic field), which was approved by the NYSDEC/NYSDOL. A surface soil sample will be collected from seven locations (S-62 through S-68) along the northeastern property boundary (Figure 2). These surface soil samples will be collected from the 0-inch to 6-inch depth interval and submitted for laboratory analysis for PCBs.

To assist in defining the presence and extent of PCBs in the leach field area, surface and subsurface soil samples will be collected from two additional sampling locations for PCB analysis, as requested by the NYSDEC and the NYSDOL (February 16, 1994 letter to David M. Hehr, Esq). These two additional sampling locations (S-60 and S-61) will be located near existing sample locations S-56 and S-57, where PCBs were detected in the surface soil samples at 2.8 ppm and 1.6 ppm, respectively. The PCB analytical results for the subsurface soil sample collected from S-56 (18-inch and 30-inch depth interval) indicated a PCB concentration of 8.9 ppm. Figure 2 presents the location of S-60 and S-61. A surface soil sample (0 to 6 inches) will be collected from each of these locations and a soil boring will also be installed to facilitate the collection of subsurface soil samples. The soil borings will be installed to the top of bedrock (approximately 7 feet below ground surface) and continuously sampled with a split-spoon sampler. Two subsurface soil samples will be collected from both of the borings for PCB analysis. The subsurface soil samples will be collected from these borings from the 18-inch to 30-inch depth interval and from the 36-inch to 48-inch depth interval.

The surface and subsurface soil samples associated with the Phase II RI soil investigation, as described above, will be collected in accordance with the protocols presented in the Phase I RI FSP. QA/QC

measures that will be followed during the collection and analysis of the soil samples are set forth in the Phase I RI QAPP (April 1993). The soils samples will be submitted to Aquatec, Inc. (Aquatec) for PCB analysis using SW-846 Method 8080, as referenced in the NYSDEC 1991 ASP methods. The final analytical results will be validated by Dataval, Inc.

Upon completion of the Phase II RI soil sampling activities, the location and elevation of the soil sampling locations along the northeastern property line and in the leach field area will be surveyed.

3.3 Phase II RI Ground-Water Investigation

Based on the evaluation of the Phase I RI hydrogeologic and water quality data, as well as the objectives of the Phase II RI (Subsection 1.3.1), the Phase II RI ground-water investigation has been designed to generate data to assist in defining the southwestern extent of the separate phase oil present on the ground-water surface within the bedrock ground-water flow system. Data required to assist in this evaluation will be obtained by implementing the three Phase II ground-water subtasks described below.

3.3.1 Installation of Four On-Site Soil Boring/Bedrock Cores

This subtask will include the installation of four on-site soil boring/bedrock cores (C-15 through C-18) near the southwestern property line (Figure 2) to assess the southwestern extent of separate phase oil present on the ground-water surface within the bedrock ground-water system. During the installation of the soil boring/bedrock cores, the overburden materials will be continuously sampled using a 2-inch-diameter split-spoon sampler. The soil samples will be visually classified for color, texture, soil classification, and moisture content and screened with a photoionization detector (PID). Bedrock core samples will be obtained using NX coring equipment and the retrieved bedrock cores will be characterized for color, rock type, fractures, and degree of weathering.

These soil boring/bedrock cores will be installed approximately 10 feet into the water-bearing zone of the bedrock and will be completed as open-hole bedrock monitoring wells. Installation and completion of the soil boring/bedrock cores will be performed in accordance with the procedures described in the Phase I RI FSP.

Packer testing will be performed during the installation of the soil boring/bedrock cores to determine the hydraulic conductivity of the bedrock at various depths within each of the four new soil boring/bedrock cores. Packer testing will be conducted in accordance with the procedures presented in the Phase I RI FSP.

Upon completion of these four soil boring/bedrock coreholes as open-hole bedrock monitoring wells, they will be developed to remove fines from the well. Development will be performed by bailing or pumping water from the well until the turbidity is reduced to 50 nephelometric turbidity units (NTUs) or less. In the event the coreholes/monitoring wells cannot be developed to 50 NTUs, development will proceed until three consecutive measures of pH, conductivity, and temperature agree within 10 percent. Development water, and any water produced during coring, will be disposed of at an on-site location by allowing the water to infiltrate the ground surface. Soils and cuttings generated during installation of the soil boring/bedrock cores will be collected and containerized for future characterization and disposal. Detailed corehole/monitoring well development procedures to be followed during the Phase II RI are presented in Appendix I of the Phase I RI FSP.

