59163

WORK PLAN
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
HUNTERSTOWN ROAD SITE
STRABAN TOWNSHIP
ADAMS COUNTY, PENNSYLVANIA

PROJECT NO. 87-376
FEBRUARY 11, 1988

PAUL C. RIZZO ASSOCIATES, INC.
10 DUFF ROAD, SUITE 300
PITTSBURGH, PENNSYLVANIA 15235
PHONE: (412) 242-7900
TELEX: 882225 RIZZO ASSOC

TABLE OF CONTENTS

TABLE OF CONTENTS
(Continued)

LIST OF TABLES

LIST OF FIGURES

WORK PLAN
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
HUNTERSTOWN ROAD SITE
STRABAN TOWNSHIP
ADAMS COUNTY, PENNSYLVANIA

1.0 INTRODUCTION

This Work Plan for an RI/FS investigation of the Hunterstown Road Site, Straban Township, Adams County, Pennsylvania has been prepared by Westinghouse Electric Corporation (Westinghouse) in accordance with the Consent Order between Westinghouse and the United States Environmental Protection Agency, Region III (EPA), dated March 10, 1987 (USEPA Docket No. III-87-5-DC). This Work Plan has also been prepared in accordance with RI/FS guidelines presented in the National Contingency Plan published in the Federal Register (November 20, 1985) plus Section 121 of the Superfund Amendments and Reauthorization Act (SARA).

1.1 RI/FS OBJECTIVES

A Remedial Investigation (RI) is a comprehensive investigation of the extent of contamination and the geotechnical, geological, and hydrogeological characteristics of a site. The data gathered during the RI serve as the basis for a subsequent Feasibility Study (FS). As part of the FS, various remedial alternatives are considered, including the "no-action" alternative. A comprehensive evaluation of the remedial alternatives is performed, encompassing topics such as environmental assessment, technical feasibility, and costs to determine a recommended remedial alternative. A conceptual design is developed for the recommended remedial alternative.

The basic objectives of this RI/FS investigation are:

- Identify Potential Sources of Contamination
  Potential source areas which could release contaminants to the environment are identified.

- Define Nature and Extent of Contamination
  The nature and extent of contamination is defined by the types of contaminants present and their distribution in environmental media.

- Determine Pathways of Migration
  The mechanisms by which contaminants could move off site are defined.

- Assess Risks
  An endangerment assessment is performed to define existing and potential environmental and public health hazards that may result from the identified source areas.

- Identify Remedial Alternatives
  Various remedial alternatives are identified including the "no-action" alternative.

- Evaluate Remedial Alternatives
  Remedial alternatives are evaluated in terms of technical feasibility, estimated cost, and effectiveness in reducing public health/environmental risks.

1.2 TECHNICAL APPROACH

The RI portion of the project is planned as a two-phased study. The emphasis in Phase I is to determine the contaminants of interest at the site and also the physical characteristics of the site such as geology and hydrogeology. The first phase will include such tasks as fracture-trace analysis, drilling and logging of borings and installation of monitoring wells, surface water and sediment sampling, site waste characterization, and sampling of monitoring wells. The samples obtained in Phase I will be analyzed for the Target Compound List of parameters (TCL). Based on the analytical results, contaminants of interest (COI) will be determined for the site.

Based on the results of the Phase I investigation, additional site work will be conducted in Phase II as needed to define the nature and extent of contamination. Analyses in Phase II will be for the COI identified during Phase I. Additional studies related to aquatic/terrestrial biota or wetlands/flood plains would be performed if the Phase I results indicate they are needed.

The site comprises seven areas, as described in Section 2.0. Two of these areas (Drum Burial Areas No. 1 and No. 2) will be addressed under a separate consent order between Westinghouse and EPA. This is being done to expedite the remediation of these two areas.

1.3 WORK PLAN FORMAT

Section 2.0 of the Work Plan summarizes existing data related to the site. Section 3.0 provides a summary of identified data gaps and remedial investigation objectives. Descriptions of the tasks which comprise the RI/FS study are presented in Section 4.0. A schedule for accomplishing these tasks is presented in Section 5.0.

2.0 SUMMARY OF EXISTING DATA

2.1 DATA SOURCES

Hunterstown Road Site data have been collected from several sources. These have included files from the Pittsburgh and Gettysburg offices of Westinghouse, records from the Harrisburg office of the Pennsylvania Department of Environmental Resources (PADER), geologic and hydrogeologic reports from the Pennsylvania Geological Survey, records of the public water supply from the Gettysburg Municipal Authority, a site remediation report (O.H. Materials, 1984), and data obtained from EPA files under the Freedom of Information Act.

Several site reconnaissance surveys have been made to ascertain existing physical conditions at the site. A field interview was conducted with Mr. Frederick M. Shealer, a former waste hauler associated with the site. Mr. Shealer, who owns the property on which the Hunterstown Road Site is located, described waste handling practices at the site.

2.2 SITE LOCATION AND DESCRIPTION

The site is located about 1.5 miles northeast of downtown Gettysburg in Straban Township, Adams County, Pennsylvania. A site location map is provided as Figure 2-1. Topography in the area is gently rolling. The site area is semi-rural with both farmlands and residences.

The site occupies an approximate area of 22 acres, and portions of the site lie both east and west of Hunterstown Road, as shown on Figure 2-2. An access road leads into the portion of the site which is east of Hunterstown Road (Figure 2-2). The coordinates of the site are latitude 39° 51' 6" and longitude 77° 12' 18".

There are three unnamed tributaries of Rock Creek which flow adjacent to portions of the site. These are referred to herein as the west stream, middle stream, and east stream, as indicated on Figure 2-2.

There are seven identified subareas of the site. These are shown on Figure 2-2, and are briefly described in the following:

- Drum Burial Area No. 1
  This area is located west of Hunterstown Road, just east of the west stream, and has an approximate length of 440 feet and a width averaging 90 feet.

- Drum Burial Area No. 2
  This area lies north of the access road and immediately west of the middle stream. The approximate dimensions are 180 feet by 50 feet.

- North Cornfield
  A roughly triangular open field located north of the access road which leads from Hunterstown Road. The field is approximately 500 feet wide at the base and about 800 feet in length.

- South Cornfield
  A roughly square open field located south of the access road. The field has approximate dimensions of 400 feet by 400 feet.

- Lagoon
  A sloping area with approximate dimensions of 100 feet by 150 feet. The area is enclosed by a chain-link fence. Straw bales have also been placed around the area, and a silt barrier is in place in downgradient locations.

- Stressed Vegetation Area
  This area is located east of the South Cornfield and roughly southwest of the Lagoon. It has approximate dimensions of 50 feet by 100 feet.

- Borrow Area
  This area is located along the east bank of the east stream. It has approximate dimensions of 175 feet by 175 feet.

2.3 SITE HYDROGEOLOGY

2.3.1 Topography and Surface Drainage

Topography in the Hunterstown Road area is gently rolling with about 3 p[illegible]cent slopes. The east portion of the site slopes toward the east stream and the west portion is nearly flat. Elevations range from 528 feet above mean sea level (MSL) at Shealer Road to about 574 feet MSL in the North Cornfield. Most of the land has been cleared for agricultural use or residential development.

The three tributary streams of Rock Creek that drain the site combine and join Rock Creek just east of Gettysburg. The west and middle streams join just north of Shealer Road, and the east stream joins the other combined streams approximately 1,200 feet south of Shealer Road.

2.3.2 Geology

The Hunterstown Road Site is located in the Triassic Lowland Section of the Piedmont Province. The Triassic Lowland is an elongated trough about 16 miles wide, oriented in a northeast-southwest direction.

Bedrock underlying the Hunterstown Road Site is the Gettysburg Formation. It consists primarily of soft, red shale with interbeds of red, fine-to-medium-grained sandstone. Bedding planes are oriented northeast-southwest and dip 30 to 40 degrees to the northwest. Bedrock joints occur along and perpendicular to bedding planes. Published geologic maps do not indicate any faults at the site.

Intrusions of dark gray, medium-to-course-grained diabase also occur in the Gettysburg Formation. Typically, these are nearly vertical, tabular-shaped dikes about 50 feet thick, but they also occur as sills between bedding planes or as irregularly-shaped bodies. Diabase has not been mapped at the site, but has been mapped by Taylor and Royer (1981) about one-half mile east of the site.

Soil cover is generally thin, distinctive, reddish-brown, clayey or silty, fine sand derived from weathering of the bedrock. The depth to bedrock is approximately one foot or less in the Lagoon and in the Borrow Area based on observations made during excavation work in these areas.

2.3.3 Groundwater

Specific hydrogeologic data for the site are not available. No monitoring wells have been installed and records of nearby residential wells are incomplete. Some data pertaining to the William Heflin well, which is located on Hunterstown Road about 800 feet south of Shealer Road (Taylor and Royer, 1981), are known. This well is 250 feet deep with 41 feet of casing. The well yields six gallons per minute (gpm) from two water-bearing zones located 163 and 195 feet below the ground surface.

In general, groundwater at the site is expected to occur in bedrock fractures with regional flow gradients toward the west and southwest. This assumed regional flow direction is based on the general topography in the site vicinity and the presence of Rock Creek to the west-southwest, which probably influences groundwater discharge from the site. Localized, shallow groundwater would be expected to flow toward the nearest watercourse.

The Gettysburg Formation is used for water supply and is the second most productive aquifer in Adams County. According to Taylor and Royer (1981), well yields range from 1 to 630 gpm, with a median yield of 12 gpm for domestic wells and 69 gpm for non-domestic wells. Median specific capacities are 0.18 gpm per foot in domestic wells and 1.0 gpm per foot in non-domestic wells. Water quality is generally good, although it tends to be hard (median hardness 171/mg/l).

The Gettysburg Municipal Water Authority uses groundwater to provide 40 percent (464,000 gallons per day) of its water supply. Gettysburg Municipal Water Authority has seven water supply wells. Four wells (Nos. 3, 4, 5, and 6) are currently in use, although not all operate simultaneously. The water from Well No. 6 is currently being processed through an air-stripping tower. The wells are located between 1.3 to 4.7 miles southeast to southwest of the site. Municipal well data are summarized in Table 2-1 (Gettysburg Municipal Water Authority, 1977). Locations of the nearest municipal wells are shown on Figure 2-1.

2.4 SITE OPERATIONS

Wastes were placed at the Hunterstown Road Site by Frederick M. Shealer, who owns the property on which the site is located and who transported the materials to the site from various locations. Wastes reportedly included drums of paint solvents; paint sludges; bundles of insulation board containing asbestos; and tank truck loads of spent solvents, white clay sludges, pigmented clay sludges, and domestic septic-tank sludges.

Reported disposal operations at each area of the site are described in the following:

- Lagoon - Paint sludges from drums and colored pigmented clays from tank trucks formed the Lagoon. Sludges with a high liquid content were discharged into small depressions (pools) created by mounding the drier residual solids into embankments.
- Cornfields - Tank-truck loads of liquid wastes such as white clay sludges and domestic septic tank sludges were sprayed onto the ground
- Stressed Vegetation Area - Tank-truck loads of pigmented clay sludges were reportedly discharged into depressions remaining after the removal of the top soil.
- Borrow Area - Drums of waste and bundles of insulation board containing asbestos were disposed of at the surface.
- Drum Burial Areas - Drums of paint sludges and solvents, insulation board containing asbestos, construction material and other debris were placed in depressions which were about four to five feet deep. These depressions were created when soil was previously excavated for use in the manufacture of field tile.

2.5 ANALYTICAL RESULTS

Twenty-five sampling trips have been made to the site by the USEPA and PADER to collect samples of waste materials, surface soil, surface water, and groundwater. A chronology of the previous sampling is presented in Table 2-2.

2.5.1 Waste Materials

Sampling of waste materials has been limited to materials found in the Lagoon and Borrow Area. Some of these results are provided in Table 2-3. Thirty samples, 26 from drums and four from the Lagoon material, were analyzed; metals, volatile organics, and base neutral organics were detected. Concentration ranges for the most frequently detected contaminants were: zinc (0.68 to 79,000 ppm); chromium (8.4 to 4,600 ppm); nickel (1.1 to 270 ppm); arsenic (12 to 49 ppm); trichloroethylene (TCE) (89 to 410 ppb); 1,1,1-trichloroethane (TCA) (29 to >90,000 ppb); 1,1-dichloroethylene (1,1-DCE) (16 to 16,000 ppb); chloroform (17 to 130 ppb); toluene (11 to 17,000 ppb); ethylbenzene (110 to 100,000 ppb); and methylene chloride (29 to 230 ppb).

In May 1986, two mounds of a white material in the Borrow Area were sampled. Analyses revealed they were 70 percent amosite asbestos.

2.5.2 Soil Sampling

Ten surface soil samples have been collected: six from the Lagoon, one from the edge of the South Cornfield, two from the Stressed Vegetation Area, and one from Drum Burial Area No. 1. The results are summarized in Table 2-4. No samples from background locations have been analyzed.

Soil samples collected from the Lagoon after removal of the sludge revealed the presence of volatile organic compounds such as TCE; 1,2-dichloroethylene (1,2-DCE); toluene; TCA; xylene; ethylbenzene and naphthalene. Metals such as lead, copper, chromium, and zinc were also detected.

Additional Lagoon soil sampling was performed outside the fenced area. Volatile organics (1,2-DCE and TCA) were detected between the fence and the stream. Samples from the slope west of the fence contained no volatiles but did contain heavy metals such as lead (4,680 to 8,580 ppm), copper (1,220 to 2,799 ppm), chromium (1,160 to 1,774 ppm), and zinc (493 to 1,126 ppm).

A sample collected from the lower corner of the South Cornfield showed no volatile organics, but did contain metals including lead (7,940 ppm). Two samples collected from the Stressed Vegetation Area contained phthalates (910 to 9,100 ppb) and heavy metals, especially lead (6,640 to 48,500 ppm).

One sample collected from near Drum Burial Area No. 1 contained chrysene, benzo-anthracene, and 1,2-DCE. Heavy metals were also detected at relatively low concentrations.

2.5.3 Surface Water/Sediment Sampling

Twenty-two surface water and 11 related sediment samples from the site have been analyzed. The results are summarized in Table 2-5.

Volatile organic compounds have been found in surface water in and downstream from the Lagoon. These compounds include 1,2-DCE; TCE; TCA; 1,1-DCA; ethylbenzene; xylene; toluene; and naphthalene. Aqueous samples from puddles outside the fence on the west slope did not contain organic compounds.

Surface water samples obtained from the east stream at the culvert located immediately downstream from the Lagoon and at a point farther downstream contained organic compounds. The compounds detected were TCE, TCA, and 1,2-DCE. Sampling of sediment in the east stream revealed the presence of heavy metals. In 1986, levels of lead were measured at 5,000 to 8,900 ppm at the culvert and 100 ppm farther downstream; chromium was 1,213 to 1,625 ppm at the culvert and 1,849 ppm farther downstream. Phthalates were also detected in sediment collected from the east stream.

Two samples were collected from the pond near Drum Burial Area No. 1 in 1984; analyses showed the presence of 1,2-DCE; TCE; and TCA.

Samples of surface water from the west stream contained organic compounds. The compounds included TCA (110 to 1,500 ppb); 1,1-DCA (61 to 3,100 ppb); and 1,2-trans DCE (15 to 1,100 ppb). Sediment in the west stream downstream from Drum Burial Area No. 1 contained organic compounds but not heavy metals. The organics detected were TCA (13 ppb) and 1,2-DCE (10 ppb).

2.5.4 Groundwater

Seventy-six groundwater samples have been collected from 42 residential wells in the vicinity of the site. The samples were analyzed to determine contaminant concentrations in off-site groundwater. A list of the well owners, addresses, and construction data is provided in Table 2-6. Well locations are shown on Figure 2-3. Analytical data are presented in Table 2-7.

Samples were analyzed for volatile organic compounds. Fourteen wells contained at least one compound in concentrations equal to or greater than 1.0 ppb. The most commonly detected compounds and their ranges in concentration are listed below:

COMPOUND	NUMBER OF WELLS	RANGE IN CONCENTRATION (ppb)
TCA	14	1.1 - 500
TCE	10	1.0 - 500
1,1-DCE	9	1.6 - 95
1,2-DCE	6	1.2 - >150
1,1-DCA	5	1.0 - 63
PCE	3	1.0 - 1.6

The most highly contaminated wells are located primarily near the intersection of Hunterstown and Shealer Roads, as shown on Figure 2-3.

