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BCP - c

non-releasable - put .nf.pdf
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LEHIGH INDUSTRIAL PARK

915145

PHASE II RI REPORT

TRANSMITTAL MEMO

ETF ___

TO: Jim Feron

FROM: Robert W. Schick, P.E., Chief, Remedial Section A
Bureau of Western Remedial Action, Division of Hazardous Waste Remediation

RECEIVED
OCT 13 1993
N.Y.S. DEPT. OF ENVIRONMENTAL CONSERVATION REGION 9

DATE: 10/12/93

RE: Site Name: Lehigh Industrial Site

Site No: 9-15-145

County: Erie County

Attached for your action as indicated, please find the following documents related to the above referenced site:

☒ Review ☐ Information ☐ Approval

* *

☐ Work Plan
☐ Health and Safety Plan
☐ QA/QC Plan
☐ Public Participation Plan
☐ Temporary Use and Occupancy Agreement/Easement
☒ Remedial Investigation
☐ Feasibility Study
☐ Design Documents: ___
☒ Other: This is the phase II RI Report. This report will conclude the investigatory portion of this project

Please review the attached document(s) and provide any comments, in writing, to me by October 26, 1993. If no comments are received by this date, it will be assumed you have no comments relative to the attached document(s). If you have any questions on any of the above, please contact Steven Scharf at 518/457-4343.

DISTRIBUTION: C. O'Connor NYSDOH w/AIT
R. Schick w/o AIT
S. Scharf w/o AIT

Attachment

ADDENDUM REPORT: ADDITIONAL STUDIES

DRAFT REPORT FOR

NEW YORK STATE SUPERFUND STANDBY CONTRACT

LEHIGH INDUSTRIAL PARK
CITY OF LACKAWANNA, ERIE COUNTY
WORK ASSIGNMENT NO. D-002478-14
SITE NO. 9-15-145

Prepared For:

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

Prepared By:

ENGINEERING-SCIENCE, INC.
37 FRANKLIN STREET
200 CATHEDRAL PARK TOWER
BUFFALO, NEW YORK 14202
(716) 854-0528

OCTOBER 1993

SECTION 1

INTRODUCTION

1.1 INTRODUCTION AND SITE HISTORY

The Lehigh Industrial Park (LIP) Site, formerly the Roblin Scrap Products Company, Inc. (Roblin) site, is located on a nine point one (9.1) acre parcel at the southern end of Lehigh Street in the City of Lackawanna, New York (Figure 1.1). The site is bounded on the north by South Street, on the south by an industrial facility, in the east by Conrail and the South Buffalo Railway railroad tracks, and by a residential area on the west.

The site was used as a scrap metal and materials processing facility prior to the 1940s, until 1985. Roblin Scrap Products Company, Inc., owned the lot which processed junk cars on the site, as well as stored heavy machinery and transformers at the site. In 1979, a transformer on-site was found to be leaking, and was remediated by the owners at that time. Roblin filed for bankruptcy in 1985, and in August 1988, the site was purchased from Roblin's bankruptcy trustee by Lehigh Industrial Park, Inc.

The presence of PCBs in several locations across the Lehigh site were detected in samples collected by the New York State Department of Environmental Conservation (NYSDEC) and the United Stated Environmental Protection Agency (USEPA) following a transformer leak in 1988. In 1991, the site was listed as a class 2 site in the State Registry of Inactive Hazardous Waste Sites due to the presence of PCBs at the storage location of the leaking transformer. Engineering-Science (ES) was retained by the NYSDEC to perform a Preliminary Remedial Investigation at the Lehigh Site to confirm the presence of PCBs and to assess other potentially hazardous areas at the site.

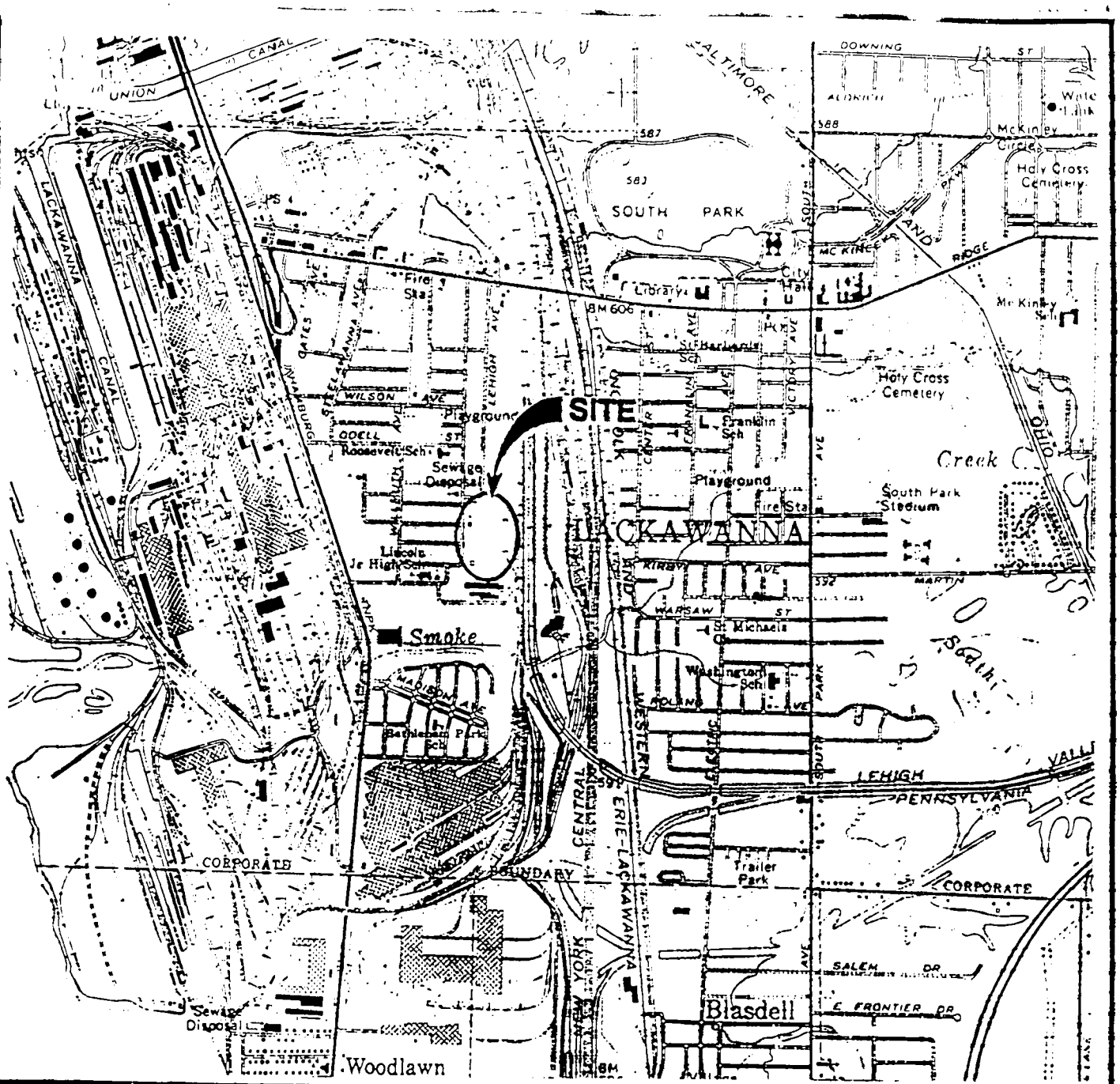
The preliminary remedial investigation performed in 1992 by ES was a comprehensive study designed to assess the presence, type, and nature of contamination on-site as well as potential pathways for off-site migration. Shallow soil samples collected on-site detected the presence of pervasive metals contamination at the site as well as "hot spots" where both metals and poly-chlorinated biphenyls (PCBs) were detected above New York State action levels. Six "hot spots" were delineated for further investigation after the 1992 field effort. Based upon approval of the Additional Studies Work Plan dated April, 1993, ES conducted additional work from May through July, 1993 to further delineate these hot spots and to augment data previously collected from soils, waste piles, and ground water for use as part of a site Feasibility Study (FS) to determine appropriate remedial measures for the LIP site.