The locations and elevations of the four coreholes/monitoring wells will be surveyed in the field and referenced to NGVD of 1929.

If separate phase oil is not observed during and following the installation of a bedrock corehole/monitoring well, then a ground-water sample will be collected from that bedrock corehole/monitoring well. The ground-water samples from the new bedrock corehole/monitoring wells will be collected at least two weeks after completion of development. Prior to sampling, each bedrock

corehole/monitoring well will be purged of three well volumes using dedicated bailers. The wells will be allowed to recover to approximately 90 percent of the static levels before sampling. Field parameters consisting of pH, conductivity, dissolved oxygen, and temperature will be measured at each well. When the ground-water samples are collected, the procedures and protocols to be followed during the collection of ground-water samples are presented in the Phase I RI FSP.

The ground-water samples collected from the coreholes/monitoring wells will be submitted for laboratory analysis for PCBs, TCL VOCs and SVOCs, TAL inorganic parameters, and cyanide. Both filtered and unfiltered samples will be submitted to Aquatec for PCBs and TAL inorganic parameter analyses. The analysis of the ground-water samples, as well as the validation of the final analytical data, will be conducted in accordance with the methods presented in the QAPP. If separate phase oil is identified in any of these four soil boring/bedrock cores, then three additional off-site soil boring/bedrock cores will be installed on the west side of West Street. Decisions regarding the location and installation of additional off-site soil boring/bedrock coreholes (if necessary) will be made by NMPC with NYSDEC/NYSDOL's concurrence.

Concurrent with the ground-water sampling event described above, ground-water levels will be measured at each monitoring well and corehole located on the site. These levels will be converted into ground-water elevations using the survey data and subsequently used to prepare a ground-water contour map for the site. Ground-water levels measures will be obtained in accordance with the procedures set forth in Appendix J of the Phase I RI FSP.

3.3.2 Collection of a Ground-Water Sample from Existing Corehole C-12

This Phase II RI ground-water investigation subtask will consist of the collection of a ground-water sample from existing corehole C-12 for laboratory analysis for PCBs, TCL VOCs and SVOCs, TAL inorganic parameters, and cyanide. The location of corehole C-12 is shown on Figure 2. Both filtered and unfiltered samples will be collected and submitted for PCBs and TAL inorganic parameters analyses. In

addition, this ground-water sample will also be analyzed for volatile aromatic and unsaturated organic compounds in accordance with USEPA Method 503.1. Sampling at this location for Method 503.1 was requested by the NYSDOL in a November 3, 1993 letter to David M. Hehr, Esq., as part of the NYSDEC's Spill Investigation (File No. 9305846). The ground-water sample from corehole C-12 will be collected and analyzed in accordance with the procedures and protocols set forth in the Phase I RI FSP and QAPP (April 1993). Because Method 503.1 was not specifically addressed in the Phase I RI QAPP, Table 1 identifies the constituents that will be analyzed by this method. In accordance with the procedures and protocols for Method 503.1, the water reporting limits for each constituent identified in Table 1 will be less than 0.5 ppb. The Quality Control (QC) for Method 503.1 are presented below:

- The precision of the data obtained by Method 503.1 will be measured by calculation of the relative percent difference (RPD) and an RPD equal to 20 will be the precision objective for duplicate analysis; and

- The accuracy of the data will be calculated in terms of percent recovery and a percent recovery within the 80 to 120 percent range will be the accuracy objective for matrix spike recoveries.

The procedures to be utilized when assessing the data precision and accuracy are presented in the Phase I RI QAPP (April 1993).

The final analytical data will be validated by Dataval, Inc.

3.3.3 Collection of a Ground-Water Sample from Five Residential Wells

This subtask will consist of the collection of a ground-water sample from the five residential wells adjacent to the site. A representative from the Schoharie County Health Department will be on-site during the collection of ground-water samples from the five residential wells. These ground-water samples will be submitted to Aquatec for PCBs, TCL VOCs and SVOCs, TAL inorganic parameters, and cyanide

laboratory analyses. Both filtered and unfiltered samples will be collected and submitted for PCBs and TAL inorganic parameters analyses. The ground-water samples will be collected and analyzed in accordance with the protocols presented in the Phase I RI FSP and QAPP (April 1993). The final analytical data will be validated by Dataval, Inc.