2.6 SITE REMEDIATION

Westinghouse has conducted remedial activities at several of the subareas at the site, as described below:

- April 1984 - The Lagoon embankment and sludge material plus some unopened drums were removed. Drums were also removed from the Borrow Area at this time. Subsequently, a chain-link fence was installed around the Lagoon.

- December 1986 - Two piles of bulk asbestos were removed from the Borrow Area.

- April/May 1987 - A series of site modifications were undertaken to control drainage, sedimentation, and erosion. The work included: installing straw-bale dikes around the lower half of the Lagoon and around the Stressed Vegetation Area, covering the Lagoon with mulch, covering the Stressed Vegetation Area with mulch and plastic sheeting, regrading the southwest corner of the Lagoon, installing a silt fence below the Lagoon next to the stream, and removing a culvert and reshaping the channel in the east stream. Additional work included: installing a security fence around the Lagoon and eastern portion of the South Cornfield, placing warning signs around the site, removing contaminated debris from the east stream channel, and liming the Lagoon and Stressed Vegetation Area.

— Summer 87 drum assessment ref deleted (Here)

2.7 SUMMARY AND EVALUATION OF EXISTING DATA

Information from various sources has been collected and reviewed to establish what is known about the site. These data will be used to determine the locations for additional sampling and the types of analyses required. Existing data for each area of the site are summarized as follows:

2.7.1 Lagoon

- The Lagoon contained waste paint sludges and pigmented clays. These materials were removed in 1984.

- Primary contaminants detected in waste samples from the Lagoon were TCE; 1,1 DCE; 1,2 DCE; toluene; TCA; xylene; ethylbenzene; methylene chloride; chloroform; phenol; naphthalene; phthalates; lead; copper; chromium; zinc; and nickel.

- Contaminants of interest in the Lagoon include volatile organics, base neutral extractables, and metals.

- Post-removal sampling indicates that the remaining soil contains contaminants similar to those detected in the waste samples.

- The vertical extent of the remaining contaminated soil is unknown, but it is limited by shallow depth to bedrock. About one foot of unconsolidated material was encountered in the Lagoon during the 1987 site work.

- The lateral extent of waste placement in the Lagoon is defined by the unvegetated areas enclosed by the chain-link fence. For purposes of the FS, the unvegetated area used as an access road and located adjacent to the fence and the lower adjacent stream bank are also considered part of the lagoon. The lateral extent of related contamination is unknown.

- The most recent stabilization of the Lagoon included liming and mulching the area, placing a straw-bale dike around the lower portion, and site regrading for the purpose of directing surface runoff through a silt fence.

2.7.2 Borrow Area

- Asbestos-containing material and drums of paint sludge and solvents were placed on the surface; all have been removed from the area.

- Post-removal sampling indicates the remaining soil is contaminated with asbestos.

- Vertical extent of contamination is limited by the shallow depth to bedrock (less than one foot), as determined during the most recent site work.

- The contamination extends laterally to the cut slopes to the south and east and the stream bank, based on visual observation.

2.7.3 Drum Burial Areas

- An assessment of the drum burial areas was conducted in the summer of 1987 by REMCOR, Inc., under contract to Westinghouse.
- Drum Burial Area No. 1 is about 440 feet long, 90 feet wide, and four to six feet deep. It was found to contain demolition debris, rubbish, septic tanks, oil, rusted drums, and other waste material. Samples of waste material contained TCE and TCA. Selected soil samples contained TCA; 1,1-DCA; ethylbenzene; toluene; and xylene.
- Drum Burial Area No. 2 is about 180 feet long, 50 feet wide, and four to six feet deep. It contained demolition debris, rubbish, rusted drums, and other waste material. TCE and TCA were detected in samples of the waste material. Samples of soil material contained TCA, xylene, ethylbenzene, p-chlor-m-cresol, and phenolics.
- The drum burial areas will be remediated under a separate consent order between Westinghouse and EPA. Any contamination which may have moved from the immediate drum burial areas will be addressed as part of this RI/FS investigation.

MORE? INCORP cit. RSIES

2.7.4 Cornfields

- Bulk liquid wastes were reportedly spread on the ground in these fields.
- Analysis of one sample collected near the edge of the South Cornfield indicated metals (lead, copper, chromium, zinc) and no volatile organics.
- The vertical extent of soil contamination has not been determined, but is limited by shallow depth of soil cover.
- The lateral extent of contamination has not been determined.

2.7.5 Stressed Vegetation Area

- Liquid sludge wastes were reportedly discharged into shallow depressions at this area.
- Analysis of two waste samples indicated metals (lead, copper, chromium, zinc, and antimony) and phthalates.
- Vertical extent of soil contamination has not been determined in the field, but soil cover is expected to be thin based on known site conditions.
- Lateral extent of contamination has not been determined.
- Site stabilization has included liming, mulching, covering with plastic sheeting, and placement of a straw-bale dike.

2.7.6 Streams

- Water and sediment samples have been collected from the east and west streams but not the middle stream.
- Samples of east stream water contained volatile organic compounds (TCE, TCA, and 1,2-DCE); sediment from the stream contained heavy metals (chromium, lead, copper, and zinc) and phthalates.
- Samples of west stream water contained volatile organic compounds (TCA; 1,2-DCA and 1,2-DCE); sediment from the stream contained heavy metals (zinc, lead, and chromium).
- Lateral extent of contamination downstream from the site has not been established.
- Reshaping of the east stream channel was undertaken to reduce the potential of flooding in the vicinity of the Lagoon.

2.7.7 Groundwater

- Groundwater occurs in a fractured bedrock aquifer.
- Existing data are limited to results from analysis of samples from off-site residential wells.
- Previous analyses were limited to volatile organics or TCE scans.
- TCA; TCE; 1,1-DCE; 1,2-DCE; and 1,1-DCA were detected in residential wells along Hunterstown and Shealer Roads.
- The extent of groundwater contamination has not been determined.

3.0 OBJECTIVES

3.1 DATA GAPS

Although substantial data for the Hunterstown Road Site are available, the following data gaps have been identified:

- The geology at the site has not been characterized.
- Comprehensive chemical analysis of soil samples has not been conducted at the site to ascertain the full range of potential contaminants present.
- The horizontal and vertical extent of soil contamination is not known. However, overburden thickness is generally expected to be thin based on field observations.
- The nature and extent of surface water, stream water, and sediment contamination is unknown.
- There are no analytical data for groundwater beneath the site.
- Groundwater elevations, gradients and flow directions are unknown in the vicinity of the site. The hydraulic properties of the aquifer have not been determined.
- The extent and nature of fracture control of contaminant migration is unknown.
- There are no recent analytical data for groundwater quality in residential wells.
- The possible pathways of contaminant migration have not been determined. The relationship between groundwater and surface water at the site has not been established.

3.2 SPECIFIC RI OBJECTIVES

Recognizing the above data gaps, the specific objectives for the remedial investigation at the Hunterstown Road Site are described in the following:

- Characterize bedrock fractures through a fracture-trace study.
- Characterize the site geology, including lithology, stratigraphy, and structure. This includes development of geologic cross sections.
- Document site climatic conditions.
- Characterize the site with respect to the nature and extent of the wastes present.
- Determine vertical and lateral flow gradients at the site through the installation of monitoring wells.
- Determine the vertical and lateral extent of groundwater contamination through analysis of samples from monitoring wells.
- Determine the vertical and lateral extent of soil contamination.
- Perform residential well survey.
- Determine whether streams are currently transporting contaminants from the site. Water samples will be collected during typical flow conditions. Results of sample analysis will be used to determine whether the streams are receiving any contaminated groundwater discharge or surface runoff from the site. Sediment samples will be collected to estimate the potential contribution of contaminants in sediment to the stream water.
- Classify current and designated uses of groundwater and surface water.
- Perform Phase II investigation if Phase I results demonstrate a need for additional data. Possible components of the Phase II investigation to be considered include:
  - Additional borings, wells, soil, surface water, or sediment samples;
  - Residential well sampling;
  - Aquifer performance test;
  - Characterization of aquatic/terrestrial biota;
  - Characterization of wetlands/flood plains; and
  - Geophysical studies of groundwater plumes.

4.0 REMEDIAL INVESTIGATION AND FEASIBILITY STUDY TASKS

This section provides a description of the proposed RI/FS study on a task-by-task basis. Field activities, data reduction, and report preparation are included.

4.1 TASK 1 - FRACTURE-TRACE ANALYSIS

The purpose of a fracture-trace analysis is to identify the location and general orientation of bedrock fractures (e.g., faults, joints, steeply inclined bedding planes, etc.) that could control groundwater flow. The analysis consists of observing the ground surface at two levels of detail.

A study of aerial photographs constitutes the first level of analysis. Aerial photos at a scale between about 1:20,000 and 1:50,000 are suitable for identifying lineaments in the site vicinity. These will also be compared to geologic and topographic maps and then field checked to distinguish probable fractures from cultural effects. The field investigation will constitute the second level of analysis and will also include the preparation of azimuth frequency and stereonet plots of local joint sets. The amount of site-specific data obtained will be dependent on the number of good rock outcrops available near the site, as might be found in road or railroad cuts, stream channels, etc.

The actual scales of aerial photography used in the study will be dependent on availability and quality.

4.2 TASK 2 - CHARACTERIZATION OF SITE GEOLOGY

Three test borings will be drilled at the site to an approximate depth of 150 feet (Figure 4-1). The three borings are planned in a triangular pattern so that roughly orthogonal geologic cross sections can be prepared from the boring log data. Continuous split-barrel samples will be obtained in soil, and core samples will be obtained in rock. Boring logs will be generated from an inspection of the soil and rock samples. The borings will be tremie grouted to the surface upon completion. Sampling and documentation procedures will be provided in the Quality Assurance Project Plan (QAPP).

The lithology, stratigraphy, fracture characteristics, and geologic structure of the site vicinity will be developed from the field data. The technical literature for the area will be studied so that the site field results can be tied to known local and regional conditions.

4.3 TASK 3 - MONITORING WELL INSTALLATION AND SAMPLING

As part of the Phase I remedial investigation, several pairs of monitoring wells will be installed at the site (Figure 4-1). The deep well at each location will be logged according to the procedures described in the QAPP.

The objectives of the groundwater monitoring program are:

- Define fracture characteristics.
- Define vertical and horizontal hydraulic gradients.
- Determine contaminants present.
- Define the extent of contamination.

As discussed in Section 2.0, regional groundwater is expected to discharge to surface features such as Rock Creek. The shallow groundwater flow is expected to follow the surface topography, thus making the three site tributaries (west, middle, and east streams) potential receptors of shallow groundwater discharge. Preliminary "target zones" have been picked for each monitoring well. The target zones are the elevations at which well screens are proposed to be set. The preliminary target zones identified for the site are:

- The ten feet immediately below the water table; and

- The range of Elevation 415 to 465 feet MSL.

The approximate surface elevation and target zone for each monitoring well are provided in Table 4-1.

The installation of 20 monitoring wells is proposed for the site. These are grouped in 10 sets of two wells each. Three sets of wells are located in the vicinity of Drum Burial Area No. 1, and the remainder of the wells are located on the east side of Hunterstown Road. Each location will have a shallow and a deep monitoring well. Monitoring well locations will be surveyed to an accuracy of plus or minus 0.01 feet; elevations will be determined to the same accuracy. Geodetic landmarks will be established in the field as required to accomplish the survey. Figure 4-1 shows the proposed monitoring well locations.

Upon completion of the monitoring well installation and development, all of the wells will be sampled. Sampling of the wells and analysis of the samples for the TCL parameters will allow the identification of groundwater contaminants. Each well will be purged and sampled as described in the QAPP. Temperature, pH, and specific conductance will be recorded in the field at the time of sampling. Samples will be labeled, stored, and shipped with appropriate custody and quality control protocols, as described in the QAPP.

From the monitoring wells, data will be obtained to determine:

- Groundwater flow direction in each target zone;

- The groundwater contaminants present;

- The tendency of contaminants to migrate vertically; and

- The extent of contamination.

4.4 TASK 4 - CHARACTERIZATION OF SITE CONTAMINANTS

4.4.1 North and South Cornfields

The nature and extent of on-site contaminants at the North and South Cornfields will be identified through soil sampling. Approximate boundaries of the cornfields have been established from current vegetation patterns (i.e., tree lines), and samples will be collected from within and beyond these boundaries. The soil cover at the site is extremely thin (generally two feet or less in thickness); therefore, the vertical extent of soil contamination, if found, is already very limited. The proposed soil sampling is oriented toward definition of the contaminants present. A 100-foot grid will be established, and 65 soil samples will be collected and composited into six samples as shown on Figure 4-2. The samples will be collected by visual selection at a point within each 100-foot block defined by the grid and at a depth of eight to twelve inches. Sampling procedures will be as described in the QAPP.

One background sample will be collected from a cornfield along Hunterstown Road to the northeast of the site. One duplicate sample will also be collected for quality assurance purposes. All samples will be analyzed for TCL parameters.

4.4.2 Lagoon and Borrow Area

As described in Section 2.0, the disposal method at the Lagoon and Borrow Area was to discharge or place wastes at the soil surface. Surface drums and sludge were removed from these areas during previous remedial activities.

Soil sampling at the Lagoon will be similar to the cornfields. Samples will be obtained from two 100-foot square blocks and composited into a single sample for analysis. Sampling procedures will be as described in the QAPP. Selection of the sampling points will be by visual inspection. The thickness of soil cover is expected to be less than in the cornfields.

Soil sampling at the Borrow Area will also be similar to the method used for the cornfields. Samples will be obtained from four 100-foot square blocks and a soil stockpile near the center of the Borrow Area and composited into a single sample for analysis. Sampling procedures will be as discussed in the QAPP. Selection of sampling points will be by visual inspection. The soil cover in the Borrow Area is very thin.

The composited sample from the Lagoon will be analyzed for TCL parameters. The composited sample from the Borrow Area will be analyzed for TCL parameters and asbestos.

Table 4-2 lists the number of samples collected and the number analyzed for each area. Figure 4-2 provides a schematic representation of the sampling and compositing scheme.

4.4.3 Stressed Vegetation Area

Disposal of wastes at the Stressed Vegetation Area was at the surface or into shallow depressions. Recent exploratory activities at the site indicate that representative samples of wastes disposed at the site can be obtained with the use of a backhoe. An estimated five soil/waste samples will be obtained from the Stressed Vegetation Area and these will be analyzed for TCL parameters. Sampling procedures will be as described in the QAPP.

4.5 TASK 5 - SURFACE WATER AND SEDIMENT SAMPLING

Water and sediment samples will be collected from five stream and pond locations. The locations have been chosen for the purpose of determining if the western, middle, and eastern tributaries or western pond have received contaminants from the site. At three locations, both surface water and sediment samples will be obtained; at two locations, only sediment samples will be obtained. Figure 4-3 shows the proposed sampling locations. The water samples will be collected during typical flow conditions. Sediment samples will be collected at the same time. One duplicate sample of surface water and sediment will be collected for quality assurance purposes.

Sampling will proceed from downstream to upstream to eliminate potential water quality changes due to sediment disturbance. Temperature, pH, and specific conductance will be recorded in the field at each water sampling location. Details on decontamination, sampling protocols, and equipment will be presented in the QAPP. Samples will be labeled, stored, and shipped in accordance with quality control protocols, as described in the QAPP.

All samples will be analyzed for TCL parameters.

4.6 TASK 6 - RESIDENTIAL WELL SURVEY

A survey of residential wells in the vicinity of the site will be performed. Data to be gathered will include: depth, capacity, construction details, usage, and other information as available.

4.7 TASK 7 - AIR MONITORING

Air monitoring data will be obtained on a regular basis from two sources. These are:

- Periodic Walk-Through Monitoring of Active Site Areas
  This will be accomplished with HNu or OVA instrumentation. If high air-contaminant levels are detected, respiratory protection will be required for site personnel. Background monitoring will be performed for comparison purposes. The observed levels will be documented in the field.

- Normal Personnel Monitoring
  Ambient air samples will be obtained on a regular basis during RI activities. This will be done as part of the site health and safety program, which is described in the Site Operations Plan (SOP).