1.2 PROJECT OBJECTIVES

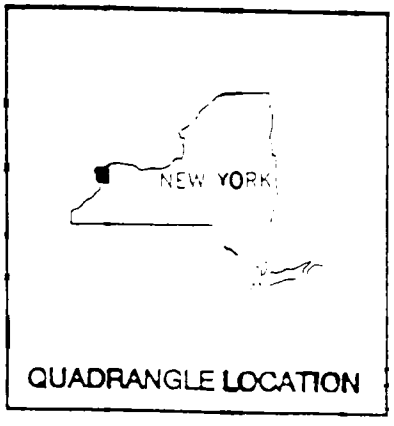
The objectives of this investigation, Additional Studies for the LIP site are as follows:

- Assess the hazardous/non-hazardous nature of the waste piles (fluff piles, metal debris piles, and soil covered waste) to determine if remediation is necessary by collecting and analyzing representative waste pile samples;
- Determine whether the waste piles are impacting the soils directly beneath the piles by collecting and analyzing representative soil samples;
- Determine whether metals contamination in the shallow soils/fill zone is hazardous/non-hazardous and whether remediation is required by collecting and analyzing representative shallow soil zone samples;
- Collect and analyze additional samples in areas of PCB contamination to determine volumes of soils in the shallow soil/fill zone with PCB contamination greater than 500 ppm, greater then 50 ppm but less than 500 ppm, and greater than 1 ppm but less than 50 ppm;
- Collect additional samples and analyze samples in the deep soils zone for metals and PCB contamination to further characterize the nature and extent of vertical migration of contamination;
- Acquire additional data on volatiles in the ground water by collecting another round of ground water samples from the on-site shallow monitoring wells; and
- Determine leachability characteristics of contamination present in the shallow soil zone.

This report, which details the result of these objectives, is designed to be an Addendum Report to the Preliminary Remedial Investigation Report which was performed in 1992 and submitted January of 1993. Sections 1 and 2 of this report briefly summarize the site history, and previous work at the Lehigh site. Section 3 outlines field work performed for this phase of the Preliminary Remedial Investigation, called Additional Studies. Section 4 contains the results of samples collected during 1993 and Section 5 contains a discussion of 1992 and 1993 sample results and a collective interpretation of those results.



SOURCE: U.S.G.S. 7.5 MINUTE SERIES TOPOGRAPHIC BUFFALO SE QUADRANGLE. 1965



LATITUDE: 42°49'00"
LONGITUDE: 78°50'25"

SCALE

0 2000 4000 FT.

2000 FT.

ENGINEERING-SCIENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SITE LOCATION MAP
LEHIGH INDUSTRIAL PARK SITE

SECTION 2

PREVIOUS WORK

2.1 PREVIOUS WORK

A Preliminary Remedial Investigation (PRI) was performed at the Lehigh Industrial Park site under work assignment No. D002478-14, site No. 9-15-145, for the NYSDEC. The PRI was a broad investigation, the objectives of which were to confirm the presence/absence of contamination at the site, determine its potential impact on ground water, determine the presence/absence of off-site migration via surface drainage, determine subsurface stratigraphy and investigate the waste types present at the site. These objectives were carried out on a task by task basis as follows:

- First, the history of the site was investigated to determine past uses of the site. This was conducted utilizing historical aerial photographs, and by record searches of local, state, and federal records of the site. Additionally, a deed search was conducted to determine past and present property ownership. A site history report was submitted to the NYSDEC in September of 1992, detailing all findings;
- A thorough site reconnaissance was performed to map surface features, waste types, and location of buildings at the site;
- An EM31 geophysical survey was performed at the site to aid in the location of areas of disturbed soils or areas where drums may have been buried;
- Asbestos sampling was performed on 19 samples to determine the presence of asbestos containing materials;
- Four test pits were excavated to determine the source of mapped geophysical anomalies; and
- Five test pits were excavated to determine shallow stratigraphy at various locations, and six test pits were excavated to determine the contents of large "waste " piles present on the site.
- Soil samples were collected from various locations across the site. Thirty-one were collected in the shallow (0-2 feet) and 10 were collected in the deep soil horizon (0-10 feet). Soil samples consisted of site-specific samples collected in areas of suspected contamination, as well as reconnaissance type soil samples at various locations to determine overall site characteristics.
- All soil and test pit samples were analyzed for metals including arsenic, cadmium, chromium, lead, and mercury, as well as pesticides/PCBs at a minimum. Additionally, 14 samples were analyzed for full TCL/TAL parameters.

- Two soil and sediment samples were collected from an adjacent drainage swale and small tributary and 1 sample was collected at an outfall at Smokes Creek to determine the site impact on surface runoff.
- Five background samples were collected off the site, for comparative purposes; and
- Finally, five monitoring wells were installed and ground water samples collected to determine any potential impact on ground water. Samples were analyzed for full TCL/TAL metals parameters.

A final report for the PRI was submitted to the NYSDEC in January, 1993. Results of the PRI indicated that high levels of contamination, particularly PCBs, lead, chromium, and cadmium were present at various locations across the site (Section 5, Appendix A). As a result, a work plan outlining additional studies to delineate these areas of contamination was requested from the Department and was submitted to the NYSDEC for review and approval.

For additional information regarding previous investigative work conducted at the LIP site, reference to the Preliminary Remedial Investigation (PRI) conducted at the site in 1992 by Engineering-Science for the NYSDEC, dated January, 1993 is recommended.

