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C[illegible] 6/4/97

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DEC comments 6/19/97

It is assumed that the groundwater is recharged
through the thin cover of soil to the weathered,
deeper bedrock through the widely-spaced verti
suggest that the weathered, fracture zone of the
depth to bedrock is so shallow, it is likely that t
utilities and building foundations which may ha
pronounced effect on the degree of groundwater

Figure 3 depicts the groundwater contours meas
storage tank had been removed, and more than a
was put into operation. As indicated in Figure 3
north and northeast towards Slate Bottom Creek
location there were also components of groundw
as will be discussed later in this document, the d
tank location, at monitoring well MW-4, was a
located further from the tank. With the groundw
that the groundwater mound at the tank location
March 1997 groundwater elevations, the horizo
and northeast from monitoring wells MW-6 and
year respectively.

4.1.2 Nature of Contamination:

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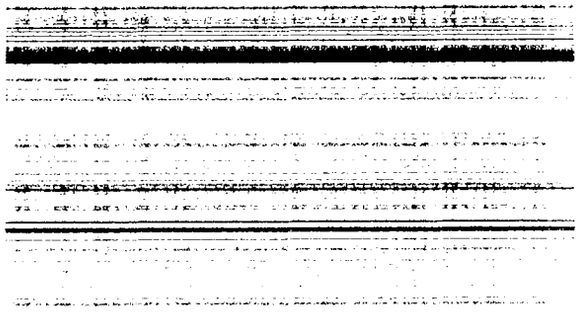

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CONFIRMATORY SAMPLING PLAN

Building Decontamination and
Soil Remediation
318 Urban Street Site
Buffalo, New York

Prepared for:

General Electric Company
One River Road
Schenectady, New York

June 4, 1997
28171-649-152

CONFIRMATORY SAMPLING PLAN

Building Decontamination and Soil Remediation
318 Urban Street Site
Buffalo, New York

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CONFIRMATORY SAMPLING PLAN

Building Decontamination and Soil Remediation
318 Urban Street Site
Buffalo, New York

1.0 INTRODUCTION

This Confirmatory Sampling Plan presents the procedures and methods that will be used to collect and analyze wipe and soil samples to verify attainment of remedial goals associated with the building decontamination and soil remediation program for the General Electric Company's (GE's) former apparatus service facility located at 318 Urban Street in Buffalo, New York. The building decontamination and soil remediation program is being completed by GE in accordance with the New York State Department of Environmental Conservation (NYSDEC) approved *Remedial Design/Remedial Action Workplan, 318 Urban Street, Buffalo, New York, DEC Site #915151*, September 20, 1995 *(RD/RA Workplan)* and *Project Manual, Building Decontamination and Soil Remediation, 318 Urban Street, Buffalo, New York 14211*, March 15, 1997 (*Project Manual*), prepared by ERM-Northeast, Inc.

The building decontamination and soil remediation program focuses on polychlorinated biphenyl (PCB) contaminated equipment, building components, and soil. Building components including walls, windows, ceiling, floor, and equipment in the building will be decontaminated by cleaning to remove residual PCB contamination. Soil outside the building will be excavated and transported off-site for disposal. Additionally, a fuel oil underground storage tank (UST) located to the southwest of the building will be removed during remedial activities. Confirmatory wipe samples, soil samples, and chip samples from concrete surfaces will be collected during remedial activities to verify the attainment of remedial goals. Confirmation samples will be field screened for PCBs using immunoassay test kits and, also, a percentage of the samples will be submitted for laboratory analysis to verify field screening results.

This Sampling Plan contains six sections. Section 2.0 - Confirmatory Sampling Program summarizes the remedial goals for site soil and for decontamination of the building, as well as the location and frequency at which confirmatory samples will be collected during the remedial activities. Section 3.0 - Sample Collection and Analytical Procedures discusses the field methods and procedures that will be used for the collection and analysis of wipe and soil samples at the site. The procedures and documents that will be used to track and record collected samples is presented in Section 4.0 - Documentation and Records.