4.8 LABORATORY ANALYSIS

All samples collected during Phase I remedial investigation activities will be analyzed by the laboratory subcontractor. These samples will be analyzed for the Target Compound List (TCL) of parameters. The composite soil sample from the Borrow Area will also be analyzed for asbestos. The analytical summary is provided in Table 4-2.

4.9 TASK 8 - EVALUATE PHASE I DATA

Upon completion of the Phase I field activities and after receipt of all analytical data, the site information and data will be evaluated. Data from soil sampling will be plotted to show the lateral extent of contamination, and boring logs will be examined to determine the thickness of soil cover. Data from the monitoring wells will be tabulated and plotted to determine the types, extent, and distribution of contaminants in the groundwater. The surface water and sediment sampling results will be reviewed to determine if site contaminants have reached adjacent water courses. Geologic and hydrogeologic data from the fracture-trace analysis, site borings, and monitoring wells will be combined to define the groundwater regime at the site.

In the assessment of the Phase I data, a determination will be made as to whether or not sufficient data have been obtained to satisfy the RI objectives or fill data gaps that have been identified (Section 3.0), as needed for the feasibility study. Based on this assessment, additional investigative activities will be defined as needed for a Phase II investigation. Activities to be considered include additional monitoring wells or borings, additional monitoring well sampling or geophysics to refine limits of contamination, aquifer tests, residential well sampling, or other studies of aquatic/terrestrial biota, wetlands/floodplains, etc.

4.10 TASK 9 - FINALIZE PHASE II WORK PLAN

During the evaluation of Phase I data, additional data needs will be identified. A Phase II remedial investigation will then be developed to address these needs and will be defined in a work plan. This work plan will be submitted to the EPA for approval.

4.11 TASK 10 - PHASE II FIELD ACTIVITIES

Upon approval of the Phase II work plan, subcontractors will be procured as needed and sampling teams will be mobilized to carry out the tasks required for Phase II.

4.12 TASK 11 - EVALUATE PHASE II DATA

Data from Phase II field activities will be summarized and combined with Phase I data to evaluate the extent of contamination, the concentration of the contaminants, and the pathways of migration.

4.13 TASK 12 - PERFORM ENDANGERMENT ASSESSMENT

An endangerment assessment will be prepared consistent with National Contingency Plan (NCP) and Superfund Amendments and Reauthorization Act (SARA) requirements. The endangerment assessment will identify and characterize:

- Contaminants present in all relevant environmental media (e.g., air, water, soil sediment, biota);
- Environmental fate and transport mechanisms within specified environmental media, including hydrogeological evaluations and assessments;
- Intrinsic toxicological properties of specified substances;
- Exposure pathways and extent of expected exposure;
- Population at risk; and
- Extent of expected harm and the likelihood of such harm occurring (i.e., risk characterization).

The following will be considered in the endangerment assessment as appropriate:

- Soil adsorption properties;
- Octanol-water partitioning coefficients;

- Transfer of contaminants via volatilization between environmental media;
- Contaminants mobility between environmental media;
- Bioconcentration factors; and
- Persistence.

4.14 TASK 13 - PREPARE DRAFT REMEDIAL INVESTIGATION AND ENDANGERMENT ASSESSMENT REPORTS

This task will consist of preparing draft reports describing the RI and EA work. The RI report will be presented in one volume with a separate volume for data appendices.

4.15 TASK 14 - PREPARE FINAL REMEDIAL INVESTIGATION AND ENDANGERMENT ASSESSMENT REPORTS

Following EPA comments, the draft remedial investigation and endangerment assessment reports will be revised to address and/or incorporate review comments and issued as final reports.

4.16 TASK 15 - CONDUCT FEASIBILITY STUDY

A feasibility study will be conducted to develop and evaluate remedial alternatives for the Hunterstown Road site. The feasibility study will meet the requirements of the National Contingency Plan and Section 121 of the Superfund Amendments and Reauthorization Act (SARA) and will be based on EPA guidance for feasibility studies (EPA/540/G-85/003). As part of the feasibility study, exposure and environmental assessments will be conducted as appropriate. Site-specific remedial objectives will be developed which address soil, surface water, sediment, and groundwater contamination. Applicable or relevant and appropriate regulations (ARARs) on the state and federal level will be reviewed as part of the feasibility study. There are three types of ARARs which will be considered; these are:

- Contamination-specific;
- Site-specific; and
- Remedy-specific.

Applicable ARARs will be identified as part of the initial feasibility study work, because the development of remedial alternatives will require consideration of ARARs.

According to the National Contingency Plan, at least one alternative will be developed for each of the following categories:

- Alternatives for off-site treatment or disposal; however, potential human and environmental exposures that may result during any excavation, transportation, and storage in an off-site landfill will be considered.
- Alternatives which attain public health and environmental requirements.
- Alternatives which exceed public health and environmental requirements.
- Alternatives which do not attain public health and environmental requirements, but reduce the present or future threats to public health and the environment.
- No-action alternative.

As the result of recent Superfund legislation, permanent on-site treatment remedial alternatives, innovative treatment technologies, and resource recovery technologies will all be considered, as appropriate, in the feasibility study.

An initial screening will be performed to eliminate alternatives which are not based on proven/acceptable technology; which are unreliable, ineffective, infeasible, extremely costly; or which pose public health or environmental problems. The need for additional field studies to evaluate site-specific remedial alternatives and/or treatability studies of remedial technologies will be evaluated based upon the results of the initial screening.

Alternatives remaining after the screening process will be evaluated in greater detail. Source control and groundwater remediation appear to be the primary concerns at the Hunterstown Road Site. Typically, two or three alternatives will be evaluated for each type of remedial action. Site data from the remedial investigation report will be used to develop the detailed evaluation. Additional data on methodology, equipment, and performance will be collected for each alternative. Comparisons will be made based on technical feasibility and the ability to reduce any environmental and public health impacts. Finally, preliminary cost estimates will be made for each alternative. These cost estimates will be subjected to a present worth and sensitivity analyses for comparison purposes.

4.17 TASK 16 - ADDITIONAL FIELD STUDIES

It may be determined that additional field studies are necessary in order to fully evaluate certain site-specific remedial alternatives which remain after initial screening. Additional field studies may include field interviews, field observations, and sampling and analysis activities. Only additional data required for completion of the remedial alternatives evaluation will be collected. Work plans and schedules will be established for these studies, and the studies will be carried out in such a manner as to minimize any delays to the overall project schedule.

4.18 TASK 17 - TREATABILITY STUDIES

It may be necessary to conduct treatability studies to determine design parameters and to verify the efficiency of some of the proposed remedial alternatives which remain after initial screening. The results from treatability studies (bench- and/or pilot-scale testing) as appropriate would be used to evaluate the applicability and effectiveness of potential remedial treatment technologies. Work plans and schedules will be established for these studies, and the studies will be carried out in such a manner as to minimize any delays to the overall project schedule.

4.19 TASK 18 - PREPARE DRAFT FEASIBILITY STUDY REPORT

A draft report will be prepared that provides a discussion of the objectives of the feasibility study and a description of the alternatives that have been identified and screened. Standards, permits, and other regulatory requirements will be presented. Criteria for screening of initial alternatives will be discussed. The results of the screening, any additional field studies, treatability studies, and the detailed evaluation of selected alternatives will be presented. Recommendations will be made based on technical feasibility, environmental considerations, and estimated cost. The draft feasibility study report will be submitted to the EPA for review.

4.20 TASK 19 - PREPARE FINAL FEASIBILITY STUDY REPORT

Following EPA comments, the draft feasibility study will be revised to address and/or incorporate review comments into a final feasibility study report.

4.21 TASK 20 - PREPARE CONCEPTUAL DESIGN

The conceptual design will provide basic engineering and scheduling components related to the implementation of the remedial action. This may include technical descriptions of processes, design criteria, equipment and utility requirements, data needs, construction cost ranges, and preliminary site drawings and process flow diagrams.

5.0 PROJECT SCHEDULE

The projected schedule for the Hunterstown Road Site is presented on Figure 5-1. The schedule begins with procurement of subcontractors for Phase I RI activities and extends through completion of the conceptual remedial design. The total projected duration of the project is 17.5 months, including more than three months of time for EPA reviews and approvals.

It is noted that no tasks related to bench- or pilot-scale studies or treatability studies have been indicated in the schedule. If it is determined during the course of the investigation that one or more of these studies is required, appropriate work plans and schedules will be prepared and the studies will be carried out concurrently with other tasks so as to eliminate or minimize overall schedule delays.

The schedule is based on the scope of work described for each task in Section 4.0 of this Work Plan. It is assumed that the typical work week will be 45 hours in the office and 55 hours in the field. It is further assumed that Level C protection will be worn in disposal areas and that Level D protection will be worn in other areas. It is not anticipated that higher levels of protection will be required for normal operations, but equipment will be available for emergency situations.

Although delays can always occur when unexpected conditions are encountered in the field or during prolonged periods of unfavorable weather, the schedule provided on Figure 5-1 is realistic and achievable under normal circumstances.

REFERENCES

Ecology and Environment, Inc., 1986, Hunterstown Remedial Action Master Plan (RAMP) and Remedial Investigation/Feasibility Study Work Plan, Final Draft.

Environmental Protection Agency, 1985, "National Contingency Plan," Federal Register, November 20, 1985.

Gettysburg Municipal Water Authority, 1977, "Water Supply System Improvement Study," Prepared by Gannett, Fleming, Coddry, and Carpenter, Inc., Harrisburg, Pennsylvania.

O.H. Materials, 1984, Final Report of Field Analytical Services.

Pennsylvania Department of Environmental Resources, Harrisburg Office, Files pertaining to the Hunterstown Road Site.

Shealer, Frederick M., Personal conversations concerning past disposal activities.

Westinghouse Electric Corporation, Gettysburg Elevator Plant, Files containing meeting notes, waste records, plant drawings, and newspaper articles.

Westinghouse Electric Corporation, Gateway Center, Pittsburgh, Files containing correspondence, sampling data and removal orders.

TABLES

TABLE 2-1.

DATA ON GETTYSBURG MUNICIPAL WELLS

Well No.	Well Location	Well Depth	Well Yield	Remarks
1	Behind water works on March Creek	550'	emergency use only	Installation 1954, very hard water, artesian at times
2	Just west of Warner Hospital	500'	not used	Installed in 1968 unused due to TCE and chlordane contamination. Contamination not attributed to Westinghouse plant
3	0.25 mi NE of water works	550'	200 gpm	placed in service in 1972
4	0.5 mi NNE of water works	655'	120 gpm	under construction in 1977; water zones at 72', 22', 262', 513', 562', 587' below ground surface
5	Rte 30, 1 mi E of downtown Gettysburg	420'	250 gpm	placed in service 4/24/84; water zones at 100', 200', 260', 320' below ground surface
6	Delap Ave., 0.2 mi NW of downtown Gettysburg	900'	not used	closed due to TCE contamination in 1986. Contamination not attributed to Westinghouse plant
7	Rte 34, 0.7 mi N of downtown Gettysburg	900'	not used	Unused due to sulphates, total dissolved solids and manganese; drilled July 1985, tested August 1985 and January 1986

Note: See Figure 2-3 for well locations map
Source: Gettysburg Municipal Authority, 1977, Water Supply System Improvement Study. Prepared by Gannett, Fleming, Corddry and Carpenter, Inc., Engineers, Harrisburg, Pennsylvania.

TABLE 2-2.

SAMPLING CHRONOLOGY

Date	Sampler	Waste	Soil	Surface Water/	Ground
12/14/83	PaDER				2
12/19-21/83	PaDER			4	
1/28/84	NUS for EPA	3		1	
2/23/84	PaDER				2
3/13-14/84	PaDER				6
3/27-28/84	PaDER				12
3/29/84	OH Materials	30			
4/24/84	PaDER				5
5/10/84	NUS for EPA*		3	12	
5/21/84	PaDER				5
8/1/84	PaDER				5
8/14/84	PaDER				1
10/10/84	PaDER				1
12/21/84	Culligan				6
1/28/85	NUS for EPA				8
2/6/85	PaDER				3
4/17/85	Weston for EPA		1	4	
4/24/85	PaDER				2
6/20/85	NUS for EPA				11
8/5/85	PaDER				3
10/21/85	Weston for EPA		3	5	
11/19/85	PaDER				2
11/25/85	PaDER				1
12/9/85	PaDER				1
5/14/86	Weston for EPA	2	3	7	
	TOTALS	35	10	33	76

*Five samples from this group are not included because locations are indeterminate: junk pile (soil and water), field auger, leachate soil, and filled hole.

TABLE 2-3.

SUMMARY OF WASTE SAMPLING

Date	Location	Test	No. of Samples	No. of Detections	Compound	Range in Concentration
1/28/84	Lagoon	RCRA	3	2	Flashpoint	57^{o}+48^{o}C
		Organics	1	1	1,4-dichlorobenzene	81,000 ppb
				1	4,4 DDT	34,000 ppb
				1	di-n-butyl phthalate	10,000 ppb
3/29/84	Lagoon	pH	27	27	-	2.8-9.58
		Flashpoint	27	2	-	70^{o}+85^{o}
		EP Tox	16	3	lead	5.5-95 ppm
		Cyanide	27	0	-	D.L. 5 ppm
		Sulfide	27	0	-	D.L. 10 ppm
		Acid E	30	0	-	D.L. 25 ppm
		B-N E	30	1	naphthalene	1,700 ppb
			30	1	bis-phthalate	290 ppb
3/29/84	Lagoon	Purgeable Organics	30	4	benzene	38-110 ppb
			30	13	chloroform	17-130 ppb
			30	2	1,1-DCA	150-890 ppb
			30	13	1,1-DCE	16-16,000 ppb
			30	9	ethyl benzene	110-100,000 ppb
			30	9	methyl chloride	29-230 ppb
			30	16	TCA	29->90,000 ppb
			30	3	TCE	89-410 ppb
			30	12	toluene	11-17,000 ppb
3/29/84	Lagoon	Pesticides	30	0	-	D.L. 10 ppb
3/29/84	Lagoon	PCBs	30	0	-	D.L. 10 ppb

TABLE 2-3. (CONTINUED)

SUMMARY OF WASTE SAMPLING

Date	Location	Test	No. of Samples	No. of Detections	Compound	Range in Concentration
3/29/84	Lagoon	Inorganics	30	4	antimony	5.4-93 ppm
			30	7	arsenic	12-49 ppm
			30	1	beryllium	2.6 ppm
			30	3	cadmium	2.6-8.0 ppm
			30	27	chromium	8.4-4,600 ppm
			30	25	copper	2.1-9,900 ppm
			30	20	lead	5.8-25,000 ppm
			30	3	mercury	.64-3.4 ppm
			30	17	nickel	1.1-270 ppm
			30	1	silver	62 ppm
			30	30	zinc	.68 - 79,000 ppm
			30	1	cyanide	13 ppm
5/14/86	Borrow Area	Asbestos	2	2	amosite asbestos	70%

Note: D.L. Detection Limit

TABLE 2-4.

SUMMARY OF SOIL SAMPLING

Date Collected	Location/ Matrix	Sampler	Test	Results
5/10/84	Lagoon-stained soil	NUS	Organics	Phenol (3 ppm), benzoic acid (29 ppm), 4-methylphenol (1.4 ppm), 1,4-dichlorobenzene (1.2 ppm), Naphthalene (2 ppm), aniline (2.3 ppm), 4-chloroaniliene (24 ppm), TCA (2.8%), 1,1-DCE (<0.4%), 1,2-DCE (9.3%), ethyl benzene (0.8%), toluene (2.9%) TCE (24%), o-xylene (2%).
			Metals	Aluminum (0.6%), chromium (0.1%), barium (0.03%), beryllium (1.4 ppm) cobalt (5.6 ppm), copper (0.2%), iron (1.1%), nickel (5.6 ppm), manganese (0.05%), zinc (0.06%), vanadium (24.5 ppm), arsenic (2.4 ppm); antimony (1.15 ppm), mercury (0.18 ppm), tin (3.5 ppm), cadmium (0.35 ppm), lead (0.7%).
			Other Inorganics	Cyanide (1.2 ppm).
5/10/84	Drum area Shealer Backyard Soil	NUS	Organics	Di-n-butyl phthalate (DNQ); 1,2-DCE (35 ppb) ethyl benzene (DNQ), methylene chloride (DNQ) benz (a) anthracene (840 ppb), benz (a) pyrene (<1406 ppm) benz (2) fluoranthene (<1406 ppb), chrysene (110 ppb) pyrene (<903 ppb).
			Metals	Aluminum (1%), chromium (20.2 ppm), barium (DNQ) beryllium (2.2 ppm), cobalt (18.9 ppm), copper (DNQ) iron (3.1%), nickel (16.6 ppm), manganese (0.1%), zinc (60.5 ppm), vanadium (44.5 ppm), arsenic (8.4 ppm), selenium (0.1 ppm), cadmium (0.14 ppm), lead (6.5 ppm).