4.1 Risk Assessment

Upon completion of the Phase II RI field investigation and receipt of final, validated analytical data, a Human Health RA will be performed to characterize potential risks to human health associated with exposure to PCBs and other identified target constituents at the Wallace site. Based on the results of the Fish and Wildlife Impact Assessment provided in the Phase I RI Report (January 1994), no additional ecological RA activities are required. Provided below is a description of the tasks associated with conducting a Human Health RA and an outline of the RA components.

4.1.1 Human Health RA

The Human Health RA will be prepared in accordance with USEPA guidance for conducting risk assessments. The components of the Human Health RA will be as follows:

1. Data Evaluation;
2. Exposure Assessment;
3. Toxicity Assessment; and
4. Risk Characterization.

4.1.1.1 Data Evaluation

This portion of the RA will address the levels of chemicals detected at the site, the environmental media in which the chemicals were detected, and the locations where chemicals were found. Based on this information, the chemicals of interest at the site will be determined for each medium of interest. Chemicals of interest will be identified based on either: 1) presence in environmental media at

detectable concentrations (organics); or 2) presence in media that are considered potentially impacted by the site at concentrations greater than background (inorganics).

The RA will be based on the analytical data and information obtained during both phases of the RI.

4.1.1.2 Exposure Assessment

This portion of RA will characterize exposure setting, identify complete exposure pathways, and quantify exposure.

A summary of information regarding exposure setting (e.g., site history, location, water use) and environmental fate and transport will be provided in this section. If appropriate, reference will be made to those sections of the Phase I Report (January 1994) and Phase II RI Report which provide detailed discussions of these topics.

Complete pathways of exposure will be identified. A pathway will be considered complete if there is: (a) a known source or release from a source; (b) there is an exposure point where human contact can occur; and (c) there is a feasible route of exposure (i.e., oral, dermal, or inhalation) at the exposure point. Both current and hypothetical future pathways will be identified. Hypothetical future pathways will be determined based upon chemical migration potential and foreseeable future land use considerations. Based on current information, exposure via the following pathways are likely to be quantified in the RA:

- Incidental ingestion of surface soils;
- Incidental ingestion of surface water; and
- Dust inhalation.

Quantification of human exposure will proceed by establishing exposure point concentrations and associated chemical intake by humans. The exposure point concentration will be determined from available analytical data. The information on exposure point concentrations will be combined with assumptions about patterns of human exposure, to estimate intakes for each chemical of interest and associated exposure pathway. USEPA guidance as well as site-specific information will be used to develop exposure assumptions.

4.1.1.3 Toxicity Assessment

Adverse health effects will be classified in either of two categories: 1) carcinogenic effects; and 2) non-carcinogenic effects. The toxicity assessment will describe and define the available carcinogenic and non-carcinogenic toxicity information. A summary of the available toxicity criteria for the chemicals of interest will be provided. Summary information will consist of: (1) chemical name; (2) route of exposure/USEPA Human Health Assessment Group Classification (carcinogens only); (3) route-specific toxicity criterion; (4) tumor site(s) (carcinogens) or critical endpoint (non-carcinogens) for each route of exposure; and (5) source of each criterion (e.g., Integrated Risk Information System (IRIS), Health Effects Assessment Summary Table).

4.1.1.4 Risk Characterization

The risk characterization portion of the Human Health RA will integrate the results of the data evaluation, exposure assessment, and toxicity assessment portions of the RA to provide a quantitative evaluation of potential human health risks associated with the site. The potential risks associated with the chemical intakes estimated in the exposure assessment will be calculated using the critical toxicity values presented in the toxicity assessment. Risks will be quantified only for those chemicals of interest which are; 1) associated with complete pathways of exposure; and 2) have appropriate toxicity criteria.