SECTION 3

WORK PLAN

3.1 INTRODUCTION

The Preliminary Remedial Investigation performed at the LIP site in 1992 determined the presence of a number of contaminants at concentrations exceeding draft, NYSDEC action levels. An in depth review of the data showed four compounds and/or metals were pervasive at the site at concentrations that warranted further investigation, primarily, PCBs, lead, chromium, and cadmium. Although other types of contaminants are present at the site at unacceptable concentrations, these contaminants are not pervasive and are localized to geographic areas at the site where the above referenced contaminants of concern, PCBs, lead, cadmium, and chrome are located. As a result of the PRI Investigation, the NYSDEC retained ES to perform additional studies at the Lehigh site. A work plan submitted by ES to further delineate the areas of high contaminant concentrations was accepted by the NYSDEC in April, 1993 with commencement of field activities in June of 1993.

The field investigation for conducting the Additional Studies was divided into discrete tasks. The first task involved site preparation that included tasks such as re-establishment of the site grid, staking sample locations, and inspection of perimeter fences and a general site reconnaissance. No new dumping was noted at the site, however, the southeast corner of the fence was damaged. The fence was repaired before field sampling commenced. Site preparation began on June 1, 1993 and was concluded on June 3, 1993.

3.2 FIELD INVESTIGATION

For investigative purposes, the site was again broken into four specific areas of investigation:

1. Waste piles which included metal debris piles, fluff piles, and soil covered waste. Primary method of investigation would be test pits. The basis for locating individual test pit locations was to provide adequate investigative coverage (every 150 feet) of site waste piles.
2. Shallow soil zone. This includes the zone from surface to a depth of two feet below the surface except under existing waste piles. Under existing waste piles, the shallow soil zone would be considered zero to two feet below the waste/underlying soil contact. The primary methods for this zone was test pits through the waste piles into underlying soils and split spoon sampling from ground surface to two feet at all other site locations. The basis for locating shallow soil samples in this zone was to further delineate hot spots as well as in-fill type sampling in areas of the site that were not previously investigated.
3. Deep soil zone. This zone included the zone from two to four feet below ground surface. Samples were two to four feet below ground surface. Samples

would be collected by split spoon sampling techniques in hot spots or areas of elevated concentrations of contaminants of concern and in areas of the site where previous deep sampling has not taken place (reconnaissance deep samples).

4. Ground water. This zone included ground water at the site. Samples would be collected from the five site monitoring wells.

3.3. WASTE PILES

Test pit investigations and samples of waste piles collected during the Preliminary Remedial Investigation (PRI) detected the presence of three distinct types of waste piles: shredded metals, "fluff" or shredded non-recyclable car parts, and soil covered waste consisting of larger car parts (tires, rims, gas tanks), and large non-metal items such as battery casings, plastic jugs, and household items (see PRI Report). Contaminants of concern associated with the waste pile samples included PCBs, lead, chromium, and cadmium at relatively high concentrations. The objective of additional sampling of the waste piles and their underlying soils was to determine the extent of contamination within the piles, the migration of contaminants into underlying soils, and to further investigate the waste piles for the presence of buried drums. The same operational procedures were followed for test pitting at the site that were utilized during test pitting operations in 1992 (See PRI). Test pitting began on June 8, 1993 and was concluded on June 14, 1993.

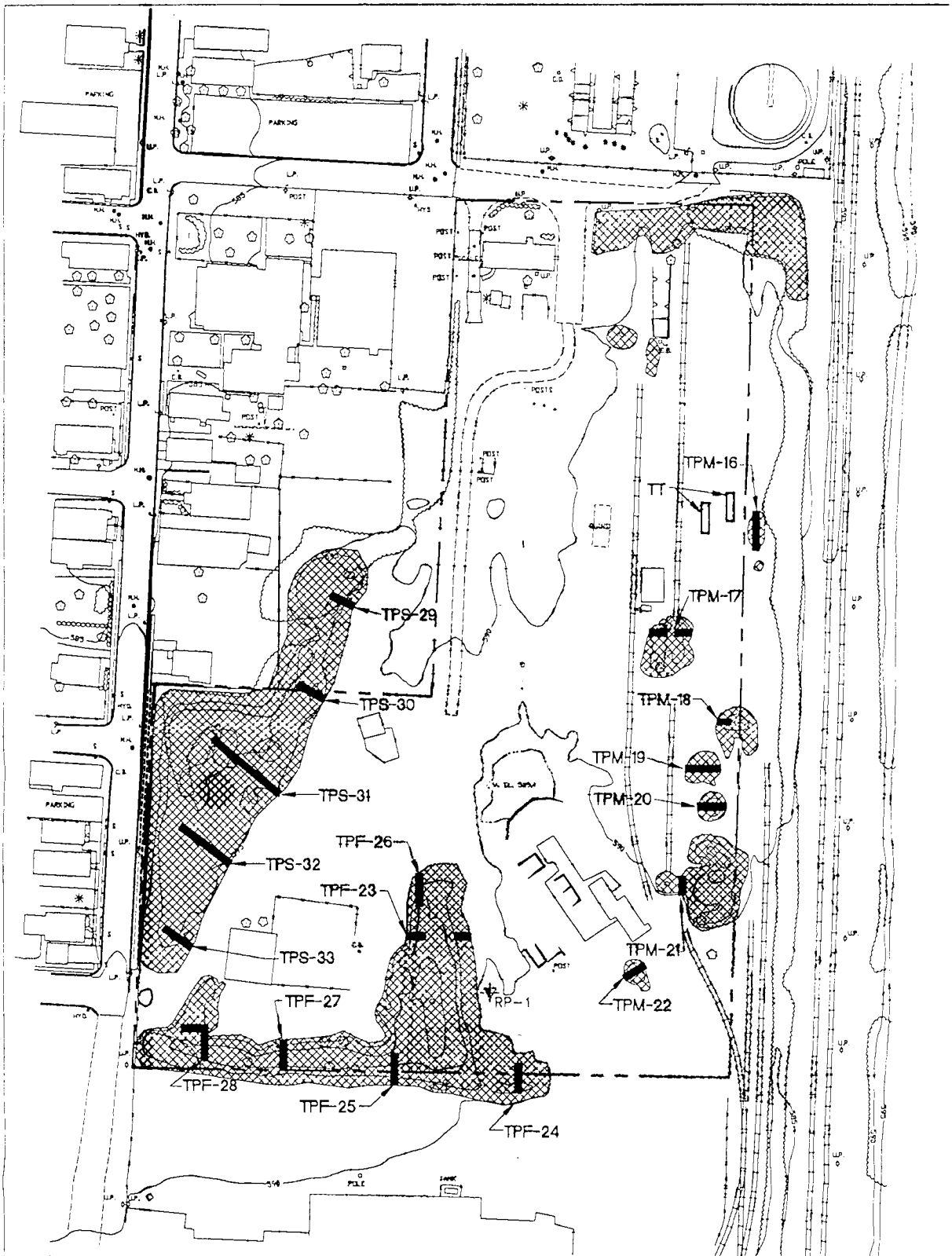
A total of 18 test pits were excavated in the waste piles; seven in the metal debris piles, six in the fluff piles, and five in the soil covered waste piles (Figure 3.1). All test pitting was performed in level C as specified in the health and safety plan (Appendix C of the Additional Studies Work Plan). Samples of waste material were collected in several test pits, as were samples of soils immediately underlying the location of a specific waste sample collected for analysis.