TABLE 2-4 (Continued)

SUMMARY OF SOIL SAMPLING

Date Collected	Location/ Matrix	Sampler	Test	Results
4/17/85	Soil between lagoon and E stream	Weston-Sper	VOA	Benzene (ND); bromodichloromethane (ND); bromoform (ND); methylbromide (ND); carbon tetrachloride (ND); chlorobenzene (ND); ethylchloride (ND); 2-chloroethylvinylether (ND); chloroform (ND); methylchloride (ND), dibromochloromethane (ND); dichlorobenzenes (ND); 1,1-DCA (ND); 1,2-DCA (ND); 1,1-DCE (ND); 1,2-DCE (280 ppb); 1,2-dichloropropane (ND); 1,3-dichloropropene (ND); ethylbenzene/xylenes (ND); methylene chloride (ND); 1,1,2,2-tetrachloroethane (ND); PCE (ND); toluene (ND); 1,1,1-TCA (140 ppb); 1,1,2-TCA (ND); TCE (ND); Trichloro-fluoromethane (ND); vinyl chloride (ND).
10/21/85	Soil from lagoon area	Weston-Sper	VOA	Chloromethane (ND 800 ppm); bromomethane (ND 400 ppm); dichlorodifluoromethane (ND 200 ppm); vinylchloride (ND 80 ppm); chloro-ethane (ND 80 ppm); methylene chloride (ND 200 ppm); trichlorofluoromethane (ND 200 ppm); 1,1-DCE (ND 40 ppm); 1,1-DCA (ND 40 ppm); 1,2-DCE (ND 40 ppm); chloroform (ND 40 ppm); 1,2-DCA (ND 40 ppm) 1,1,1-TCA (ND 80 ppm); carbon tetrachloride (ND 80 ppm); Bromodichloromethane (ND 80 ppm); 1,2-dichloropropane (ND 40 ppm); 1,3-trans dichloropropene (ND 200 ppm); TCE (ND 80 ppm); bromochloromethane (ND 80 ppm); 1,1,2-TCA (ND 200 ppm); 1,3-Cis dichloropropene (ND 200 ppm); 2-chloroethylvinylether (ND 200 ppm); Bromoform (ND 400 ppm); 1,1,2,2-Tetrachloroethane (ND 400 ppm); PCE (ND 80 ppm); chlorobenzene (ND 40 ppm); dichlorobenzene (ND 40 ppm).

TABLE 2-4 (Continued)

SUMMARY OF SOIL SAMPLING

Date Collected	Location/ Matrix	Sampler	Test	Results
			Metals	Beryllium (<0.5 ppm); cadmium (1.9 ppm); chromium (0.1%); copper (0.1%); nickel (23.3 ppm); lead (0.5%); zinc (640 ppm); arsenic (3.6 ppm); silver (<0.01 ppm); selenium (<0.6 ppm); thallium (4.0 ppm); mercury (0.07 ppm); antimony (15 ppm).
10/21/85	Soil stressed vegetation area near cornfield	Weston-Sper	VOA	Chloromethane (ND 800 ppm); bromomethane (ND 400 ppm); dichlorodifluoromethane (ND 220 ppm); vinylchloride (ND 80 ppm); chloro ethane (ND 80 ppm); methylene chloride (ND 200 ppm); trichlorofluoromethane (ND 200 ppm); 1,1-DCE (ND 40 ppm); 1,1-DCA (ND 40 ppm); 1,2-DCE (ND 40 ppm); chloroform (ND 40 ppm); 1,2-DCA (ND 40 ppm) 1,1,1-TCA (ND 80 ppm); carbon tetrachloride (ND 80 ppm); Bromodichloromethane (ND 80 ppm); 1,2-dichloropropane (ND 40 ppm); 1,3-trans dichloropropene (ND 200 ppm); TCE (ND 80 ppm); bromochloromethane (ND 80 ppm); 1,1,2-TCA (ND 200 ppm); 1,3-Cis dichloropropene (ND 200 ppm); 2-chloroethylvinylether (ND 200 ppm); Bromoform (ND 400 ppm); 1,1,2,2-Tetrachloroethane (ND 400 ppm); PCE (ND 80 ppm); chlorobenzene (ND 40 ppm); dichlorobenzene (ND 40 ppm).
			Metals	Beryllium (<0.5 ppm); cadmium (1.4 ppm); chromium (0.1%); copper (0.1%); nickel (23.5 ppm); lead (0.5%); zinc (493 ppm) arsenic (4.3 ppm); silver (<0.01 ppm); selenium (<0.6 ppm); thallium (6.0 ppm); mercury (0.08 ppm); antimony (12 ppm).

TABLE 2-4 (Continued)

SUMMARY OF SOIL SAMPLING

Date Collected	Location/ Matrix	Sampler	Test	Results
10/21/85	Soil stressed vegetation near lagoon	Weston-Sper	VOA	Chloromethane (ND 800 ppm); bromomethane (ND 400 ppm); dichlorodifluoromethane (ND 200 ppm); vinylchloride (ND 80 ppm); chloroethane (ND 80 ppm); methylene chloride (ND 200 ppm); trichlorofluoromethane (ND 200 ppm); 1,1-DCE (ND 40 ppm); 1,1-DCA (ND 40 ppm); 1,2-DCE (ND 40 ppm); chloroform (ND 40 ppm); 1,2-DCA (ND 40 ppm) 1,1,1-TCA (ND 80 ppm); carbon tetrachloride (ND 80 ppm); Bromodichloromethane (ND 80 ppm); 1,2-dichloropropane (ND 40 ppm); 1,3-trans dichloropropene (ND 200 ppm); TCE (ND 80 ppm); bromochloromethane (ND 80 ppm); 1,1,2-TCA (ND 200 ppm); 1,3-Cis dichloropropene (ND 200 ppm); 2-chloroethylvinylether (ND 200 ppm); Bromoform (ND 400 ppm); 1,1,2,2-Tetrachloroethane (ND 400 ppm); PCE (ND 80 ppm); chlorobenzene (ND 40 ppm); dichlorobenzene (ND 40 ppm).
			Metals	Beryllium (<0.5 ppm); cadmium (1.6 ppm); chromium (360 ppm); copper (0.2%); nickel (18.8 ppm) lead (0.8%); zinc (190 ppm); arsenic (6.9 ppm); silver (<0.01 ppm); selenium (<0.6 ppm); thallium (3.0 ppm); mercury (0.06 ppm); antimony (13.5 ppm).
5/14/86	Soil stressed vegetation area	Weston-Sper	Base neutral extractables	Di-n-butyl phthalate (2.7 ppm); butyl benzyl phthalate (910 ppb); bis (2-ethylhexyl) phthalate (9.1 ppm).

TABLE 2-4 (Continued)

SUMMARY OF SOIL SAMPLING

Date Collected	Location/ Matrix	Sampler	Test	Results
			Metals	Antimony (<22.6 ppm); arsenic (<9.05 ppm); beryllium (<9.04 ppm); cadmium (<2.26 ppm); chromium (22 ppm); copper (0.3%); lead (0.7%); magnesium (<1.14 ppm); nickel (12 ppm), selenium (<4.53 ppm); silver (<9.05 ppm); thallium (<9.05 ppm); zinc (742 ppm).
5/14/86	Soil, stressed vegetation area, mound	Weston-Sper	Base neutral extractables	Di-n-butyl phthalates (4.9 ppm); butyl benzyl phthalate (1.5 ppm); bis (2-ethylhexyl) phthalate (1.1 ppm).
			Metals	Antimony (264 ppm); arsenic (2.35 ppm); beryllium (<2.26 ppm); cadmium (<0.6 ppm); chromium (0.8%); copper (1.1%); lead (4.9%), magnesium (0.96 ppm); nickel (8.6 ppm); selenium; (1.34 ppm); silver (<2.26 ppm); thallium (<2.26 ppm); zinc (0.3%).
5/14/86	Soil beneath ponded water outside lagoon fence	Weston-Sper	Base neutral extractables	Di-n-butyl phthalates (690 ppb); butyl benzyl phthalate (690 ppb); bis (2-ethylhexyl) phthalate (1.4 ppm).
			Metals	Antimony (25.2 ppm); arsenic (4.55 ppm); beryllium (<3.27 ppm); cadmium (<0.82 ppm); chromium (0.2%); copper (0.3%); lead (0.9%), magnesium (<0.36 ppm); nickel (20 ppm); selenium; (<1.64 ppm); silver (<3.27 ppm); thallium (<3.27 ppm); zinc (0.1%).

Note: DNQ - Detected, not quantified
ND - Not detected or below detection limit
ND 40 ppm - Not detected, detection limit 40 ppm

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING

Date Sampled	Location/ Matrix	Sampler	Test	Results
12/19/83	Lagoon puddles 5 to 16 yards downgradient	PaDER	VOA Organics Organics	Chloroethylene (1.1 ppm), Chloroethane (0.72 ppm) Dichloromethane (est 0.1 ppm), 1,1-DCE (0.18 ppm) 1,1-DCA (1.1 ppm), 1,2-DCE (3.1 ppm), TCA (1.9 ppm) TCE (0.12 ppm) 1,1,2-TCA (<25 ppb)
12/19/83	Surface water E. Stream 60-80 yards upgradient of lagoon	PaDER	Acid and Base Neutral extractables	ND (1 ppb)
			Metals	Cadmium (L0.2 ppb), Chromium (10 ppb), Copper (10 ppb) Iron (20 ppb), and Lead (5. F ppb), Maganese (<10 ppb) Nickel (L 10 ppb), Zinc (30 ppb)
12/19/83	Surface water E. Stream 40-50 yards downgradient of lagoon	PaDER	Acid and Base Neutral extractables	ND (1 ppb)
12/21/83	Surface water Tributary below dump site	PaDER	TCA Scan	TCA (8.0 ppb), TCE (20.0 ppb), PCE (ND)
1/12/84	Sediment E. Stream above culvert	PaDER	RCRA	Flash point (56° C)
			Prority Pollutant	1,2-DCA (ND), 1,4-Dichlorobenzene (30 ppm), di-n-butyl phthalate (38 ppm) 4,4 ddt (16 ppm), trichlorofluoromethane (1 ppm), naphthalene (ND) ethylbenzene (ND), 1,1-DCA (ND), TCA (ND), Chloroethane (ND) TCE (1 ppm) benzene (ND), phenol (2.6 ppm), cyanide (0.86 ppm)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
1/12/84 (cont.)			Metals	Antimony (23.2 ppm), Arsenic (2.9 ppm), Cadmium (8.6%), Chromium (0.9 ppm), Copper (206 ppm), Lead (8.7 ppm) Nickel (7.4 ppm), Selenium (4.4 ppm), Zinc (53%)
5/10/84	Ponded water on lagoon	NUS	Organics	Naphthalene (240 ppb), TCA (DNQ), Ethylbenzene (380 ppm), Toluene (38 ppm), Ortho-xylene (0.2%)
			Metals	Aluminum (21.8 ppm), Chromium (2.2 ppm), Barium (658 ppb), Copper (6.6 ppm), Iron (62.5 ppm), Manganese (6.24 ppm), Zinc (3.3 ppm), Cadmium (3.0 ppb), Lead (14.8 ppm)
			Inorganics	Cyanide (10 ppb)
5/10/84	Subsurface E. Stream upgradient of lagoon	NUS	Organics	ND
			Metals	Aluminum (169 ppb), Iron (DNQ), Manganese (20.8 ppb)
5/10/84	Sediment E. Stream upgradient of lagoon	NUS	Organics	ND
			Metals	Aluminum (0.5%), Chromium (6.8 ppm), Barium (41.9 ppm), Beryllium (DNQ) Cobalt (4.3 ppm) Copper (DNQ) Iron (0.5%) Nickel (4.3 ppm), Manganese (341 ppm), Zinc (23.7 ppm) Vanadium (13.1 ppm) Arsenic (0.80 ppm) Selenium (0.15 ppm) Cadmium (0.11 ppm), Lead (13 ppm)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
5/10/84	Surface water E. Stream downgradient of lagoon	NUS	Organics	Di-n-butyl Phthalate (DNQ) TCA (25 ppb) 1,2-DCE (35 ppb), TCE (330 ppb)
			Metals	Aluminium (271 ppb), Copper (DNQ), Iron (DNQ), Manganese (230 ppb), Zinc (129 ppb), Lead (DNQ)
5/10/84	Sediment E. Stream downgradient of lagoon	NUS	Organics	ND
			Metals	Aluminum (0.7%), Chromium (258 ppm), Barium (13.9 ppm), Beryllium (2.1 ppm), Cobalt (25.1 ppm), Copper (380 ppm), Iron (3%) Nickel (14.5 ppm), Manganese (0.4%), Zinc (540 ppm), Vanadium (49 ppm), Arsenic (4.8 ppm), Cadmium (0.83 ppm), Lead (0.2%), Cyanide (0.30 ppm)
5/10/84	Ponded Water drum area Shealers backyard	NUS	Organics	TCA (21 ppb), 1,1-DCA (25 ppb), 1,2-DCE (220 ppb), Toluene (DNQ), TCE (39 ppb), Carbon Disulfide (<10 ppb), Ortho-xylene (DNQ)
			Metals	Lead (DNQ), Aluminum (936 ppb), Copper (DNQ), Iron (7.2 ppm), Manganese (507 ppb), Zinc (DNQ)
5/10/84	Surface water W. Stream upgradient Shealers backyard	NUS	Organics	ND
			Metals	Aluminum (415 ppb), Iron (DNQ), Manganese (31.1 ppb) Zinc (DNQ), Lead (DNQ)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
5/10/84	Sediment W. Stream upstream of Shealers backyard	NUS	Organics	Methylene Chloride (DNQ)
			Metals	Aluminum (0.9%), Chromium (15.8 ppm), Barium (58 ppm), Beryllium (DNQ), Cobalt (24.7 ppm), Copper (DNQ), Iron (2.6%), Nickel (10.1 ppm), Manganese (700 ppm), Zinc (116.8 ppm), Vanadium (36.1 ppm), Arsenic (2.5 ppm), Mercury (0.16 ppm), Cadmium (DNQ), Lead (22.2 ppm)
5/10/84	Surface water W. Stream downgradient of Shealers backyard	NUS	VOA	TCA (430 ppb), 1,1-DCA (80 ppb), 1,1-DCE (6.0 ppb), 1,2-DCE (240 ppb); Methylene Chloride (DNQ), TCE (125 ppb); Vinyl chloride (<5 ppb)
			Metals	Aluminum (145 ppb); Beryllium (DNQ); Iron (2.4 ppm) Manganese (371 ppb); Zinc (DNQ); Silver (19.7 ppb) Lead (DNQ)
5/10/84	Sediment W. Stream downgradient of Shealer's backyard	NUS	VOA	TCA (13 ppb) 1,1-DCA (< 3.6 ppb); 1,2-DCE (10 ppb) Methylene Chloride (DNQ)
			Metals	Aluminum (1.2%); Chromium (17 ppm); Barium (51.5 ppm) Beryllium (0.9 ppm); Colbalt (6.9 ppm); Copper (DNQ); Iron (1.6%); Nickel (9.8 ppm); Manganese (229 ppm); Zinc (28.9 ppm); Vanadium (33.9 ppm) Arsenic (3.2 ppm)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
4/17/85	Surface water upper lagoon	Weston Sper	VOA	Benzene (ND); Bromochloromethane (ND); Bromoform (ND); Methyl Bromide (ND); Carbon tetrachloride (ND); Chlorobenzene (ND); Ethyl Chloride (ND); 2 - Chloroethylvinylether (ND); Chloroform (ND); Methylchloride (ND); Dibromochlorobenzene (ND); Dichlorobenzene (ND); 1,1-DCA (320 ppb); 1,2-DCA (ND); 1,1-DCE (ND); 1,2-DCE (4300 ppb); 1,2-Dichloropropane (ND) 1,3-Dichloropropane (ND); Ethylbenzene/xylene (94 ppb); Methylene Chloride (ND); 1,1,2,2, -Tetrachloroethane (ND); PCE (ND); toluene (70 ppb); 1,1,1-TCA (890); 1,1,2-TCA (ND); TCE (1200 ppb); Trichlorofluorormethane (ND); Vinyl Chloride (ND)
4/17/85	Surface water lower lagoon	Weston Sper	VOA	Benzene (ND); Bromodichloromethane (ND); Bromoform (ND); Methyl Bromide (ND); Carbon tetrachloride (ND); Chlorobenzene (ND); Ethylchloride (10 ppm); 2-Chloroethylvinylether (ND); Chloroform (ND); Methychloride (ND); Dibromochloromethane (ND); Dichlorobenezene (ND); 1,1-DCA (90 ppb); 1,2-DCA (ND); 1,1-DCE (ND); 1,2-DCE (710 ppb); 1,2-Dichloropropane (ND); 1,3-Dichloropropane (ND); Ethylbenzene/xylene (ND); Methylchloride (ND); 1,1,2,2 - Tetrachloroethane (ND); PCE (ND); Toluene (7 ppb); 1,1,1 - TCA (280 ppb); 1,1,2 - TCA (ND); TCE (410 ppb); Trichlorofluoromethane (ND); Vinyl chloride (ND)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
4/17/85	Surface water E. Stream upgradient of lagoon	Weston-Sper	VOA	Benzene (ND); Bromochloromethane (ND); Bromoform (ND);MethylBromide (ND); Carbon tetrachloride (ND) Chlorobenzenes (ND); Ethylchloride (ND); 2 - Chloroethylvinylether (ND); Chloroform (ND); Methychloride (ND); Dibromochloromethane (ND); Dichlorobenzene (ND); 1,1 - DCA (ND); 1,2 - DCA (ND); 1,1 - DCE (ND); 1,2-DCE (ND); 1,2 - Dichloropropane (ND); 1,3 Dichloropropane (ND); 1,1,2,2 - Tetrachlororethane (ND); PCE (ND); Toluene (ND); 1,1,1 TCA (ND); 1,1,2 - TCA (ND); Ethylbenzenexylenes (ND); Methylchloride (ND)
4/17/85	Surface water E. Stream downgradient of lagoon culvert	Weston Sper	VOA	Benzene (ND); Bromodichloromethane (ND); Bromoform (ND); Methylbromide (ND); Carbontetrachloride (ND); Clorobenzene (ND); Ethylchloride (ND); 2 - Chloroethylvinyl ether (ND) Chloroform (ND); Methychloride (ND); Dibromochloromethane (ND); Dichlorobenzene (ND); 1,1 - DCA (ND); 1,2 - DCA (ND); 1,1 - DCE (ND); 1,2-DCE (73 ppb) 1,2-Dichloropropane (ND); 1,3 - Dichloropropane (ND); 1,1,2,2 - Tetrachloromethane (ND); PCE (ND); Toluene (ND); 1,1,1 - TCA (ND); 1,1,2 TCA (ND); TCE (170 ppb); Tetrachlorofluoromethane (ND); Vinyl chloride (ND); Ethylbenzene/xylenes (ND); Methylchloride (ND)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
10/21/85	Surface water Pond near buried drums in Shealer's backyard	Weston Sper	VOA	Chloromethane (ND 2 ppb); Bromomethane (ND 10 ppb); Dichlorodifluoromethane (ND 5 ppb); Vinyl chloride (ND 2 ppb); Chloroethane (ND 2 ppb); Ethylene Chloride (6.3 ppb); Trichlorofluoromethane (ND 5 ppb); 1,1 - DCE (ND ppb); 1,1, - DCA (ND 1 ppb); 1,2 - trans-DCE (ND1 ppb); Chloroform (ND 2 ppb); 1,2 - DCA (ND 1 ppb); 1,1,1 - TCA (ND 2 ppb); Carbon tetrachloride (ND 2 ppb) Bromodichloromethane (ND 1 ppb); 1,2 Dichloropropane (ND 5 ppb); Trans-1,3 - Dichloropropene (ND 5 ppb); TCE (ND 2 ppb); Bromochloromethane (ND 5 ppb); 1,1,2-TCA (ND 5 ppb); cis-1,3-Dichloropropane (ND 5 ppb); 2-Chloroethylvinylether (ND 5 ppb); Bromoform (ND 10 ppb); 1,1,2,2-Tetrachloroethane (ND 10 ppb); PCE (ND 2 ppb); Chlorobenzene (ND 1 ppb); Dichlorobenzene (ND 1 ppb)
10/21/85	Surface water West stream near buried drums Shealer's backyard	Weston Sper	VOA	Chloromethane (ND 20 ppb); Bromomethane (ND 100 ppb); Dichlorodifluoromethane (ND 50 ppb); Vinyl chloride (ND 20 ppb); Chloroethane (ND 20 ppb); Ethylene Chloride (66 ppb); Trichlorofluoromethane (ND 50 ppb); 1,1 - DCE (ND 10 ppb); 1,1, - DCA (3100 ppb); 1,2 - trans DCE (ND 1100 ppb); Chloroform (ND 20 ppb); 1,2 - DCA (10 ppb); 1,1,1 - TCA (1500 ppb); Carbon tetrachloride (ND 20 ppb) Bromodichloromethane