The risk characterization section will separately address carcinogenic and non-carcinogenic effects. The potential carcinogenic risks for each chemical, receptor, and exposure route will be presented and summarized in this portion of the report. A discussion of USEPA's position on the additivity of excess cancer risks will be provided, and the total excess cancer risk for each receptor will be compared to a target risk range (i.e., 10^{-4} to 10^{-6}). For those receptors whose total risks are within or exceed the target risk range, a discussion of chemicals and pathways which are primary contributors of excess risk will be provided.

Non-cancer health risks will be assessed based on hazard indices which will be derived as a ratio of estimated chemical intake and the non-cancer toxicity value. An explanation of the hazard index approach will be provided. The potential hazard indices for each chemical, receptor, and exposure route will be presented and summarized. Total hazard indices for each receptor will be compared a target hazard index of 1. For those receptor whose hazard index values exceed 1, a discussion of chemicals and pathways which are primary contributors of excess risk will be provided.

An uncertainty analysis will be provided as part of the risk characterization. Those uncertainties which are inherent to the risk assessment process will be discussed, along with those uncertainties which are specific to this RA. Key site-specific uncertainty factors will be identified. The uncertainty analysis will be qualitative.

Upon completion of the Human Health RA, an RI Report will be prepared that will present a summary of the information obtained during both phases of the RI, including the Human Health RA. The final RI Report will be consistent with the elements of an RI as set forth in CERCLA, the NCP, and the USEPA guidance document entitled, "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," dated October 1988. The RI Report will include, but not be limited to, the following items:

- The information and data presented in the Phase I RI Report (April 1993);
- A general description of the field activities conducted during implementation of the Phase II RI and any changes or modifications that were made;
- Boring logs and construction details for the four additional soil boring/bedrock cores;
- Analytical results for the soil and ground-water investigation activities associated with the Phase II RI. These results will be presented in tabular form and on figures; and
- The results of the Human Health RA, including data assessment, exposure assessment, toxicity assessment, and risk characterization.

6.1 General

Following approval of the RI by the NYSDEC/NYSDOL, a FS will be prepared to identify and screen potential alternatives for any remedial activities which are deemed to be necessary based on the results of the RI and RA. The FS will be developed in accordance with USEPA document "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," October 1988, and in accordance with applicable provisions of the NCP. The initial step of the FS will be to establish remedial action objectives (RAOs) for the site and any off-site locations, if necessary. These objectives will be developed based on the results of the RI and RA and will be used in the initial and detailed evaluation of remedial alternatives as a basis for determining the anticipated effectiveness of each alternative.

The proposed RAOs for the site will be presented in a letter report and submitted to the NYSDEC/NYSDOL for approval. The selection and screening of remedial alternatives will be initiated upon approval of the RAOs for the site.

6.2 Selection and Screening of Remedial Alternatives

Potential remedial alternatives will be identified based on a review of available literature including appropriate NYSDEC and USEPA documents to identify potential remedial technologies for addressing chemical constituents in media at the site and at specific off-site locations, if required, based on the RAOs established for the site. The list of potential remedial technologies for the site will undergo a preliminary screening to retain technologies for further evaluation based on their effectiveness and implementability. The retained technologies will be combined to form medium-specific or site-wide alternatives which will then undergo a detailed analysis consisting of an assessment of the remedial alternatives against a set of evaluation criteria. The results of the detailed analysis of remedial alternatives will be used to aid in the

recommendation of the appropriate alternative(s) for implementation. A description of the preliminary screening activities and the evaluation criteria to be used in the detailed analysis of potential feasible remedial alternatives is presented below.

Preliminary Screening

This portion of the FS will include a brief technical description of the identified remedial technologies. The technologies to be considered will depend on the type of media (soil, sediment, surface water, ground water) in which the chemicals of concern need to be remediated and/or controlled. Each technology will then be screened, and eliminated, or retained, for further evaluation based on the following criteria:

Effectiveness

This screening criteria refers to the ability of the remedial technology to reduce contaminant toxicity, mobility, or volume, and the ability to provide protection of human health and the environment.

Implementability

This screening criteria refers to the ability to construct and reliably operate the remedial technology (technical feasibility) until the remedial action is complete.

The reason for excluding the technology or retaining it for further evaluation (screening conclusion) will be presented for each remedial technology.