2.0 CONFIRMATORY SAMPLING PROGRAM

This section presents the remedial goals for the site and the methods and procedures that will be used to collect confirmatory samples to verify attainment of remedial goals for the building decontamination, including ancillary equipment in the building, and the soil remediation program.

2.1 REMEDIAL GOALS

The following remedial goals, as presented in the *RD/RA Workplan* and *Project Manual*, have been established for the site remediation program:

Media	Remedial Goal
• Impervious non-porous surfaces, including machinery and equipment, windows, painted walls, and ceiling, and the Johnson Heater Unit	10 ug/100 cm^2 PCBs
• Impervious porous surfaces, including concrete floors, and the walls and floor of the transformer pit	10 ug/100 cm^2 PCBs 50 mg/kg PCBs (from concrete chip samples) 100 ug/100 cm^2 PCBs and encapsulation
• Soil from 0 to 1 foot in depth	1 mg/kg PCBs
• Soil at depths greater than 1 foot	10 mg/kg PCBs
• Soil along the foundation of the building that exceeds 10 mg/kg PCBs will be covered with an HDPE barrier and the area backfilled with clean soil.	
• Soil near fuel oil UST	NYSDEC STARS Memo #1 guidance levels

2.2 SAMPLING LOCATIONS AND FREQUENCY

The following subsections outline the locations and frequency at which confirmatory wipe and soil samples will be collected for each main area undergoing decontamination or remediation, including machinery and equipment; building interior walls, ceiling, windows, floor, and transformer pit; and, soil excavation areas.

Machinery and Equipment

Following the cleaning of each major piece of equipment and machinery located in the building, wipe samples will be collected and analyzed using immunoassay field screening and laboratory analysis for PCBs. Confirmatory wipe samples will be collected from cleaned equipment as follows:

Step 1) Following the initial equipment cleaning - wipe sample(s) will be collected for field screening analysis.

- If field screening results meet remedial goals, the equipment will be released for off-site transport.
- If not, proceed to step 2.

Step 2) Re-clean the equipment and collect wipe sample(s) for field screening analysis.

- If field screening results for the re-cleaning meet remedial goals, the equipment will be released for off-site transport.
- If not, proceed to step 3.

Step 3) Re-sample the equipment and submit wipe sample(s) for laboratory analysis.

- If laboratory results meet remedial goals, the equipment will be released for off-site transport.
- If not, re-clean the equipment and repeat Step 3. Step 3 will be repeated until the wipe sampling laboratory results meet remedial goals.

The number of confirmatory samples collected from each piece of equipment or machine will be based on the following criteria:

• If the machine is less than 100 ft^3 in size	1 wipe sample per machine
• If the machine is greater than 100 ft^3, but less than 500 ft^3 in size	2 wipe samples per machine
• If the machine is greater than 500 ft^3 in size	3 wipe samples per machine

For equipment and parts smaller than 100 ft^3 that are in boxes or stored in small groups in the building, a wipe sample will be collected from one, randomly selected, piece of equipment contained in a box or grouping for field screening analysis.

Ceiling

The ceiling of the building covers an area of approximately 21,600 ft^2 (120 feet wide by 180 feet long). The ceiling area will be divided into a grid and wipe samples will be collected on approximate 60 foot centers. Following the initial cleaning of the ceiling, a total of 6 wipe samples will be collected from the ceiling area for field screening analysis. If the results of the field screening analysis do not meet remedial goals, the area(s) represented by the wipe sample(s) not meeting the remedial goals will be re-cleaned and re-sampled for field screening analysis. The sequence of re-cleaning and re-sampling will be repeated until the results of the wipe sampling meet the remedial goals.

Walls

The north and south exterior walls of the building are approximately 180 feet long by 30 feet high. The east and west exterior walls are approximately 120 feet long by 30 feet high. All four wall are divided by large (15 feet wide by 20 feet high) "full height" windows or smaller (15 feet wide by 10 feet high) "half height" windows.