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
				(ND 20 ppb); 1,2-Dichloropropane (ND 10 ppb); Trans-1,3 - Dichloropropane (ND 50 ppb); TCE (ND 20 ppb); Bromochloromethane (ND 50 ppb); 1,1,2-TCA (ND 50 ppb); cis 1,3-Dichloropropane (ND 50 ppb); 2-Chloroethylvinylether (ND 100 ppb); Bromoform (ND 100 ppb); 1,1,2,2-Tetrachloroethane (ND 100 ppb); PCE (ND 20 ppb); Chlorobenzene (ND 10 ppb); Dichlorobenzene (ND 10 ppb)
10/21/85	Surface water W. Stream downgradient of buried drums Shealer's backyard	Weston Sper	VOA	Chloromethane (ND 2 ppb); Bromomethane (ND 10 ppb); Dichlorodifluoromethane (ND 5 ppb); Vinyl chloride (ND 2 ppb); Chloroethane (ND 2 ppb); Ethylene Chloride (1.3 ppb); Trichlorofluoromethane (ND 5 ppb); 1,1 - DCE (ND 1 ppb); 1,1, - DCA (61 ppb); 1,2 - trans DCE (15 ppb); Chloroform (ND 2 ppb); 1,2 - DCA (ND 1 ppb); 1,1,1 - TCA (ND 2 ppb); Carbon tetrachloride (ND 2 ppb); Bromodichloromethane (ND 2 ppb); 1,2-Dichloropropane (ND 1 ppb); Trans-1,3 - Dichloropropane (ND 5 ppb); TCE (ND 2 ppb); Bromochloromethane (ND 5 ppb); 1,1,2-TCA (ND 5 ppb); cis-1,3-Dichloropropane (ND 5 ppb); 2-Chloromethylvinylether (ND 5 ppb); Bromoform (ND 10 ppb); 1,1,2,2-Tetrachloroethane (ND 10 ppb); PCE (ND 2 ppb); Chlorobenzene (ND 1 ppb); Dichlorobenzene (ND 1 ppb)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
10/21/85	Surface water Ponded on Lagoon	Weston Sper	VOA	Chloromethane (ND 2 ppb); Bromomethane (ND 10 ppb); Dichlorodifluoromethane (ND 5 ppb); Vinyl chloride (ND 2 ppb); Chloroethane (ND 2 ppb); Ethylene Chloride (ND 5 ppb); Trichlorofluoromethane (ND 5 ppb); 1,1 - DCE (ND 1 ppb); 1,1, - DCA (ND 1 ppb); 1,2 - trans DCE (ND 1 ppb); Chloroform (ND 2 ppb); 1,2 - DCA (ND 1 ppb); 1,1,1 - TCA (ND 2 ppb); Carbon tetrachloride (ND 2 ppb) Bromodichloromethane (ND 2 ppb); 1,2-Dichloropropane (ND 1 ppb); Trans-1,3 - Dichloropropane (ND 5 ppb); TCE (ND 2 ppb); Bromochloromethane (ND 5 ppb); 1,1,2-TCA (ND 5 ppb); cis-1,3-Dichloropropane (ND 5 ppb); 2-Chloromethylvinylether (ND 5 ppb); Bromoform (ND 10 ppb); 1,1,2,2-Tetrachloroethane (ND 10 ppb); PCE (ND 2 ppb); Chlorobenzene (ND 1 ppb); Dichlorobenzene (ND 1 ppb)
10/21/85	Sediment E. Stream downgradient of lagoon	Weston Sper	VOA	Chloromethane (ND 2 ppb); Bromomethane (ND 10 ppb); Dichlorodifluoromethane (ND 5 ppb); Vinyl chloride (ND 2 ppb); Chloroethane (ND 2 ppb); Ethylene Chloride (ND 5 ppb); Trichlorofluoromethane (ND 5 ppb); 1,1 - DCE (ND 1 ppb); 1,1, - DCA (ND 1 ppb); 1,2 - trans DCE (ND 1 ppb); Chloroform (ND 2 ppb); 1,2 - DCA (ND 1 ppb); 1,1,1 - TCA (ND 2 ppb); Carbon tetrachloride (ND 2 ppb) Bromodichloromethane (ND 2 ppb); 1,2-Dichloropropane (ND 1 ppb); Trans-1,3 - Dichloropropane (ND 5 ppb); TCE (ND 2 ppb); Bromochloromethane (ND 5 ppb); 1,1,2-TCA (ND 5 ppb); cis-1,3-Dichloropropane (ND 5 ppb); 2-Chloromethylvinylether (ND 5 ppb); Bromoform (ND 10 ppb); 1,1,2,2-Tetrachloroethane (ND 10 ppb); PCE (ND 2 ppb); Chlorobenzene (ND 1 ppb); Dichlorobenzene (ND 1 ppb)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
5/14/86	Surface water E. Stream upgradient of lagoon	Weston Sper	Base Neutral Extractables	Data Not Available
			Metals	Antimony (<0.025 ppm); Arsenic (<0.01 ppm); Beryllium (<0.005 ppm); Cadmium (<0.003 ppm); Chromium (0.065 ppm); Copper (0.895 ppm); Lead (1.14 ppm); Mercury (<0.0005 ppm); Nickel (<0.01 ppm); Selenium (<0.005 ppm); Silver (<0.01 ppm); Thallium (<0.01 ppm); Zinc (0.342 ppm)
5/14/86	Sediment E. Stream upgradient of lagoon	Weston Sper	Base Neutral Extractables	di-n-butyl Phthalate (6.9 ppm) Butyl Benzyl Phthalate (860 ppb); bis (2 - ethylhexyl); Phthalate (27 ppb)
			Metals	Antimony (<6.93 ppm); Arsenic (3.05 ppm); Beryllium (<2.77 ppm); Cadmium (<0.693 ppm); Chromium (15.8 ppm); Copper (17 ppm); Lead (74.8 ppm); Mercury (<0.347 ppm); Nickel (11 ppm); Selenium (<1.39 ppm); Silver (<2.77 ppm); Thallium (<2.77 ppm); Zinc (0.1%)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
5/14/86	Surface water E. Stream downgradient of lagoon	Weston Sper	Base Neutral Extractables	Data Not Available
			Metals	Antimony (<0.025 ppm); Arsenic (<0.01 ppm); Beryllium (<0.005 ppm); Cadmium (<0.003 ppm); Chromium (<0.01 ppm); Copper (0.037 ppm); Lead (0.17 ppm); Mercury (<0.0005 ppm); Nickel (<0.01 ppm); Selenium (<0.005 ppm); Silver (<0.01 ppm); Thallium (<0.01 ppm); Zinc (0.108 ppm)
5/14/86	Sediment E. Stream downgradient of lagoon	Weston Sper	Base Neutral Extractables	di-n-butyl Phthalate (9.6 ppm) Butyl Benzyl Phthalate (650 ppb); bis (2 - ethylhexyl) Phthalate (310 ppb)
			Metals	Antimony (<7.7 ppm); Arsenic (<3.08 ppm); Beryllium (<3.08 ppm); Cadmium (<0.77 ppm); Chromium (0.2%); Copper (425 ppm); Lead (0.1%); Magnesium (<0.039 ppm); Nickel (12 ppm); Selenium (<1.54 ppm); Silver (<3.08 ppm); Thallium (<3.08 ppm); Zinc (375 ppm)

TABLE 2-5
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLING (Continued)

Date Sampled	Location/ Matrix	Sampler	Test	Results
5/14/86	Sediment E. Stream at Culvert below lagoon	Weston Sper	Base Neutral Extractables	di-n-butyl Phthalate (2.2 ppm) Butyl Benzyl Phthatate (2.7 ppm); bis (2 - ethylhexyl) Phthalate (810 ppb)
			Metals	Antimony (14 ppm); Arsenic (2.35 ppm); Beryllium (<2.28 ppm); Cadmium (<0.571 ppm); Chromium (0.2%); Copper (0.1%); Lead (0.9%); Magnesium (<0.29 ppm); Nickel (16 ppm); Selenium (<1.14 ppm); Silver (<2.28 ppm); Thallium (<3.42 ppm); Zinc (431 ppm)
5/14/86	Surface water Pond outside of lagoon fence	Weston Sper	Base Neutral Extractables	Data Not Available
			Metals	Antimony (<0.03 ppm); Arsenic (<0.01 ppm); Beryllium (<0.005 ppm); Cadmium (<0.003 ppm); Chromium (0.065 ppm); Copper (0.895 ppm); Lead (1.14 ppm); Mercury (<0.0005 ppm); Nickel (<0.01 ppm); Selenium (<0.005 ppm); Silver (<0.01 ppm); Thallium (<0.01 ppm); Zinc (0.342 ppm)

Table 2-6: Off-Site Well Locations And Addresses

Name	Lot Number *1	Street Number	Street Name	Phone Number (717)	Well Depth (Feet)	Casing Depth (Feet)	Water Depth (Feet)	Number of Well Water Analyses
Aikins, Wilmer L.	13 A	555	Hunterstown	334-7916	296			2
Allen, Robert M.	33 A		Oak Lane					0
Black, James F., Sr.	7	544	Hunterstown	334-3584	210			1
Black, Orville D.	94	125	Hunterstown	334-3638	94	20	25	1
Fair, Cleason Jr.	44	1315	Old Harrisburg	334-3282				0
Fissel, Stephen C. *2	39 E	485	Hunterstown	337-3814				4
Flynn, Mary								1
Gunnet, Emanuel C.	46	1295	Old Harrisburg	334-1064				0
Harbaugh, E. Frank	4	455	Shealer	334-3291	126			1
Heflin, Lee W. *3	45	230 A	Shealer	334-2214	220			2
Heflin, Vernon *3	45	230 B	Shealer	334-3747	220			2
Heflin, William F.	44 B	336	Hunterstown	334-2687	250			3
Heiges Masonry Inc.	67	235	Hunterstown	334-1249				1
Hoffman, Dale C.	35	335	Shealer	334-3583				3
Hoffman, Kathryn M.	36	325	Shealer	334-3545				3
Hull, John A.	30	460	Shealer	334-1926				1
Kauffman, Earl H.	65	217	Hunterstown	334-1828				5
Kennedy, Vincent	39 B		Hunterstown					1
Kessler, Mrs. Hazel I.	64	211	Hunterstown	334-3675				1
Ketterman, Barbara	9	520	Hunterstown	334-8323				3
Klunk, Michael J.	47 A	55	Shealer	334-8412				1
Knox, David P.	48	1275	Old Harrisburg	334-2766				0
Kuhn, Paul W.	47	1285	Old Harrisburg	334-9490				0
Laughman, Carole M.	33		Oak Lane	334-8812				0
Light, Larry K.	63	209	Hunterstown	334-9442				1
Lott, John K. *4	3		Old Harrisburg					0
Lott, John K. *5	50		Old Harrisburg					0
Lott, John K. *6	51	646	Hunterstown	334-3560				1
Martin, Paul W. *7	8	534	Hunterstown		150			1
Maslowski, Angela A.	43	1325	Old Harrisburg	334-1530				0
McDermitt Concrete Inc.	112	83	Hunterstown	334-2131				1
McIlhenny, Hugh C.	1	1264	Old Harrisburg	334-4219				0
McMahan, Thomas J. *8	12	545	Hunterstown	334-3823				2
Moritz, Charles W.	6	554	Hunterstown	334-3580	210			2
Phiel, Richard *9	10 A		Hunterstown					1
Platt, Marlin L.	13	559	Hunterstown	334-7531				1
Rice, Fred H.	93	115	Hunterstown	334-2690	130	20	20	1
Sanders, Francis *10	46	181	Shealer		65			2
Shealer, Edgar G. *11	39	476	Hunterstown					0
Shealer, Frederick M.	10	510	Hunterstown	334-3565	275			2
Shealer, Frederick M. *12	39 D		Hunterstown					0
Shealer, Gerald F. *13	11	531	Hunterstown	334-6360	280			2
Shealer, James M. *14	39 F	495	Hunterstown	334-8761				
Shealer, Mrs. S. Catherine	34	345	Shealer	334-3788				2
Shriver, Frank	39 C		Hunterstown		100			1
Shultz, Ruth I.	40		Shealer					0
Shupe, Ray M.	62	190	Hunterstown	334-7419				1
Smith, Ronald H. -	37	315	Shealer	334-8898				4
Sparks, Gary *15	39 E	485	Hunterstown					
Taughinbaugh, George W *16	31	416	Shealer	334-1923				1
Topper, Robert H.	92	103	Hunterstown	334-5902	40	40	42	1
Tressler, Melvin E.	5	566	Hunterstown	334-3581	190			1
Vaughn, William	39 G	445	Hunterstown	334-3592	45			1
Waddell, Donald C. *17	44 A	340	Hunterstown	334-3587	65			2
Waddell, Donald H. *18	45 A	295	Shealer	334-5291	220			2
Waddell, Samuel C. *19	44	318	Hunterstown	334-6024	15			
Wagner, Rufus J.	95	135	Hunterstown	334-5087	85			1
Weaver, Dennis M.	39 A	455	Hunterstown	334-7272				5
Wells, Julius E.	32 A	315	Oak Lane	334-4838				0
Wisotzkey, Joseph	1 A		Old Harrisburg					0

Table 2-6: Off-Site Well Locations And Addresses

* Footnotes:

1) Lot numbers refer to tax map numbers assigned to residents at each site. In some cases these have been changed so that no duplication of numbers occurs within a site.