6.3 Detailed Evaluation of Remedial Alternatives

Those technologies which were retained from the initial screening will be combined into either medium-specific or site-wide alternatives and subjected to a detailed evaluation consisting of an assessment of the remedial alternatives against a set of evaluation criteria. The evaluation criteria, which are consistent with the NCP, are as follows:

- Short-term effectiveness;
- Long-term effectiveness and permanence;
- Reduction of contaminant toxicity, mobility or volume through treatment;
- Implementability;
- Compliance with legally-applicable, or relevant and appropriate requirements (ARARs);
- Overall protection of human health and the environment; and
- Cost.

The information developed and presented in the detailed analysis of remedial alternatives will be used to recommend the appropriate remedial alternative(s) for use at the site or at specific off-site locations, if required.

The detailed analysis of each alternative will also include a technical description of the alternative including an outline of the proposed waste management strategy and associated ARARs, and a discussion of the anticipated performance of the alternative with respect to each of the evaluation criteria.

6.4 Feasibility Study Report

Upon completion of the detailed evaluation, a FS report will be prepared which will present a summary of the information developed during the FS, including all supporting data and calculations. The results of the

detailed evaluation of remedial alternatives will be used to recommend an alternative(s) for implementation at the site or at specific off-site locations, if any.

7.0 - Project Schedule

This section provides a tentative schedule for completion of the RI/FS work tasks for the M. Wallace and Son, Inc. Scrapyard site. Upon NYSDEC/NYSDOL approval of this Phase II RI Work Plan, a detailed project schedule will be developed for NYSDEC/NYSDOL review and approval. This schedule will set forth project milestones for the initiation and completion of the RI/FS activities identified in the NYSDEC/NYSDOL-approved Phase II RI Work Plan, and will be developed in accordance with the requirements of the Consent Order (Case No. 85-CV-219). The project schedule will set forth the following major milestones:

- The Phase II RI field investigation will be initiated upon NYSDEC/NYSDOL approval of the project schedule;

- The Human Health RA will be performed upon completion of the Phase II RI field investigation and receipt of final validated analytical data; and

- The FS will be prepared following approval of the RI by the NYSDEC/NYSDOL.