3.3.1 Metal Debris Piles

Seven test pits were excavated in the metals debris piles (TPM 16 through TPM 22). Two samples of waste were collected for PCB analysis. Additionally, three sets of two samples, one from waste, one from underlying soils, were collected for a total of six samples, and analyzed for total lead, cadmium, and chromium. Sample locations and results are given in Section 4 of this report.

3.3.2 Fluff Piles

Six test pits were excavated in the fluff piles (TFP 23 through TFP 28) along the southern property boundary of the site. Two samples from each test pit were collected and analyzed for PCBs. Additionally, soil samples were collected immediately underlying three of the waste sample locations and analyzed for PCBs for a total of 15 samples (12 waste and 3 soils below the waste). Three sets of two samples, one waste, one of underlying soils, were also collected at selected locations and analyzed for total lead, chromium, and cadmium, for a total of six samples. In addition, one sample of waste was collected and analyzed for TCLP parameters to determine the potential for contaminant leaching from the waste to subsurface soils and ground water.



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PRELIMINARY REMEDIAL INVESTIGATION

TEST PIT/WASTE PILE LOCATION MAP,
ADDITIONAL STUDIES
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 3.

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3.3.3 Soil Covered Waste

Five test pits were excavated in the soil covered waste piles. Two samples of waste were collected from each test pit and analyzed for PCBs for a total of 10 samples. Three samples of soils immediately underlying selected waste sample locations were also collected and analyzed for PCBS. Additionally, one waste sample and one sample from underlying soils (total of ten samples) was collected from each test pit and analyzed for total lead, cadmium, and chromium. Finally, one sample of waste material was collected and analyzed in accordance with TCLP protocols.

3.3.4 Additional Considerations, Waste Piles

Three test pits were excavated at locations other than those specified in the Work Plan. TPF-25, a test pit in the fluff piles, had to be moved to the west, due to large objects obstructing access to the south end of this specific test pit location. To optimize spacing of test pits in the fluff piles, TPF-26 was also moved to the northern most end of the fluff piles, with the approval from the NYSDEC.

Additionally, the direction of part of TPF-28 was changed from north-south to east-west, at the northern end of TPF-28 due to its proximity to monitoring well MW-2 to minimize the potential for damage to MW-2 that may have resulted from test pit operations.

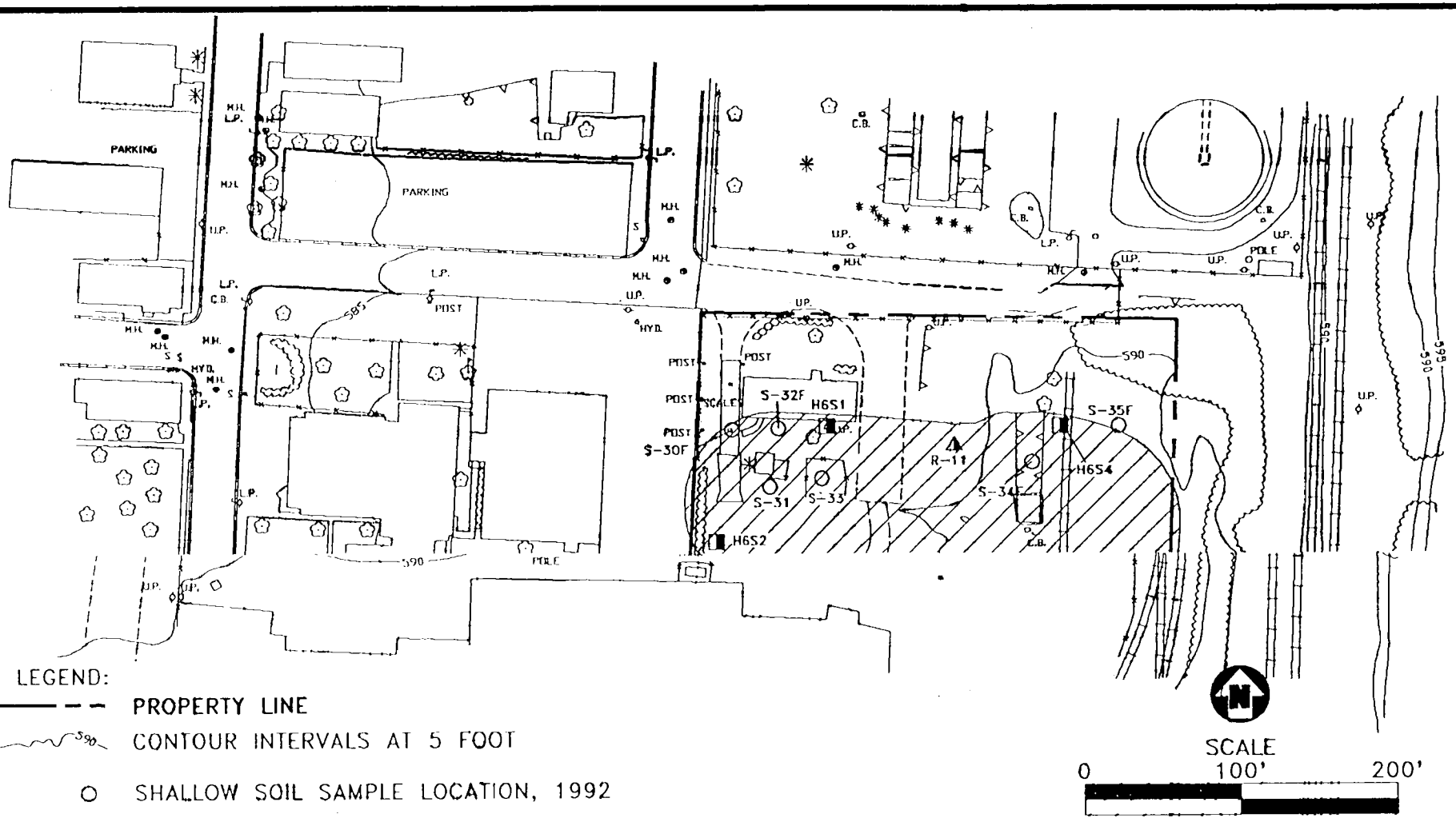
3.4 SHALLOW SOIL ZONE

During the PRI investigation conducted during 1992, contaminants were detected at various locations across the site. Areas of high contaminant concentrations were termed "hot spots" and were classified as PCB hot spots or metals hot spots. The PCB hot spot areas contain concentrations greater than 10 ppm PCBs. Metals hot spots contain one or more of the following metals: lead at concentrations greater than 500 ppm; cadmium at concentrations greater than 10 ppm; or chromium at concentrations greater than 50 ppm. Each of these hot spots were further investigated to determine the lateral extent of contamination and to further delineate the area of high concentrations.

3.4.1 Hot Spots

Hot spots H-1 through H-4 were areas of the site where elevated concentrations of PCBs had been detected. Four additional samples were collected within H-1, eight within H-2, thirteen within H-3, and eleven within H-4 using split spoon sampling techniques from zero to two feet (Figure 3.2). All samples collected in hot spots H-1 to H-4 as part of the additional studies were at surveyed grid points and were analyzed for PCBs. Data from these samples is presented in Section 4 of this report.