2) Previous tenant at 485 Hunterstown Road was Gary Sparks up until June 1986. This residence shares a well with James M. Shealer 495 Hunterstown, lot 39 F.

3) Probably the "white farmhouse apartments". Residence contained on section of lot 45 closest to Western Maryland Railroad line. Property owned by Donald C. Waddell, 340 Hunterstown, Gettysburg 334-3587.

4) Property owned by J.K. Lott; home address 646 Hunterstown, Gettysburg 334-3560.

5) Property co-owned by John K. Lott, William Lott and E. Robert Lott.

6) Residence contained on section of lot 51 north of lot 5 (Melvin E. Tressler) on the west side of Hunterstown Road.

7) Current address: Centennial Avenue Ext., Hanover 632-2662.

8) Current address: unknown; not in July 1986 phone book. Possibly still residing at this address.

9) Property owned by R. Phiel; home address 3097 Baltimore, Gettysburg 334-3586.

10) Sometimes referred to as the "Kilgore residence". Additional reference to a 75 foot well. Property owned by Donald C. Waddell, 340 Hunterstown, Gettysburg 334-3587.

11) Residence contained on section of lot 39 closest to the Old Harrisburg Road.

12) Property owned by F.M. Shealer; home address 510 Hunterstown, Gettysburg 334-3565.

13) Listed in July 1986 phone book as "B.A. Shealer".

14) This residence shares a well with Stephen C. Fissel 485 Hunterstown, lot 39 E.

15) Resident at 485 Hunterstown Road up to June 1986. This residence shares a well with James M. Shealer 495 Hunterstown, lot 39 F.

16) Also the residence of Margaret Taughinbaugh.

17) Donald C. Waddell is sometimes referred to as "Donald Waddell, Sr.". July 1986 phone book lists a "Mrs. Caryl Waddell" at 340 Hunterstown. This residence possibly shares a well with Samuel C. Waddell 318 Hunterstown, lot 44.

18) Donald H. Waddell is sometimes referred to as "Donald Waddell, Jr.".

19) Property owned by Donald C. Waddell, 340 Hunterstown, Gettysburg 334-3587. This residence possibly shares a well Donald C. Waddell 340 Hunterstown, lot 44 A.

Table 2-7: Off-Site Well Analytical Data

Name	Lot Number *1	Date Mo Day Yr	Chemical Tests *2	TCE	1,1,1-TCA	1,1-DCE	1,1-DCA	PCE	Other Compounds	Original Lab Data Report	Data Source File *4
				Contaminant Concentrations (micrograms per liter) *3							
Aikins, Wilmer L.	13 A	3 27 84	VOA								PADER
"		5 21 84	VOA								PADER
Black, James F., Sr.	7	3 27 84	VOA								PADER
Black, Orville D.	94	6 20 85	VOA								NUS
Fissel, Stephen C. *5	39 E	5 21 84	VOA	~500.0	~500.0	95.0	1.5	1.6	1,2-DCE 1.2 See *6		PADER
"		3 27 84	VOA		436.0						PADER
"		12 21 84	VOA	181.8					Trichlorotrifluoroethane 0.8	XXX	Culligan
"		1 28 85	*7	480.0	390.0	71.0					NUS
Flynn, Mary		11 25 85	VOA		<1.0				Chloroform <1.0		PADER
Harbaugh, E. Frank	4	8 1 84	VOA					NA			PADER
Heflin, Lee W./Vernon *8	45	3 14 84	VOA	18.0	12.0	12.0			1,2-DCE 1.4		PADER
"		1 28 85	*7	19.0	~13.0						NUS
Heflin, William F.	44 B	4 24 84	VOA	5.9	5.1	1.6					PADER
"		12 21 84	VOA	7.4	3.4					XXX	Culligan
"		1 28 85	*7		<5.0						NUS
Heiges Masonry Inc.	67	6 20 85	VOA								NUS
Hoffman, Dale C.	35	4 24 84	VOA	9.0	>120.0	55.0	14.0	<1.0	1,2-DCE 3.4		PADER
"		12 21 84	VOA	11.6						XXX	Culligan
"		1 28 85	*7	9.0	300.0	16.0	63.0				NUS
Hoffman, Kathryn M.	36	4 24 84	VOA	<1.0	26.0	3.5					PADER
"		12 21 84	VOA	Trace						XXX	Culligan
"		1 28 85	*7		7.0						NUS
Hull, John A.	30	8 1 84	VOA								PADER
Kauffman, Earl H.	65	5 21 84	VOA	<1.0				<1.0			PADER
"		2 6 85	VOA							XXX	PADER
"		4 24 85	VOA							XXX	PADER
"		8 5 85	VOA							XXX	PADER
"		11 19 85	VOA								PADER
Kennedy, Vincent	39 B	2 23 84	VOA		2.5	2.1		1.0			PADER
Kessler, Mrs. Hazel I.	64	6 20 85	VOA								NUS
Ketterman, Barbara	9	3 14 84	VOA					<1.0			PADER
"		2 6 85	VOA							XXX	PADER

AR305539

Table 2-7: Off-Site Well Analytical Data

Name	Lot Number *1	Date Mo Day Yr	Chemical Tests *2	Contaminant Concentrations (micrograms per liter) *3 TCE	1,1,1-TCA	1,1-DCE	1,1-DCA	PCE	Other Compounds	Original Lab Data Report	Data Source File *4
"		8 5 85	VOA							XXX	PADER
Klunk, Michael J.	47 A	10 10 84	VOA								PADER
Light, Larry K.	63	3 13 84	SCAN			NA	NA		NA		PADER
Lott, John K. *9	51	3 27 84	VOA								PADER
Martin, Paul W.	8	3 28 84	VOA								PADER
McDermitt Concrete Inc.	112	6 20 85	VOA						Lot contains two wells; see *10		NUS
McMahan, Thomas J.	12	3 27 84	VOA								PADER
"		12 19 85	VOA								PADER
Moritz, Charles W.	6	3 27 84	VOA						Significant peak-unidentified		PADER
"		5 21 84	VOA								PADER
Phiel, Richard	10 A	12 14 83	VOA	1.2	1.7	<1.0		[illegible]			PADER
Platt, Marlin L.	13	3 27 84	VOA								PADER
Rice, Fred H.	93	6 20 85	VOA								NUS
Sanders, Francis *11	46	3 14 84	VOA	>150.0	1.7	2.4		<1.0	1,2-DCE>150.0; Vinyl Chloride<1.0		PADER
"		12 21 84	VOA	105.3	Trace					XXX	Culligan
Shealer, Frederick M.	10	3 28 84	VOA								PADER
"		8 1 84	VOA	<1.0	1.1			<1.0			PADER
Shealer, Gerald F.	11	3 27 84	VOA								PADER
"		8 1 84	VOA								PADER
Shealer, James M. *12	39 F	*********									
Shealer, Mrs. S. Catherine	34	4 24 84	VOA	1.5	63.0	9.2	1.4	<1.0			PADER
"		1 28 85	*7		85.0	20.0					NUS
Shriver, Frank	39 C	3 14 84	VOA								PADER
Shupe, Ray M.	62	6 20 85	VOA								NUS
Smith, Ronald H.	37	3 28 84	VOA		8.4		1.0				PADER
"		5 21 84	VOA	6.5	1.4	<1.0	1.5		1,2-DCE 1.2		PADER
"		12 21 84	VOA	1.4						XXX	Culligan
"		1 28 85	*7	~1.0	~4.0						NUS

AR305540

Table 2-7: Off-Site Well Analytical Data

Name	Lot Number *1	Date Mo Day Yr	Chemical Tests *2	Contaminant Concentrations (micrograms per liter) *3 TCE	1,1,1-TCA	1,1-DCE	1,1-DCA	PCE	Other Compounds	Original Lab Data Report	Data Source File *4
Sparks, Gary *13	39 E	*********									
Taughinbaugh, George W *14	31	8 1 84	VOA								PADER
Topper, Robert H.	92'	6 20 85	VOA								NUS
Tressler, Melvin E.	5	3 27 84	VOA								PADER
Vaughn, William	39 G	12 14 83	VOA	<1.0	<1.0	<1.0		1.3			PADER
Waddell, Donald C. *15	44 A	4 24 84	VOA						Sample from 15 foot dug well		PADER
"		8 14 84	VOA		24.0		4.7	<1.0	Sample from 65 foot well		PADER
Waddell, Donald H.	45 A	2 23 84	VOA	66.0	82.0	26.0			1,2-DCE 9.7		PADER
"		1 28 85	*7	52.0	36.0	9.0					NUS
Waddell, Samuel C. *16	44	*********									
Wagner, Rufus J.	95	6 20 85	VOA								NUS
Weaver, Dennis M.	39 A	3 14 84	VOA								PADER
"		2 6 85	VOA							XXX	PADER
"		4 24 85	VOA							XXX	PADER
"		8 5 85	VOA							XXX	PADER
"		11 19 85	VOA								PADER

AR305541

Table 2-7: Off-Site Well Analytical Data

* Footnotes:

1) Lot numbers refer to tax map numbers assigned to residents at each site. In some cases these have been changed so that no duplication of numbers occurs within a site.

2) The chemical tests listed are defined as follows:
   - VOA: Full range of volatile organic compounds with detection limits of approximately 0.5-1.0 ug/l.
   - SCAN: "TCE scan" which analyzes for TCE, 1,1,1-TCA and PCE only; detection limits same as above.

   Note: a blank space indicates that the compound in question was tested for but found to be at or below the detection limit. "NA" means that the compound was not tested for.

3) The contaminants listed are defined as follows:
   - TCE: Trichloroethylene
   - 1,1,1-TCA: 1,1,1-Trichloroethane
   - 1,1-DCE: 1,1-Dichloroethylene
   - 1,1-DCA: 1,1-Dichloroethane
   - PCE: Perchloroethylene or Tetrachloroethylene

   Note: "ethylene" and "ethene" are the same exact compound with formula $CH2=CH2$.

4) Explanation of "Data Source File" Headings:
   - Culligan: Sample originally collected by Culligan T.N.T. Enterprises Inc., Biglerville PA.
   - NUS: Sample originally collected by NUS Corporation.
   - PADER: Sample originally collected by Pennsylvania Dept. of Environmental Resources.
   - Ramp (Westinghouse): Data from the "Remedial Action Master Plan" report and originally supplied by Westinghouse Corporation.

5) Previous tenant at this residence was Gary Sparks up until June 1986. This residence also shares a well with James M. Shealer 495 Hunterstown Road, lot 39 F. All data for G. Sparks and J.M. Shealer are included here.

6) The values of 500 parts per billion for TCE and 1,1,1-TCA are estimates.

7) Type of chemical test performed is unknown.

8) Residence is the "white farmhouse apartments" with one well. Tenants are Lee W. Heflin 230-A Shealer Road and Vernon Heflin 230-B Shealer Road. Property is owned by Donald C. Waddell 340 Hunterstown, Gettysburg 334-3587.

9) Residence contained on section of lot 51 north of lot 5 (Melvin E. Tressler) on the west side of Hunterstown Road.

10) McDermitt Concrete Inc. owns two wells. Both were tested and volatile organics were not detected in either.

11) Sometimes referred to as the "Kilgore Residence". Property is owned by Donald C. Waddell 340 Hunterstown, Gettysburg 334-3587.

12) This residence shares a well with Stephen C. Fissel 485 Hunterstown lot 39 E. See that heading for all data.

13) Resident at lot 39 E (485 Hunterstown) up to June 1986. Current resident at this address is Stephen C. Fissel. Please see that name for tabulation of all data from this well.

14) Also the residence of Margaret Taughinbaugh.

15) Donald C. Waddell is sometimes referred to as "Donald Waddell, Sr.". This residence possibly shares a well with Samuel C. Waddell 318 Hunterstown, lot 44.

16) This residence possibly shares a well with Donald C. Waddell 340 Hunterstown, lot 44 A.

TABLE 4-1

MONITORING WELL SUMMARY

WELL NUMBER	APPROXIMATE SURFACE ELEVATION (feet, MSL)	TARGET ZONE
MW-1A	573	Immediately below surface watertable.
MW-1B	573	Elevation interval 415 to 465 feet MSL.
MW-2A	550	Immediately below surface watertable.
MW-2B	550	Elevation interval 415 to 465 feet MSL.
MW-3A	542	Immediately below surface watertable.
MW-3B	542	Elevation interval 415 to 465 feet MSL.
MW-4A	560	Immediately below surface watertable.
MW-4B	560	Elevation interval 415 to 465 feet MSL.
MW-5A	536	Immediately below surface watertable.
MW-5B	536	Elevation interval 415 to 465 feet MSL.
MW-6A	536	Immediately below surface watertable.
MW-6B	536	Elevation interval 415 to 465 feet MSL.
MW-7A	548	Immediately below surface watertable.
MW-7B	548	Elevation interval 415 to 465 feet MSL.

TABLE 4-1
(Continued)

WELL NUMBER	APPROXIMATE SURFACE ELEVATION (feet, MSL)	TARGET ZONE
MW-8A	546	Immediately below surface watertable.
MW-8B	546	Elevation interval 415 to 465 feet MSL.
MW-9A	547	Immediately below surface watertable.
MW-9B	547	Elevation interval 415 to 465 feet MSL.
MW-10A	537	Immediately below surface watertable.
MW-10B	537	Elevation interval 415 to 465 feet MSL.