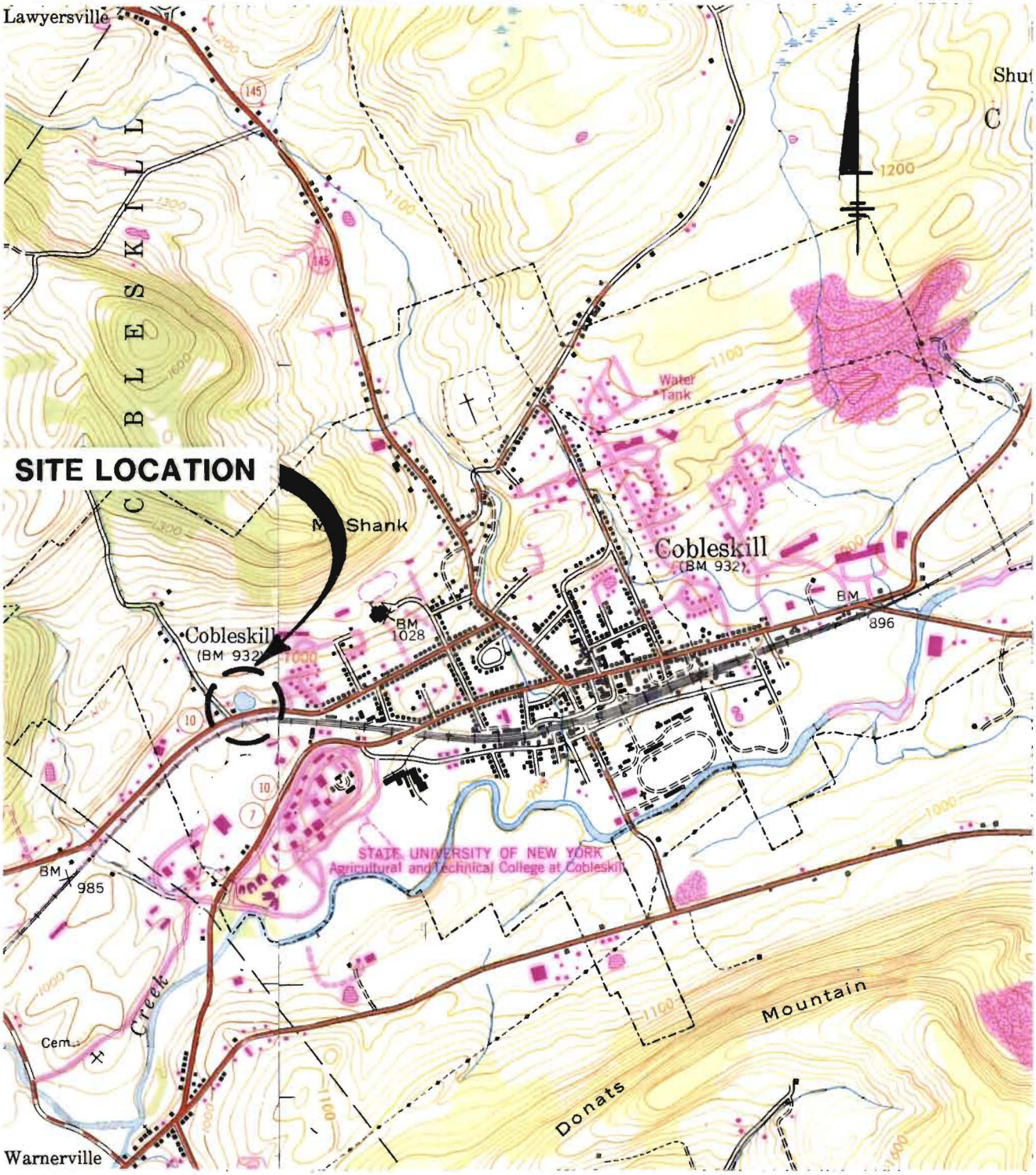
TABLE 1

NIAGARA MOHAWK POWER CORPORATION
M. WALLACE AND SON, INC. SCRAPYARD
COBLESKILL, NEW YORK

PHASE II RI GROUND-WATER INVESTIGATION

USEPA METHOD 503.1 CONSTITUENTS

Constituent
Benzene
Bromobenzene
n-butylbenzene
sec-butylbenzene
tert-butylbenzene
Chlorobenzene
2-chlorotoluene
4-chlorotoluene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
Ethylbenzene
Hexachlorobutadiene
Isopropylbenzene
4-isopropyltoluene
Napthalene
n-propylbenzene
Styrene
Tetrachloroethene
Toluene
1,2,3-trichlorobenzene
1,2,4-trichlorobenzene
Trichloroethene
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
o-xylene
m&p-xylene



REFERENCE: USGS COBLESKILL, RICHMONDVILLE N.Y. QUADS.

2000' 0 2000'

APPROX. SCALE: 1" = 2000'