Hot spots H-5 and H-6 were areas of the site where elevated concentrations of the metals were detected during the PRI investigation conducted in 1992. Four additional samples were collected in H-5 and ten additional samples were collected in H-6 using split spoon sampling techniques from zero to two feet. All samples were again collected at grid points and analyzed for lead, cadmium, and total chromium (Figure 3.2).



LEGEND:

- PROPERTY LINE
- CONTOUR INTERVALS AT 5 FOOT
- SHALLOW SOIL SAMPLE LOCATION, 1992
- H3S2 HOT SPOT SAMPLE LOCATIONS, SHALLOW
- R-35 RECONNAISANCE SAMPLE LOCATIONS, SHALLOW
- H3S1 / H3D1 SHALLOW SOIL SAMPLES 0-2 FT. DEEP SOIL SAMPLES 2-4 FT. (RECONNAISANCE & HOT SPOT LOCATIONS)
- H1 HOT SPOT LOCATION

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SOIL SAMPLE LOCATIONS
FOR ADDITIONAL STUDIES
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 3.2

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3.4.2 Reconnaissance Sampling

Eleven reconnaissance samples were also collected to provide data "between hot spots" in areas of the site where previous sampling had not been conducted. Samples R-31 through R-37 were analyzed for both PCBs, lead, cadmium, and total chrome. Samples R-38 through R-41 were analyzed for PCBs only. Reconnaissance soil samples from the shallow soil zone were again collected from zero to two feet using a portable minute-man drill rig and split spoon sampler. All split spoon sampling for both hot spots and reconnaissance samples was conducted in accordance with ASTM specifications D-1586-84 for standard split barrel sampling. Where split spoon sampling was not possible due to access limitations (i.e; R-36 and R-37) or due to the presence of impermeable foundations, the samples were collected using a stainless steel trowel, a hand auger or the sample location was moved to allow for split spoon sampling. All PCB hot spot sampling was performed in modified level C including (Tyvek protective clothing, but not respirator) due to the presence of high concentrations of PCBs. All other hot spot and reconnaissance sampling was performed in level D.

3.4.3 Additional Considerations, Shallow Soil Zone

A test trench was excavated in the vicinity of MW-5 to investigate sludge-like material encountered during installation of this monitoring well during 1992 field work. An exploratory test trench west of MW-5 was excavated to a maximum depth that would not jeopardize the integrity of the monitoring well seal. However, the sludge-like material was not encountered in the first test trench. This test trench subsequently closed. A second exploratory test trench was excavated east of MW-5 to a depth of approximately four feet. During the collection of samples, odors were detected through the full face respirators of field personnel, however, no VOCs were noted on the photoionization detector (PID) that was being used as a screening tool. The second trench was immediately backfilled and excavation in the area ceased. Samples were analyzed for TCL volatiles, semi-volatiles, pesticides/PCBs, and TAL metals.

3.5 LEACHABILITY STUDY, SHALLOW SOIL ZONE

The leachability of contaminants in the shallow soil zone was also assessed. This investigation consisted of six locations that were sampled utilizing a backhoe (Figure 3.3). Six soil samples were collected and analyzed for RCRA regulated metals using TCLP. For comparative purposes, two of the samples were also analyzed for EP Toxicity. These sampling locations were not beneath waste piles, but were located in "Hot Spots" delineated as part of the PRI at the site where elevated levels of PCBs and metals are present. At the request of the NYSDEC, a work plan for this task was submitted and the field work conducted in early 1993. The results of the leachability study are contained in Appendix B, and are discussed only briefly in Section 4 of this report.

3.6 DEEP SOIL SAMPLING

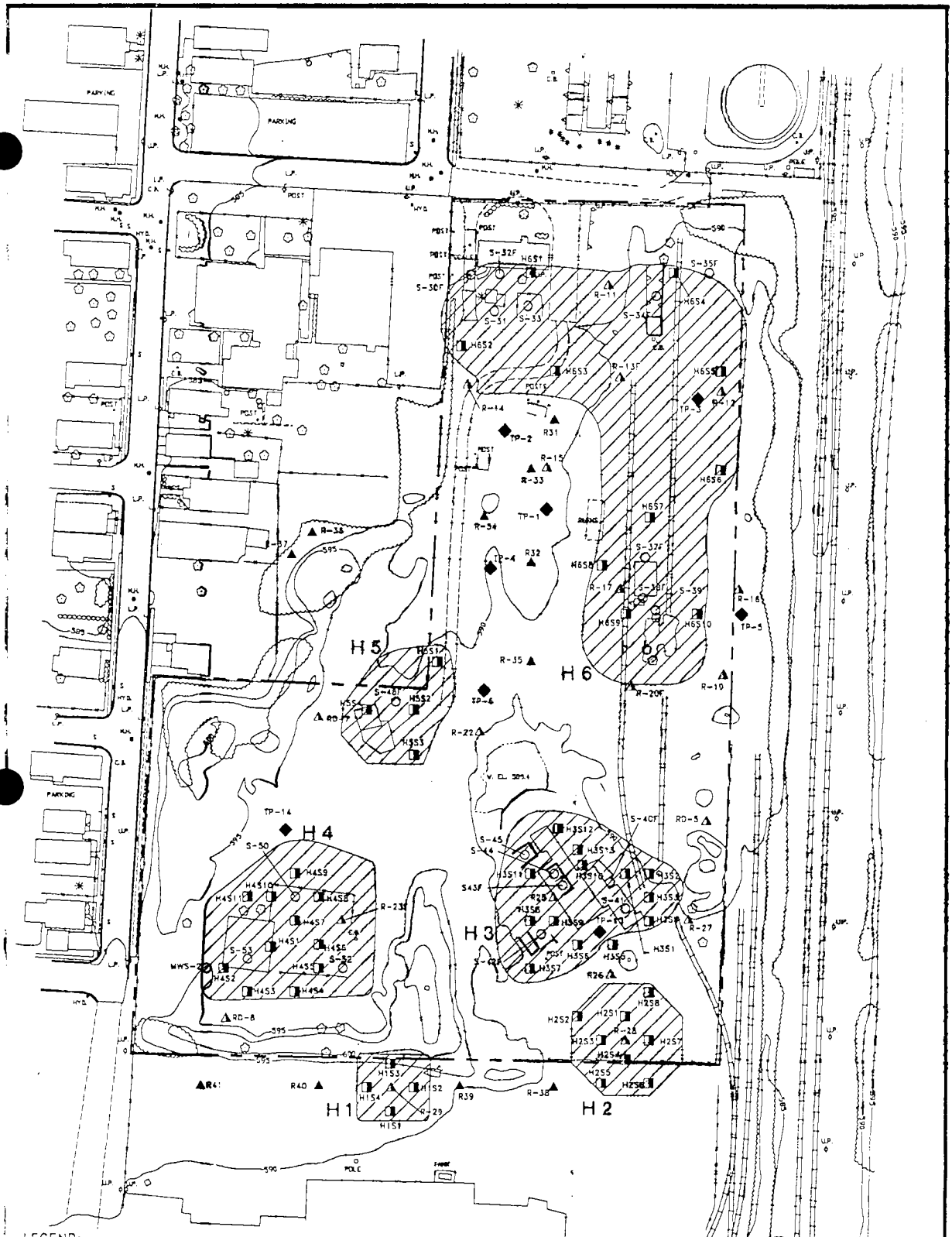
Deep soil sampling (two to four feet) was also conducted to further delineate the vertical nature and lateral extent of contamination detected in deep soil samples