MW11 A/B Deleted

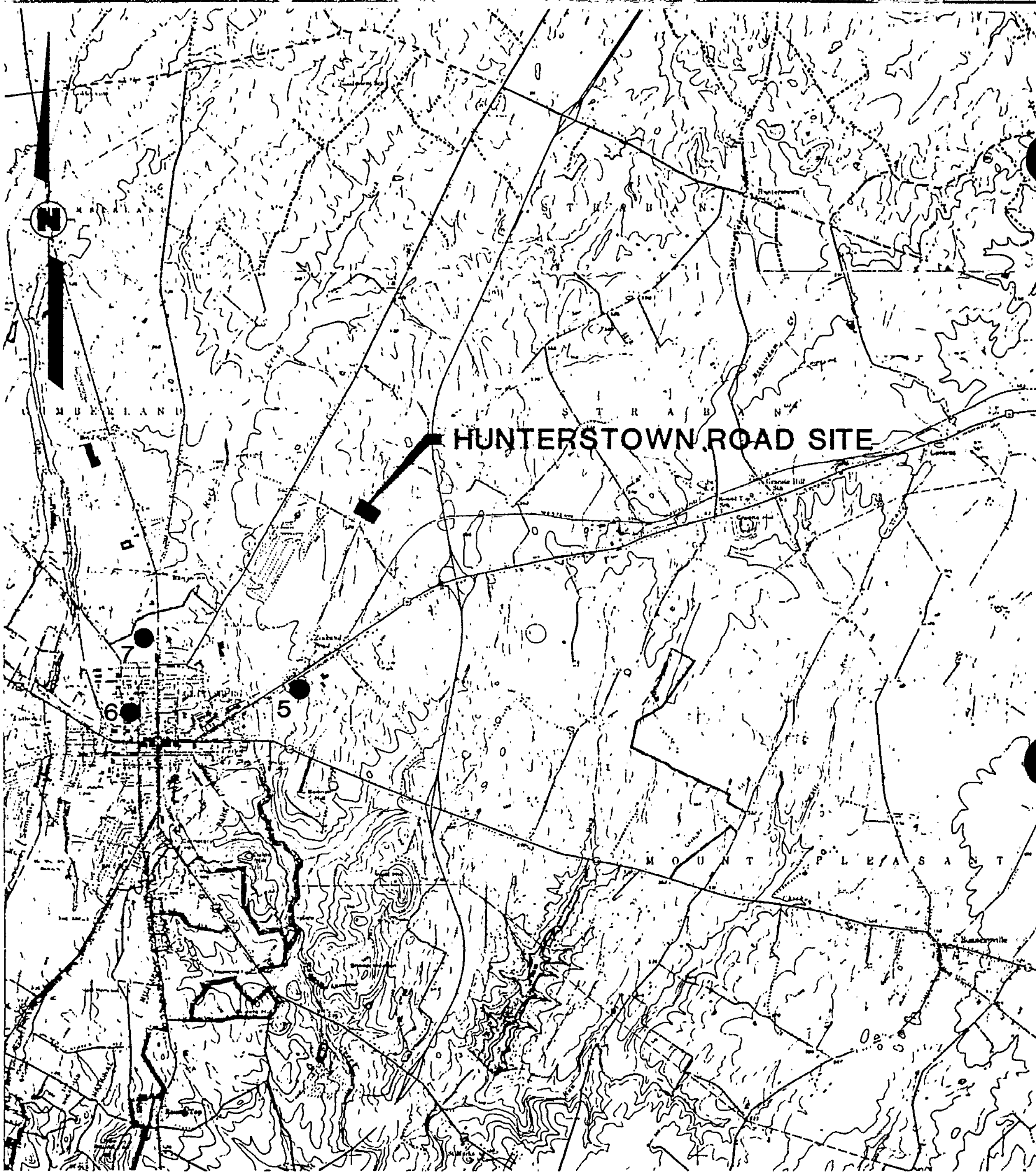
TABLE 4-2

ANALYTICAL SUMMARY - PHASE I RI

SAMPLE TYPE	AREA	SAMPLES COLLECTED	SAMPLES ANALYZED	TYPE OF ANALYSIS
Soil	Cornfields	65	6	TCL[1]
	Lagoon	2	1	TCL
	Borrow Area	5	1	TCL, Asbestos
	Background	1	1	TCL
	QA Duplicate	1	1	TCL
Soil/Waste	Stressed Vegetation Area[2]	5	5	TCL
	QA Duplicate	1	1	TCL
Surface Water	East Stream	1	1	TCL
	West Stream	1	1	TCL
	Middle Stream	1	1	TCL
	QA Duplicate	1	1	TCL
Sediment	East Stream	2	2	TCL
	West Stream	1	1	TCL
	Middle Stream	1	1	TCL
	Pond	1	1	TCL
	QA Duplicate	1	1	TCL
Ground-water	Total Site	20	20	TCL
	QA Duplicate	1	1	TCL
TOTALS		111	47	

1. EPA Target Compound List.
2. Estimated number of samples; actual number depends on the amount of soil/waste found at the Stressed Vegetation Area.

FIGURES



DRAWN BY	A.C.Smith	9-1-87
CHECKED BY	JTD	9-21-87
APPROVED BY	JTD	9-21-87
DRAWING NUMBER	87-376-A1	

SCALE

5000 0 5000 FEET

LEGEND:

7 ● LOCATION OF MUNICIPAL WELL

REFERENCE:

U.S.G.S TOPOGRAPHIC MAPS OF GETTYSBURG, PA AND BIGLERVILLE, PA, BOTH PHOTOREVISED IN 1973, SCALE: 1" = 2000'.

FIGURE 2-1

SITE LOCATION MAP

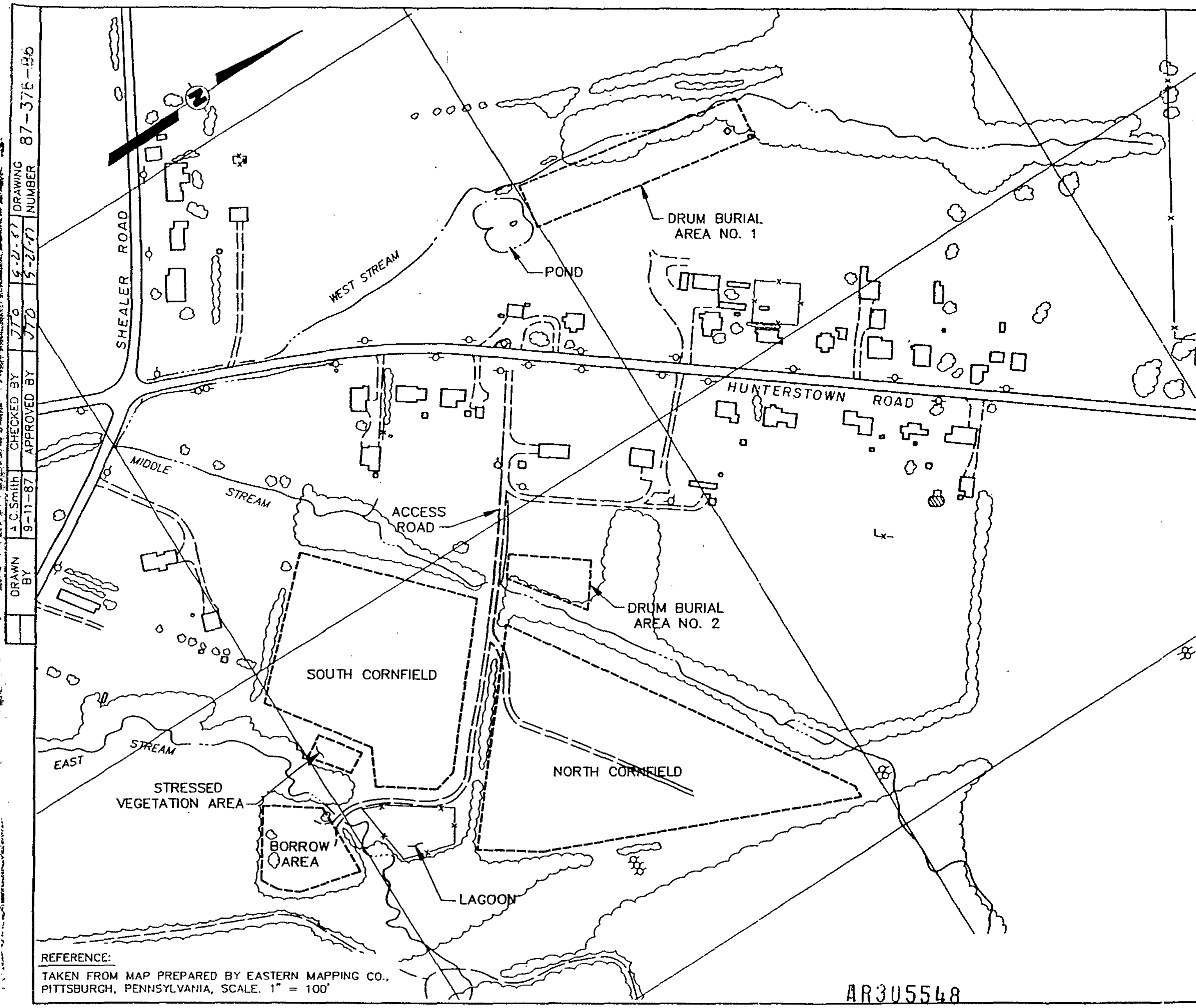
HUNTERSTOWN ROAD SITE
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA

PREPARED FOR

WESTINGHOUSE ELECTRIC CORPORAT
PITTSBURGH, PENNSYLVANIA

Paul C. Rizzo Associates, Inc.
CONSULTANTS

AR305547



REFERENCE:
TAKEN FROM MAP PREPARED BY EASTERN MAPPING CO., PITTSBURGH, PENNSYLVANIA, SCALE. 1" = 100'

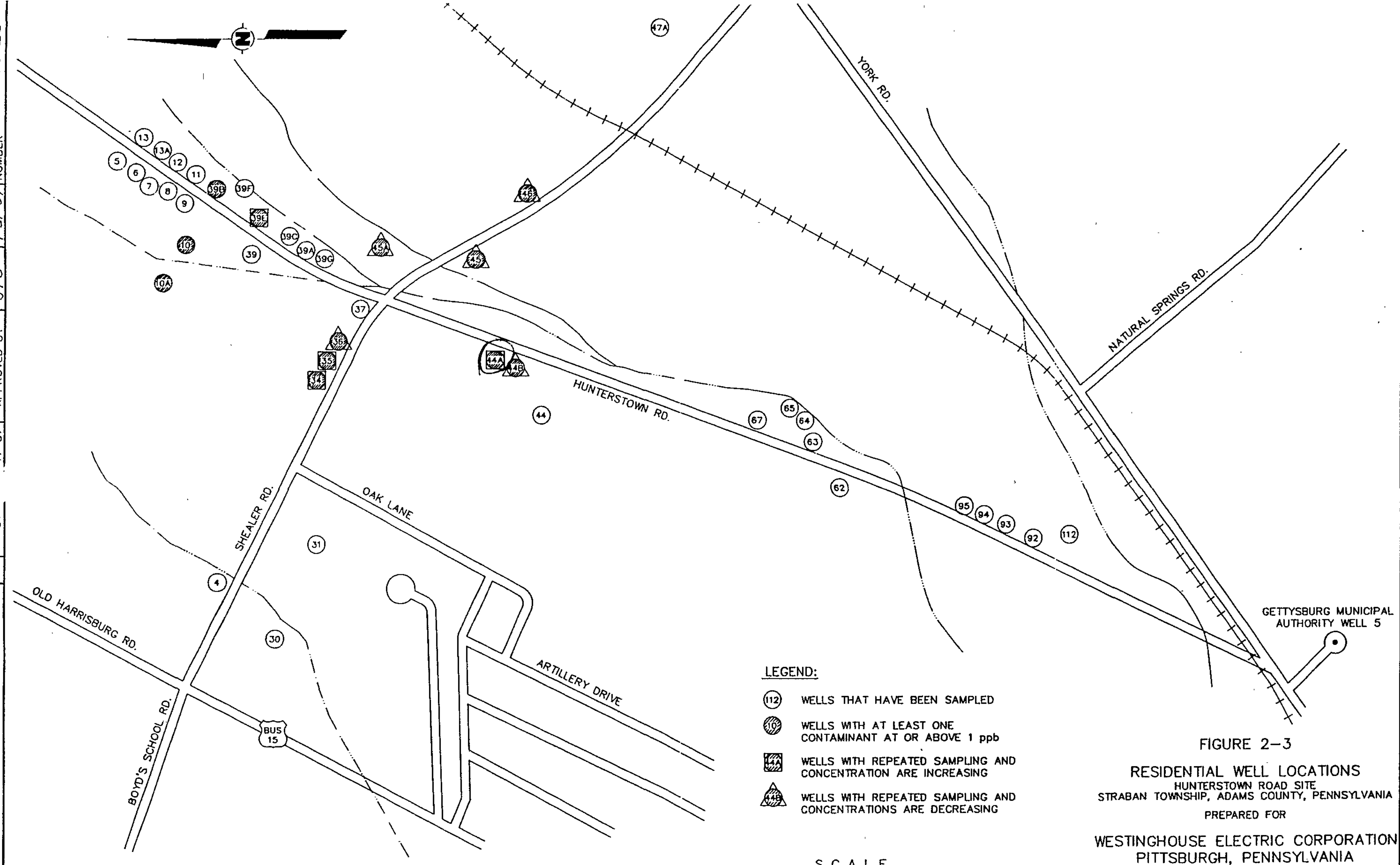
AR305548

FIGURE 2-2

SITE PLAN
HUNTERSTOWN ROAD SITE
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA
PREPARED FOR
WESTINGHOUSE ELECTRIC CORPORATION
PITTSBURGH, PENNSYLVANIA

Paul C. Rizzo Associates, Inc.
CONSULTANTS

DRAWN BY	Smith	CHECKED BY	JTO	9-21-87	DRAWING NUMBER	87-376-B3
	1-87	APPROVED BY	JTO	9-21-87		



LEGEND:

- (112) WELLS THAT HAVE BEEN SAMPLED
- (10) WELLS WITH AT LEAST ONE CONTAMINANT AT OR ABOVE 1 ppb
- (44A) WELLS WITH REPEATED SAMPLING AND CONCENTRATION ARE INCREASING
- (44B) WELLS WITH REPEATED SAMPLING AND CONCENTRATIONS ARE DECREASING

SCALE
400 0 400 FEET

FIGURE 2-3

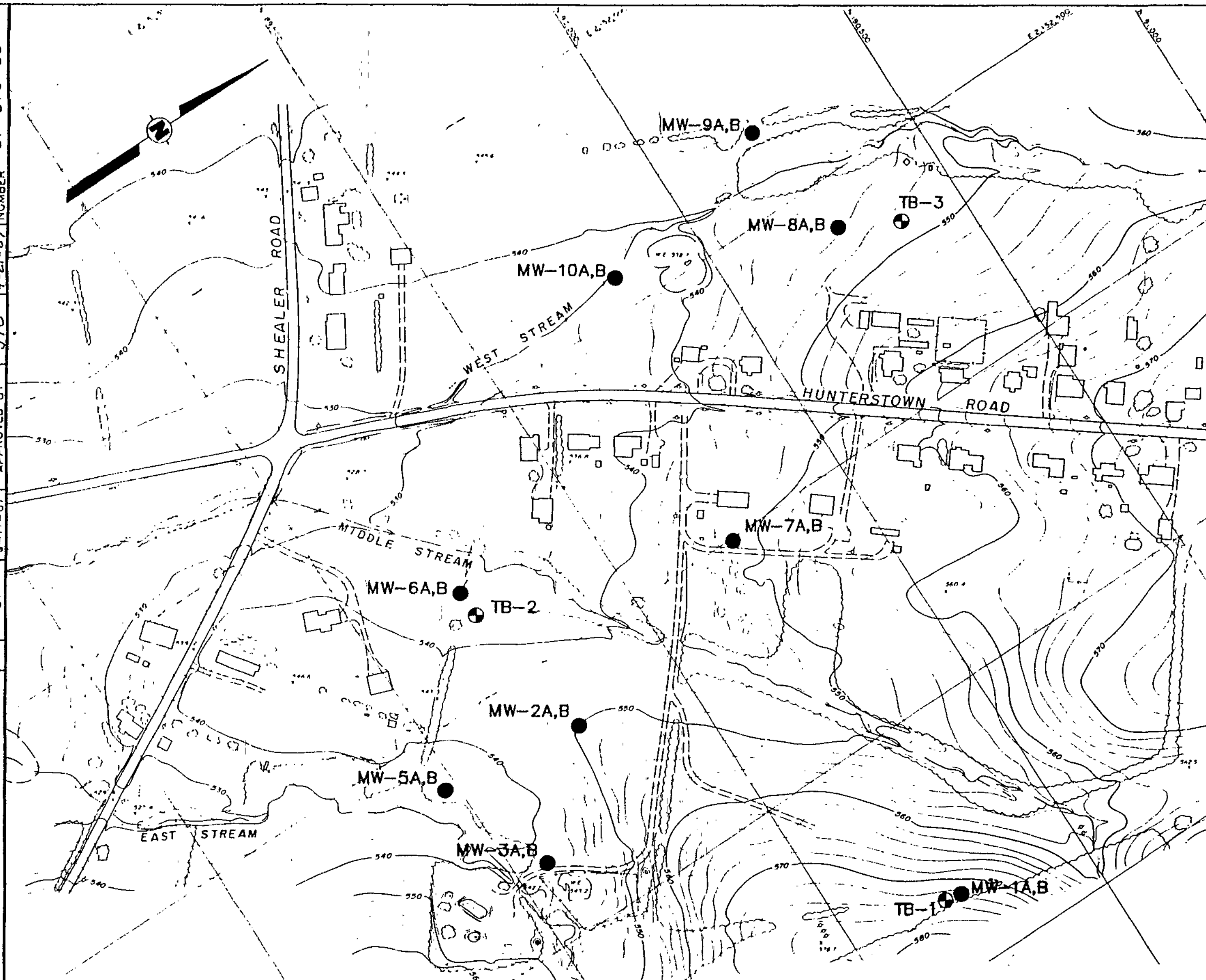
RESIDENTIAL WELL LOCATIONS
HUNTERSTOWN ROAD SITE
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA
PREPARED FOR