QUADRANGLE LOCATION

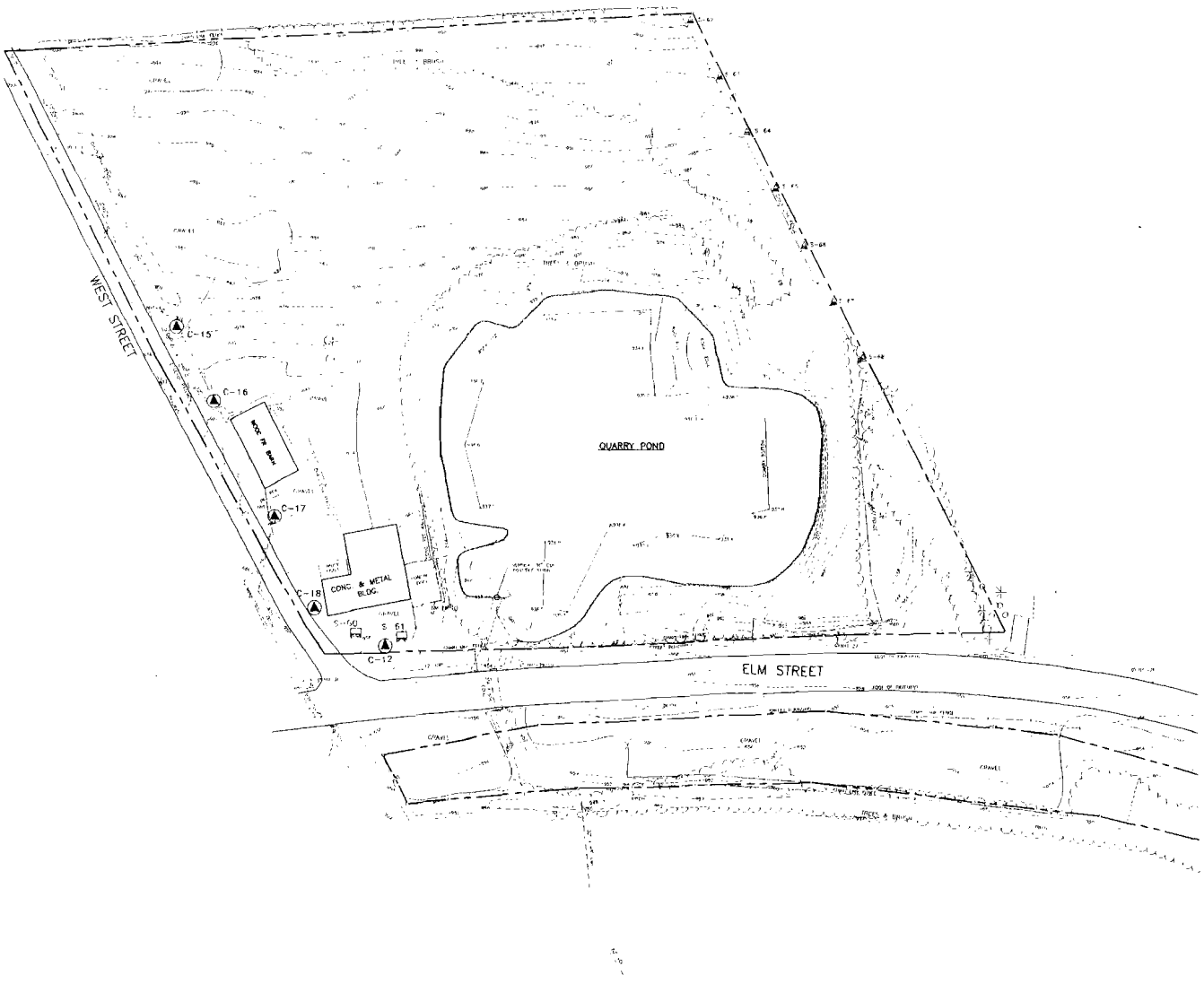
MARCH 1994
364.17.30

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

NIAGARA MOHAWK POWER CORPORATION
M. WALLACE & SON INC. SCRAPYARD
COBLESKILL, NEW YORK
PHASE II REMEDIAL
INVESTIGATION WORK PLAN

LOCATION MAP

FIGURE
1



LEGEND:

- PROPOSED SURFACE AND SUBSURFACE SOIL LOCATION
- PROPOSED COREHOLE LOCATION
- PROPOSED SURFACE SOIL LOCATION
- FOR. ATB REF
- UTILITY POLE
- PROPERTY LINE
- LIMIT OF QUARRY POND
- EXIT

GENERAL NOTES:

1. ELEVATIONS BASED ON DATUM OF GEODETIC VERTICAL DATUM OF 1929
2. CONTOUR INTERVAL ... FT
3. LOCATION OF UNDERGROUND UTILITIES AND OTHER PREEXISTING STRUCTURES LOCATED BY FIELD MEASUREMENTS WHERE POSSIBLE, OTHERWISE OBTAINED FROM OTHER SOURCES AND MAY BE APPROXIMATE. OTHER UNDERGROUND UTILITIES AND TANK PITS MAY EXIST, THE LOCATIONS OF WHICH ARE NOT KNOWN OR SHOWN
4. PROPERTY BOUNDARY LOCATED IN THE FIELD BY ROBERT PARTY GROUP P.C., ALBANY, N.Y.
5. SITE SURVEY CONDUCTED BY BLASLAND & BOUCK ENGINEERS, P.C. SEPTEMBER 1993

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

NIAGARA MOHAWK POWER CORPORATION
M. WALLACE & SON, INC. SCRAPYARD
COBLESKILL, NEW YORK
PHASE II REMEDIAL INVESTIGATION
WORK PLAN

PROPOSED PHASE II REMEDIAL INVESTIGATION ACTIVITIES

FIGURE
2