collected during the 1992 study. Three deep soil samples were collected in the PCB hot spots to determine the vertical extent of PCB migration (H2D1, H3D1, and H4D1). Two general reconnaissance samples were collected between H-5 and H-6 (Figure 3.4). The deep hot spot samples were analyzed for PCBs and the deep reconnaissance samples were analyzed for total lead, cadmium, and chromium, as well as PCBs. All deep samples were collected from two to four feet utilizing the same techniques used for shallow soil split spoon collection. All deep soil results will be discussed in Section 4 of this report.

3.7 GROUND WATER SAMPLING

The ground water sampling results obtained during the 1992 PRI (full TCL/TAL parameter list) indicated that several volatile organic compounds (VOCs) were present in the samples, however, most concentrations were below the detection limit of the analytical instrument used in the laboratory for the analysis. The detection limit of the instrument was higher than 6NYCRR Part 703 Class GA Ground Water Standards. Thus, a second round of ground water samples were collected as part of the additional studies from the five site monitoring wells for volatile analysis utilizing lower detection limits. Method 8240, used for the PRI, had detection limits of 5 ppm. The second round of ground water samples collected during the 1993 additional studies were analyzed using Method 524.2, which has detection limits of 0.5 to 2 ppm, below NYS Ground Water standards.

All protocols and procedures for ground water sampling as specified in the Additional Studies Work Plan, were followed. Results are contained in Section 4.



LEGEND:

- PROPERTY LINE
- CONTOUR INTERVALS AT 5 FOOT
- SHALLOW SOIL SAMPLE LOCATION, 1992
- H3S2 HOT SPOT SAMPLE LOCATIONS, SHALLOW
- R-35 RECONNAISANCE SAMPLE LOCATIONS, SHALLOW
- H3S1 / H3D1 SHALLOW SOIL SAMPLES 0-2 FT. DEEP SOIL SAMPLES 2-4 FT. (RECONNAISANCE & HOT SPOT LOCATIONS)
- H1 HOT SPOT LOCATION

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PRELIMINARY REMEDIAL INVESTIGATION

SOIL SAMPLE LOCATIONS
FOR ADDITIONAL STUDIES
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 3.2

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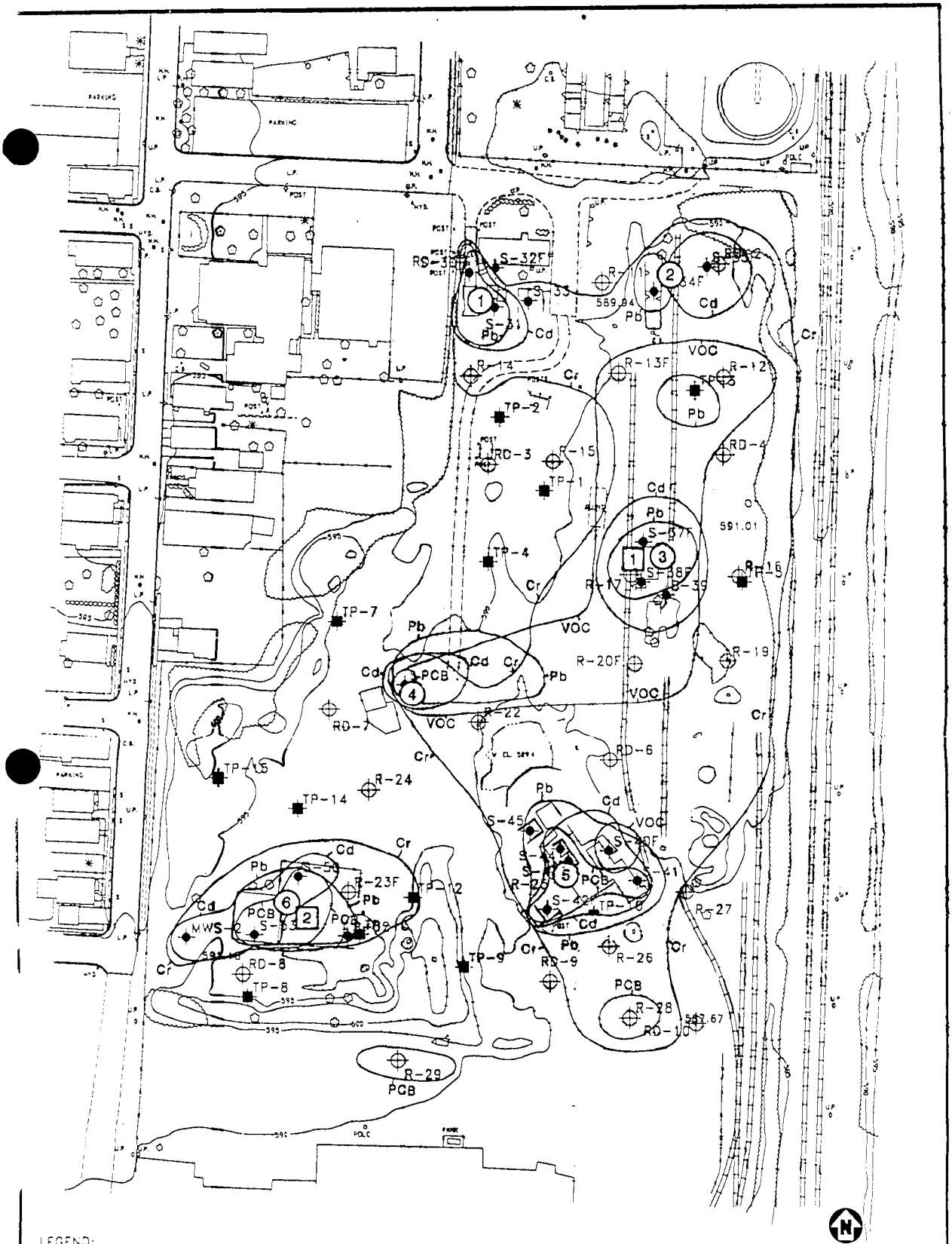

LEGEND:

Cr — CONCENTRATION CONTOURS FOR Pb–500 ppm, Cr–50 ppm, Cd–10 ppm, PCB–10 ppm, and VOC–500 ppb.