WESTINGHOUSE ELECTRIC CORPORATION
PITTSBURGH, PENNSYLVANIA

Paul C. Rizzo Associates, Inc.
CONSULTANTS

AR305549

DRAWN BY	A.C Smith 9-11-87	CHECKED BY APPROVED BY	JTD JTD	9-21-87 9-21-87	DRAWING NUMBER	87-376-85



REFERENCE:
TOPOGRAPHY PREPARED BY EASTERN MAPPING CO., PITTSBURGH, PENNSYLVANIA, SCALE: 1" = 100'

LEGEND:

MW-6A,B ● PROPOSED MONITORING WELL LOCATION

TB-2 ⊕ PROPOSED TEST BORING LOCATION

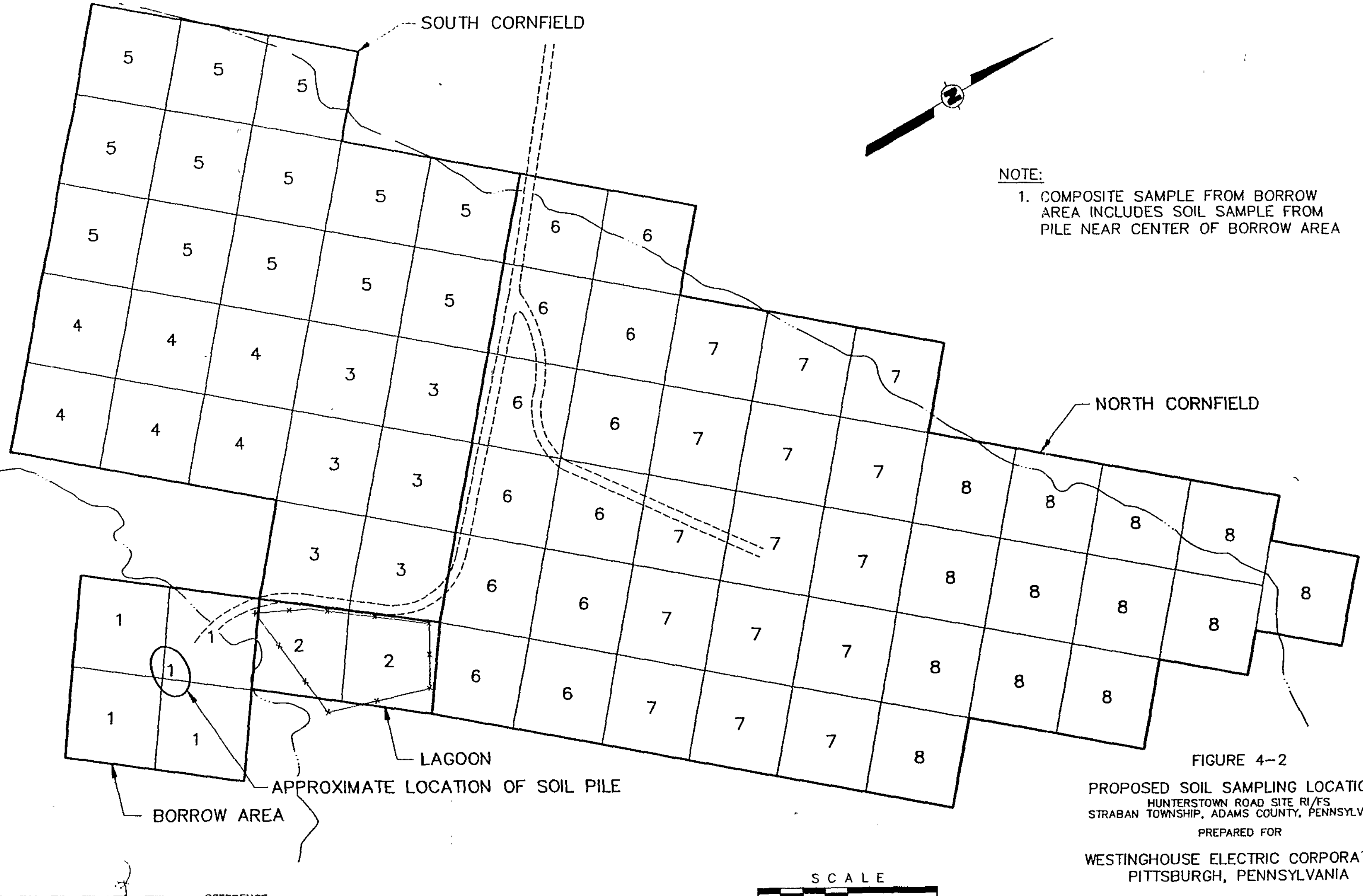
SCALE
200 0 200 FEET

FIGURE 4-1
PROPOSED MONITORING WELL AND TEST BORING LOCATIONS
HUNTERSTOWN ROAD SITE
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA
PREPARED FOR
WESTINGHOUSE ELECTRIC CORPORATION
PITTSBURGH, PENNSYLVANIA

Paul C. Rizzo Associates, Inc.
CONSULTANTS

AR305550

DRAWN BY	A.C.Smith 9-11-87	CHECKED BY / APPROVED BY	JTO / JTO	9-…-87	DRAWING NUMBER	87-376-B2△



NOTE:

1. COMPOSITE SAMPLE FROM BORROW AREA INCLUDES SOIL SAMPLE FROM PILE NEAR CENTER OF BORROW AREA

△ CHANGED SAMPLE NUMBERS AND ADDED NOTE 11-23-87 JTO

REVISIONS

REFERENCE:
TAKEN FROM TOPOGRAPHIC MAP PREPARED BY EASTERN MAPPING CO., SCALE: 1" = 100'.

FIGURE 4-2

PROPOSED SOIL SAMPLING LOCATIONS
HUNTERSTOWN ROAD SITE RI/FS
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA

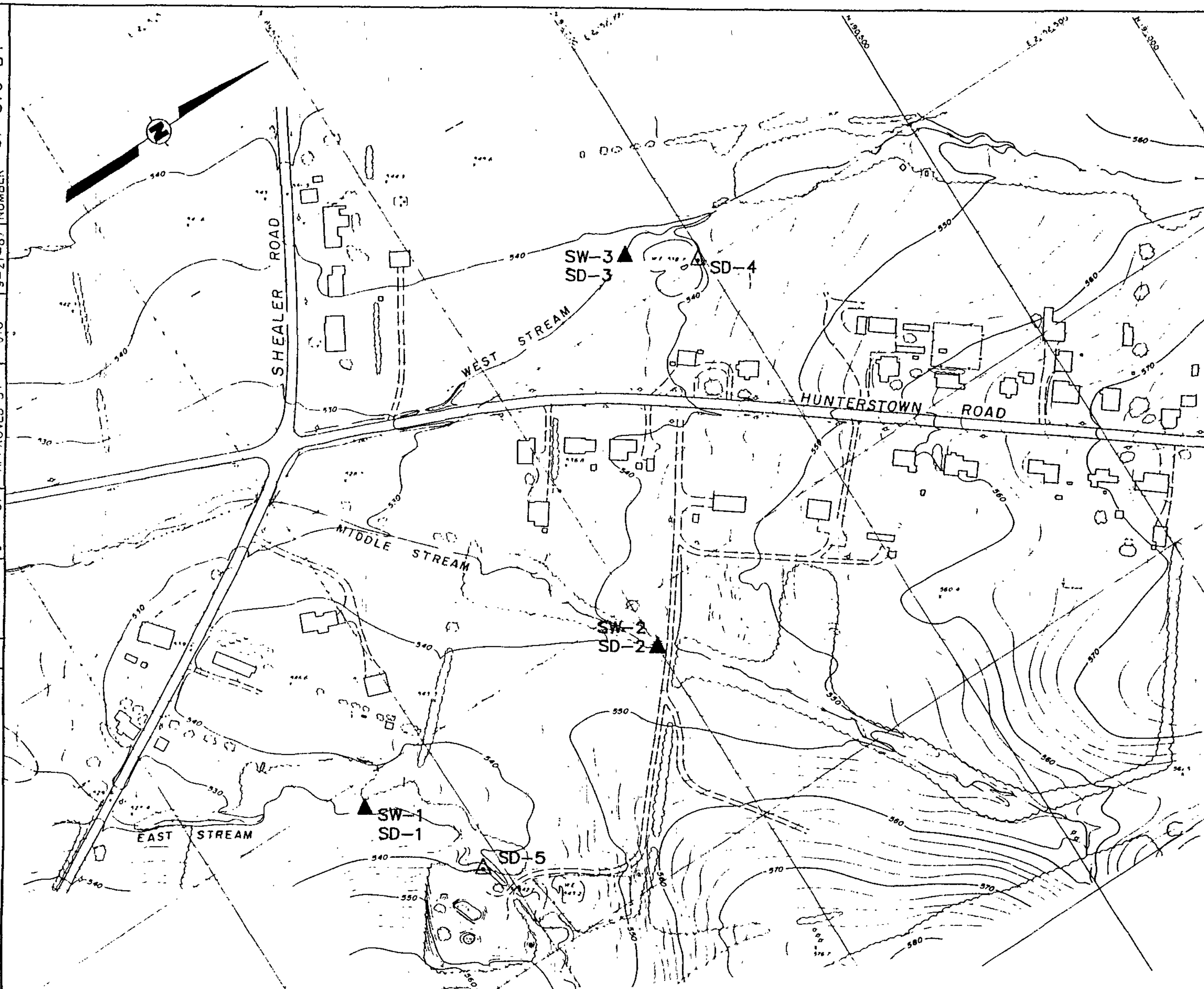
PREPARED FOR

WESTINGHOUSE ELECTRIC CORPORATION
PITTSBURGH, PENNSYLVANIA

Paul C. Rizzo Associates, Inc.
CONSULTANTS

AR305551

DRAWN BY	A D G	9-11-87	CHECKED BY	JTO	9-21-87	DRAWING NUMBER	87-376-B4
			APPROVED BY	JTO	9-21-87		



LEGEND:

SW-3 ▲ SD-3 SURFACE WATER/SEDIMENT SAMPLING LOCATION

SD-5 △ SEDIMENT SAMPLING LOCATION

SCALE

200 0 200 FEET

FIGURE 4-3

PROPOSED SURFACE WATER/SEDIMENT SAMPLING LOCATIONS

HUNTERSTOWN ROAD SITE

STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA

PREPARED FOR

WESTINGHOUSE ELECTRIC CORPORATION

PITTSBURGH, PENNSYLVANIA

Paul C. Rizzo Associates, Inc.

CONSULTANTS

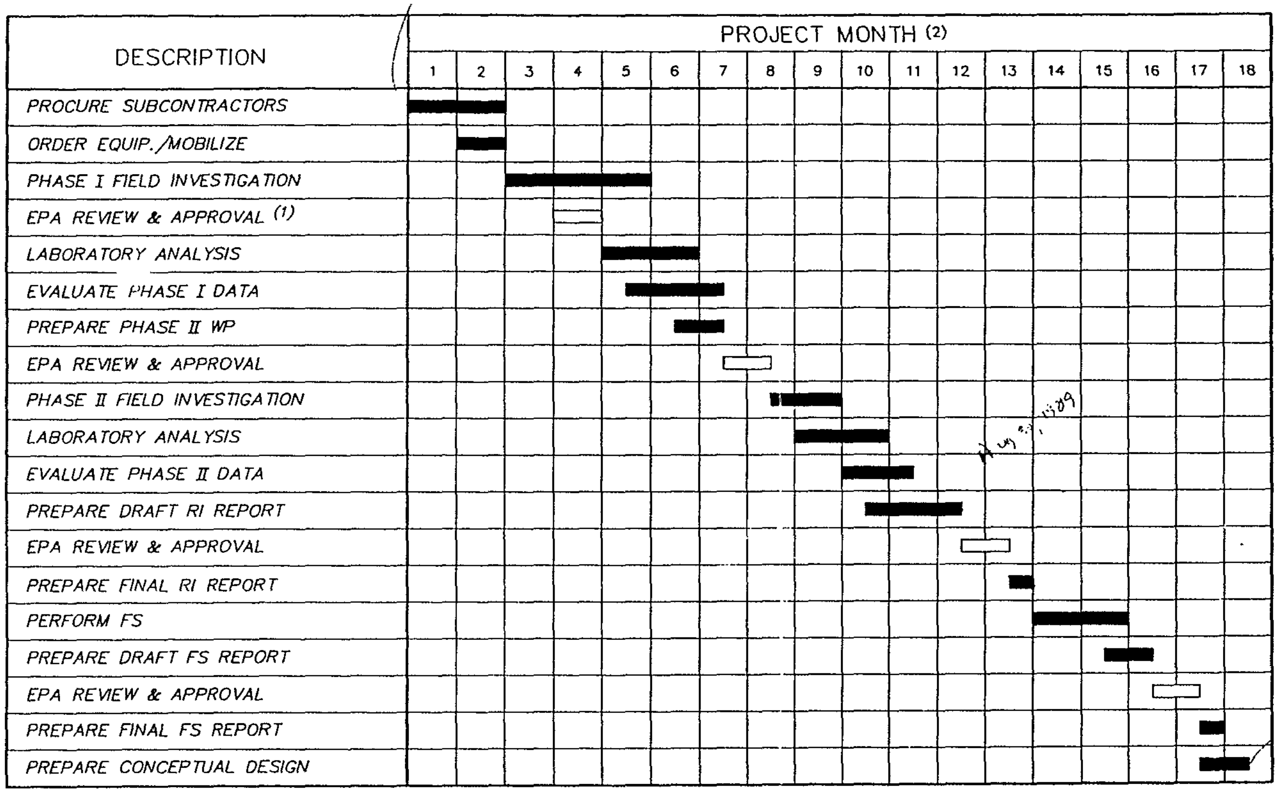
△ REVISED SAMPLE LOCATIONS 11-23-87

REVISIONS

REFERENCE:

TOPOGRAPHY PREPARED BY EASTERN MAPPING CO., PITTSBURGH, PENNSYLVANIA, SCALE: 1" = 100'

AR305552



NOTES:

1. EPA REVIEW AND APPROVAL FOR WASTE SAMPLING PLAN FOR SHEALER AREA.
2. PROJECT WILL INITIATE WHEN ALL APPROVALS FOR WORK PLANS HAVE BEEN GIVEN BY DER AND EPA.

FIGURE 5–1

SCHEDULE

HUNTERSTOWN ROAD SITE RI/FS
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA

PREPARED FOR

WESTINGHOUSE ELECTRIC CORPORATION
PITTSBURGH, PENNSYLVANIA

Paul C. Rizzo Associates, Inc.
CONSULTANTS

DRAWN BY	A.C.Smith	CHECKED BY	WCS	9-21-87	DRAWING NUMBER	87-376-B1 △
	9-3-87	APPROVED BY	JTO	9-21-87		

△ REVISED SCHEDULE (2-9-88)

REVISIONS

AR305553