Confirmatory samples from the wall areas, will be collected at the following locations and frequency:

- The north and south walls will be divided, from floor to ceiling, into three vertical sections, each approximately 60 feet in width.

  For each vertical wall section, 2 wipe samples will be collected at random locations for field screening analysis. A total of 12 wipe samples will be collected from the north and south walls for field screening analysis.

- The east and west walls will be divided, from floor to ceiling, into two vertical sections, each approximately 60 feet in width.

  For each section, 2 wipe samples will be collected at random locations for field screening analysis. A total of 8 wipe samples will be collected from the east and west walls for field screening analysis.

If the results of the field screening analysis do not meet remedial goals, the wall section(s) represented by the wipe sample(s) not meeting the remedial goals will be re-cleaned and re-sampled for field

screening analysis. The sequence of re-cleaning and re-sampling will be repeated until the results of the wipe sampling meet the remedial goals.

Windows

Each of the four exterior walls of the building are divided by large, full-height (approximately 15 feet wide by 20 feet high) or half-height (approximately 15 feet wide by 10 feet high) window units. The number of windows on each wall is:

- North Wall - 8 full-height
  1 half-height
- South Wall - 7 full-height
  1 half-height
- East Wall - 4 full-height
  2 half-height
- West Wall - 5 full-height

Additionally, the building includes two rows of ceiling skylight windows (approximately 5 foot high) that run the length of the building.

Confirmatory samples from the windows will be collected at the following locations and frequency:

- For windows on the north and south walls, 4 wipe samples will be collected at random locations from each wall of windows for field screening analysis. A total of 8 wipe samples will be collected from the windows on the north and south walls for field screening analysis.
- For windows on the east and west walls, 3 wipe samples will be collected at random locations from each wall of windows for field screening analysis. A total of 6 wipe samples will be collected from the windows on the east and west walls for field screening analysis.
- For the two rows of skylight roof windows, 3 wipe samples will be collected at random locations from each row of windows for field screening analysis. A total of 6 wipe samples will be collected from the roof windows for field screening analysis.

If the results of the field screening analysis do not meet remedial goals, the window unit(s) represented by the wipe sample(s) not meeting the remedial goals will be re-cleaned and re-sampled for field screening analysis. The sequence of re-cleaning and re-sampling will be repeated until the results of the wipe sampling meet the remedial goals.

Floor

The floor area of the building covers approximately 21,600 ft^2 (120 feet wide by 180 feet long). The floor area will be divided into a grid and wipe samples will be collected on approximate 40 to 45 foot centers. The initial wipe samples will be collected following the removal of the wood block flooring and cleaning of the concrete floor. A total of 12 wipe samples will be collected from the floor area for field screening analysis.

At 3 of the 12 wipe sample locations (20 percent of the collected wipe samples), chip samples from the concrete surface will be collected for laboratory analysis of PCBs (EPA Method 8080). If the field screening results do not meet the remedial goals or the chip sample laboratory results do not meet the remedial goal of 50 mg PCBs/kg, additional cleaning of the floor may be required. However, if the wipe samples meet the remedial goal of 100 ug/100 cm^2, the floor area will be released for encapsulation by the new concrete floor that will be installed over the area.

Transformer Pit

Following the initial cleaning of the interior walls and floor of the transformer pit, wipe samples will be collected for field screening analysis. One wipe sample will be collected at random locations from each of the side walls and the floor of the pit. A total of 5 wipe samples will be collected from the transformer pit for field screening analysis.

At 1 of the 5 wipe sampling locations (20 percent of the collected wipe samples), chip samples from the concrete surface will be collected for laboratory analysis of PCBs (EPA Method 8080). If the field screening results do not meet the remedial goals or the chip sample laboratory results do not meet the remedial goal of 50 mg PCBs/kg, additional cleaning of the transformer pit walls and floor may be required. However, if the wipe samples meet the remedial goal of 100 ug/100 cm^2, the transformer pit will be released for encapsulation by filling with gravel and covering with the new concrete floor.