S-50 — SITE SPECIFIC SAMPLE LOCATION

TP-9 — TEST PIT LOCATION

R-29 — SOIL SAMPLE LOCATION

2 — SHALLOW SOIL SAMPLE LOCATION FOR EPTOX

4 — SHALLOW SOIL SAMPLE LOCATION FOR TCLP

25' 0 25' 50'

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CONTAMINANT COMPOSITE MAP

LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 3.3

LEGEND:

PROPERTY LINE

CONTOUR INTERVALS AT 5 FOOT

◆ RD-8 DEEP SOIL SAMPLE LOCATION, 1992

⊕ DEEP SOIL SAMPLE LOCATION, 1993

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DEEP SOIL HORIZON
COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 3.4

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SECTION 4

DATA RESULTS
ADDITIONAL STUDIES

4.0 INTRODUCTION

During the 1993 Additional Studies Field Investigation, investigative samples with appropriate QA/QC samples were collected for analysis from waste piles, the shallow soil horizon, the deep soil horizon, and from ground water for chemical analysis. Those analytical results are described on a horizon basis and on a contaminant basis in the following sections of this report.

The QA/QC program outlined in Appendix B.2, Quality Assurance Project Plan of the Work Plan for the Additional Studies was followed to obtain high quality results. All analytical results collected as part of the Additional Studies effort were then reviewed by a qualified data validator who met the NYSDEC approval criteria. all QA/QC and Data Validation performed took place in accordance with accepted industry protocols as outlined in Section 3.13 of the PRI Report.

4.1 WASTE HORIZON

A total of 18 test pits were excavated into waste piles present at the LIP site (Figure 4.1). Samples were collected from the test pits and analyzed for specific parameters, depending upon the waste type, either metal debris, fluff, or soil covered waste. The test pits and subsequent technical analysis will be discussed on a waste type basis. A test trench was also excavated into shallow soils in the east-central portion of the site. The samples collected in this trench will be discussed in the section of this report that discusses the shallow soil horizon.

4.1.1 Metals Debris Piles

The metals debris piles are those piles located along the eastern margin of the site (Figure 4.1), consisting of metal filings, wire, metal chips, and small auto and machine parts. Seven test pits (TPM-16 through TPM-22) were excavated in these piles to further determine the nature of materials or waste within the piles, to collect samples for metals and PCB analysis, and to investigate these piles for the presence of buried drums.

In each of the test pits, metal debris was encountered to approximately 6 inches to 1 foot above the ground surface. Occasionally, a crushed or shredded drum, a large piece of slag or flagstone was encountered. No in-tact drums containing chemicals or liquids were encountered in the metal debris piles. At or near the ground surface, a black, oily residue coating the metal cuttings was encountered, often associated with a yellow/orange discoloration of the metal debris. Often, this layer was too hard to be penetrated or broken up by the backhoe. Where this layer could be breached, soils were encountered ranging from well sorted fine to medium sand to hard, friable till. In TPM-17, a wooden wall was encountered near the center of the pile. This wall was not

breached; instead, the test pit was dug on either side of the wall. TPM-21 was originally located on the larger, eastern portion of the pile, however, due to dust generation, the test pit was moved to an area of the waste pile where dust generation would not occur (Figure 4.1).

A total of two samples were collected for PCB analysis from the metal debris piles (Table 4.1). TPM-18 had a total PCB concentration of .77 ppm, and TPM-21 had a total PCB concentration of 4.4 ppm (Figure 4.1). Three samples were collected from the metals debris piles and analyzed for TAL lead, cadmium, and total chromium analyses. All three samples from TPM-17, TPM-18, and TPM-21 contained chromium concentrations exceeding NYSDEC action levels of 50 ppm (Table 4.1) (Figure 4.1). TPM-18 and TPM-21 also contain cadmium concentrations exceeding the NYSDEC action levels of 10 ppm. TPM-21 also contained concentrations of lead exceeding the NYSDEC action levels of 500 ppm. Pursuant to requests from the Department's Project Manager, no samples of the metal debris waste were collected and analyzed for TCLP metals.

Three samples of soils immediately underlying the waste were collected in test pits TPM-17, TPM-18, and TPM-21. Because these samples were collected in the shallow soil zone underlying the waste piles, they will be discussed in Section 4.2.1 that discusses the shallow soil zone.

4.1.2 Fluff Piles

The fluff piles are located along the southern boundary of the site and consist of shredded, non-recyclable non-metallic car parts including seats, carpeting, wiring, dashboards, and foam rubber (Figure 4.1). Six test pits were excavated in the fluff piles (TPF-23 through TPF-28). The arm of the backhoe was not long enough to completely excavate through the fluff pile at location TPF-23. As a result, the pile was excavated to the extent possible from both sides, and a representative sample was collected from each side. Also, due to the presence of large pieces of construction debris at the south end TPF-25, the test pit was moved to the west. As a result, the new location of TPF-25 was in close proximity to the proposed location of TPF-26. Consequently test pit TPF-26 was relocated to the north end of the N-S extending fluff pile. Part of TPF-28 was also moved. Rather than extending N-S, part of the excavation was changed to extend E-W. This was done to ensure that MW-2, which was located at the north end of the proposed test pit location, would not accidentally be damaged.

Fluff was encountered in test pits TPF-23, TPF-25, and TPF-26. The fluff was homogeneous in content, but increased in moisture content with depth. Near ground surface, all fluff was covered by a black, greasy material with a pungent odor. A building foundation was encountered under the fluff at TPF-23 on the east side of the pile. Brown damp sands were encountered under the waste in test pits TPF-26 and the western excavation of TPF-23. TPF-24 consisted of minor amounts of fluff mixed in a soil matrix with large pieces of scrap metal, sheet metal, and wood. TPF-25 consisted predominantly of black soils with small pieces of brick and glass and then fluff several feet into the excavation. Test pit debris in TPF-27 and TPF-28 were similar to the material encountered in TPF-25 but with larger pieces of brick, wood, glass, and large

concrete slabs encountered near the ground surface at the soil/waste interface. No intact drums were encountered during excavation operations in the fluff piles.

Two samples from each test pit were collected and analyzed for PCBs (Table 4.2) (Figure 4.1). Samples 1 and 2 from TPF-23 both exceeded 10 ppm, as did sample 1 from TPF26 and sample 2 from TPF-28. The primary PCB Aroclors detected include 1242, 1254, and Aroclor 1260. Aroclors 1016, 1221, 1242, and 1248 were not detected in any of the fluff pile samples.

Three samples of soils underlying waste at test pits TPF-23, TPF-25, and TPF-27 were collected six inches below the waste/soil interface, in each of the above referenced test pits and analyzed for PCBs. The sample results from the underlying soils will be discussed in Section 4.2 of this report that deals with the shallow soil horizon.

One sample of waste was collected from TPF-23, TPF-25, and TPF-27 and analyzed for TAL lead, cadmium, and total chrome (Table 4.2) (Figure 4.1). Concentrations of all three metals, in all three samples exceeded NYSDEC action levels for the three metals. Samples of soils directly underlying the waste samples were also collected from TPF-23, TPF-25, and TPF-27 and analyzed for lead, cadmium, and total chrome. These samples were collected from the shallow soil horizon; thus, they will be discussed in the section dealing with the shallow soil horizon.