Johnson Heater Unit

The Johnson Heater Unit will be dismantled and the parts decontaminated in a similar process to the decontamination of other equipment and machinery in the building. At a minimum, 6 wipe samples will be collected from the components of the Johnson Heater Unit for field screening analysis.

An evaluation process for sampling results similar to that used for the other equipment and machinery will be applied to the Johnson Heater Unit. If the field screening results do not meet remedial goals after the first cleaning, the equipment will be re-cleaned and re-sampled for field screening analysis. If the second field screening results do not meet remedial goals, the equipment will be re-sampled and the wipe sample(s) submitted for laboratory analysis. If the laboratory results meet release criteria the equipment will be released for re-assembly.

Soil Excavations

Following completion of the excavation of areas to remove PCB contamination to the specified depths, a representative sample of the soil will be collected for field screening analysis. The base of the excavation areas will be divided into a grid and soil samples will be collected on approximate 40 foot centers. For excavations greater than 1 foot deep, 1 soil sample will also be collected from every 50 linear feet of sidewall of the excavation. It is estimated that a total of 45 soil samples will be collected from the excavated areas for field screening analysis.

Fuel Oil UST Excavation

For removal of the fuel oil UST, confirmatory soil samples will be collected and submitted for laboratory analysis of NYSDEC STARS Memo #1 list volatile organic compounds (VOCs) (EPA Method 8260) and semivolatile organic compounds (SVOCs) (EPA Method 8270). Composite samples from each side wall and one from the base of the excavation (total 5 samples) will be collected and submitted for laboratory analysis. Field screening analysis for PCBs will also be completed on the collected soil samples.

3.0 SAMPLE COLLECTION AND ANALYTICAL PROCEDURES

This section presents the general sampling methods and analytical protocols that will be used to collect confirmatory wipe and soil samples at the site.

Field screening analysis of wipe and soil samples for PCBs will be completed using on-site immunoassay test kits manufactured by Millipore, Inc. Laboratory analysis of wipe and soil samples for PCBs (EPA Method 8080) and soil samples from the fuel oil UST excavation for NYSDEC STARS Memo #1 list VOCs and SVOCs will be completed by Columbia Analytical Services, Inc. of Rochester, New York, a New York State Department of Health (NYSDOH), Environmental Laboratory Approval Program (ELAP) certified laboratory.

To verify the results of the PCB field screening analysis for wipe and soil samples, duplicate samples will be collected from approximately 10 percent of the sampling locations for laboratory analysis. The duplicate samples will be submitted for laboratory analysis of PCBs (EPA Method 8080).

3.1 WIPE SAMPLES

Wipe samples will be collected from decontaminated equipment and machinery, the ceiling, walls, and floor of the building, the Johnson Heater unit, and the walls and floor of the transformer pit. Wipe samples will be collected by framing surfaces to be sampled by a 100 cm^2 (10 cm by 10 cm) template and systematically wiping the area using a solvent (hexane) moistened pad. The template area will be wiped twice, once in a vertical direction and once in horizontal direction, over the entire area to be sampled. Duplicate wipe samples collected for laboratory or field screening analysis will be collected immediately adjacent to the "original" sampling location. The sampling pad will be placed in a precleaned, laboratory or immunoassay test kit manufacturer supplied sample bottle, the bottle capped, labeled and placed in a cooler. Sample collection data will be entered into the field log book or sample description form, and on a chain of custody form. This sampling procedure will be used for the collection of wipe samples submitted for both laboratory analysis and field screening analysis.

Because of potential interferences of hexane with the immunoassay test kits, wipe samples requiring field screening analysis will require that the hexane be allowed to evaporate prior to extraction of the wipe sample with methanol for immunoassay testing. Substitution of hexane for methanol in the collection of the field screening wipe samples was required to maintain consistency with the methods used for the collection of samples for laboratory analysis and additionally, because methanol was believed to be removing paint from the surface of equipment that may be an interferant to the immunoassay test, resulting in false positive results. The use of this procedure has been discussed with Millipore, Inc., the manufacturer of the immunoassay test kits, and they have stated that this is an acceptable procedure and would provide reliable results from the field screening analysis.

3.2 SOIL SAMPLES

Soil samples will be collected following completion of excavations to specified depths and from the fuel oil UST excavation. Soil samples from the surface, wall, or base of an excavation will be collected from 0 to 6 inches in depth or into the side wall of the excavation. The samples will be collected using a precleaned stainless steel trowel, scoop, or spatula and will be placed directly into precleaned bottles provided by the laboratory or immunoassay test kit manufacturer. The sample bottle will be capped, labeled, and placed in a cooler for transport. Sample collection data will be entered into the field log book or sample description form, and on a chain of custody form. This sampling procedure will be used for the collection of soil samples for both laboratory analysis and field screening analysis.

4.0 DOCUMENTATION AND RECORDS

Documentation of the confirmatory sampling program will be completed throughout the building decontamination and soil excavation activities using the following written records:

- Sample Identification and Labeling
- Field Log Book
- Sample Description Forms
- Chain of Custody Forms
- Site Sampling Log

These records are discussed in the following sections.

4.1 SAMPLE IDENTIFICATION AND LABELING

Each sample will be assigned a unique sample identification number and labeled accordingly when collected. The sample identification number will contain information on the site and which sampling point the sample represents. The unique sample number will be used to identify the sample on all sampling records and laboratory results.

Each sample will be identified on a sample description form and on the sample container label. The sample label will include:

- Date and time
- Sample identification number
- Project number
- Sampler name
- Sample location (and depth, if applicable)
- Matrix type
- Preservation

4.2 FIELD LOG BOOK

A field log book will be maintained to provide a daily record of events. The log book will be bound and entries will be made in ink. Entries will include, but are not limited to:

The cover page of each log book:

- Site Name and project number
- Person and organization to whom the book is assigned
- Date start and end

Subsequent pages:

- Detailed description of site activities, sampling efforts, on-site meetings, and any problems encountered along with the duration of activities
- Documentation of personnel monitoring results
- List of personal protection used and decontamination procedures
- Other pertinent daily activities

4.3 SAMPLE DESCRIPTION FORMS

Special care will be taken in the description and documentation of sampling procedures. Sampling information that will be documented on sampling description forms or field notebook, or both include:

- Site identification
- Location of sampling points
- Description of sampling points
- References to photographs (if applicable) and brief sketch of sampling points
- Sample identification number
- Number of sample taken
- Time of sample collection
- Reference to sample location map
- Number of QA/QC samples taken
- Collectors' names
- Field observations (weather, temperature, wind direction, personnel on-site, oversight personnel)
- Sample distribution (e.g., QA laboratory, split samples)
- All field measurements made (e.g., pH, temperature, specific conductance)

The sample description forms will be maintained in the project file. These forms will also be used to track field screening analysis results and receipt of laboratory results.

4.4 CHAIN OF CUSTODY FORMS

Chain of custody forms will be completed and accompany the samples from the time of collection to receipt of analytical result reports. These forms will contain the following information:

- Project site
- Sample identification number
- Date and time of sample collection
- Location of sample site

- Sample matrix
- Signature of sample collector
- signature of those who relinquish and those who receive the samples, and the date and time the samples changed possession

4.5 SITE SAMPLING LOG

For the building decontamination and soil remediation project, a site sample log will be used to record and track all samples collected from the site, whether field analyzed or submitted to the laboratory for analysis. Each sample will be recorded on the form with a unique, sequential sample log number. The following sample information will be recorded on the form for each sample:

- Sample log number
- Sample identification number
- Sample matrix
- Field or laboratory analysis
- Duplicate sample
- Laboratory results report date
- Comments regarding sample