One sample was also collected from waste at TPF-23 and analyzed for TCLP metals (Table 4.3). This was done to determine the leachability of metals present in the fluff piles. No metals detected in the sample exceeded the Federal Regulatory limit for TCLP.

4.1.3 Soil Covered Waste Piles

Five test pits, TPS-29 through TPS-33, were excavated in the soil covered waste piles which are located along the western perimeter of the site (Figure 4.1). The soil covered waste piles consist of scrap metal, large car parts (including the rear axle of a truck, uncovered during previous test pitting operations), household trash including plastic jugs, metal lunch boxes, and floor tiles in a dry to moist soil matrix containing small pieces of metal and a friable, soft, white granular material. The waste is consistent throughout the pile, with no discernable changes in waste types or stratigraphy. The waste/soil interface appeared to be at slightly different elevations from test pit to test pit, with the highest elevation at test pit TPS-31, and lower elevations toward the north and south ends. A buried concrete foundation was encountered in TPS-32. The foundation was not breached since it was thought to contain utility pipes which are now abandoned. All excavations detected dry to moist soils, with no significant increase in moisture content with depth, unlike the fluff piles, which did show a significant moisture increase with depth.

Two samples were collected in waste from each test pit and analyzed for PCBS. Only one sample, TPS-29 sample number 2, had PCBs in excess of 10 ppm (Table 4.4) (Figure 4.1) Again, Aroclors 1242, 1254, and 1260 were detected, and Aroclors 1016, 1221, 1232, and 1248 were not present. A sample in waste was also collected in each test pit for metals analysis. All five samples exceeded NYSDEC action levels for lead,

with the highest concentration in TPS-30 at 4,410 ppm. The action levels value for cadmium and chromium were also exceeded in all samples except TPS-33, which also had the lowest concentration of lead (Table 4.4).

An additional sample of waste was collected from TPS-29 and analyzed for TCLP metals to determine the leachability of contaminants in the soil covered waste. All metals detected were below the Federal Regulatory limits with the exception of lead (Table 4.3) Lead was detected at 18600 ppb; the TCLP regulatory limit for lead is 5000 ppb; thus, the soil covered waste is considered a hazardous waste.

4.2 SHALLOW SOIL HORIZON

The shallow soil horizon consists of all soils from ground surface (or waste/soil interface) to a depth of two feet. The shallow soil samples can be grouped into four sample events: hot spot sampling, reconnaissance sampling, shallow soil sampling under waste piles, and test trench samples (Figure 4.2). Each sample event was performed on a task by task basis and will be discussed separately.

4.2.1 Hot Spots

During the Preliminary Remedial Investigation, several ares were identified as having high concentrations of either PCBs, lead, chromium, or total chrome. These areas are termed "Hot Spots" and were further delineated during the 1993 additional study. Also, reconnaissance sampling locations were selected to fill in data gaps between HS-5 and HS-6, as well as along the southern property boundary of the site, along the Buffalo Brake Beam property.

PCB Hot Spots

Hot spots 1,2,3, and 4 are centered around sample locations where high concentrations of PCBs were previously detected during the 1992 study. A sampling grid was selected and sampled at each hot spot to further delineate the lateral extent of the PCB contamination and to estimate volumes for remediation purposes (Figure 4.2).

In hot spot 1 (HS-1), four additional samples were collected 25 feet in each direction of the 1992 sample of concern (Figure 4.2). HS-1 is located south of the Lehigh site on property owned by Buffalo Brake Beam. Two of the four samples, H1S1 and H1S3 contained PCB concentrations exceeding the NYSDEC action levels of 1 ppm for surface samples (Table 4.5). Aroclors 1242, 1254, and 1260 were predominant, while Aroclor 1016, 1221, 1232, and 1248 were not detected.

Eight additional shallow soil samples were sampled at H-2 (Figure 4.2). Only H2S4 contained PCB concentrations below the action levels (Table 4.6). Concentrations are highest at location H2S6 and H2S7, toward the south and east area of the hot spot at concentrations of 8.3 and 8.4 ppm, respectively. The detected Aroclors were 1242, 1254, and 1260.

An additional 13 shallow soil samples were collected at H-3 (Figure 4.2). Four of the original sample locations were relocated due to the presence of cement foundations at the original sample point locations. Sample location H3S5 was moved 25 feet directly south, H3S10 was moved 25 feet directly north, and H3S12 was moved 25 feet directly north. H3S9 was moved five to seven feet east, and was taken from a sump in

the cement foundation. Of the 13 samples collected, only one sample, H3S8, contained PCB concentrations below action levels (Table 4.7). The highest concentration was detected at H3S9, which was taken from the sump. Again, Aroclors 1242, 1254, and 1260 were the only Aroclors detected.

Hot spot 4 is located in and around the fenced area on site where the transformer leaks were reported. Previous samples within the area indicated high levels of PCBs were present, thus an additional 11 samples were collected within this hot spot. All samples collected from within the fenced areas, including H4S1, H4S5, H4S6, H4S7, and H4S8 contained concentrations of PCBs which exceed action levels (Figure 4.2, Table 4.8). Additionally, two other samples collected outside the fenced area contained high concentrations of PCBs. These are H4S2, at the SW corner of the cement structure, and H4S4, which is south of the fenced areas. All other samples contained PCB concentrations which did not exceed action levels and are located north of the fenced area. The primary Aroclors present were again 1242, 1254, and 1260, with the addition of 1248, which was detected in samples H4S10 and H4S11. All other Aroclors were non-detect.

Metals Hot Spots

Along the central and northern portions of the site, high concentrations of lead, chromium, and cadmium were detected in samples collected and analyzed during the PRI. Two hot spots, H-5 and H-6 were designated for sampling in these areas.

Four samples were collected in H-5 which is located at the west-central portion of the site around a building which appears to have been a maintenance garage (Figure 4.3). Of the four samples, H5S1 and H5S3 contained concentrations of chromium exceeding the NYSDEC action levels of 50 ppm, and H5S2 contained concentrations of lead exceeding the NYSDEC action levels of 500 ppm (Table 4.9).

Hot spot six encompasses the northern and northeastern section of the site, much of which is covered by metal cuttings approximately 6 - 9 inches thick across the surface. Ten shallow samples were collected in H-6 (Figure 4.2). None of the additional samples exceeded NYSDEC action levels for cadmium. However, all samples with the exception of H6S1 and H6S4 exceeded action levels for total chromium (Table 4.10). Additionally, four samples including H6S1, H6S3, H6S5, and H6S10 exceeded action levels for lead.

4.2.2 Shallow Soil Reconnaissance Sampling

Reconnaissance samples were taken at selected locations to fill in data gaps where areas where few previous samples had not been collected, but where the potential for contamination was suspected. A total of 11 shallow reconnaissance samples were collected, five located between H-5 and H-6 (R-31 through R-35), two on the western side of soil covered waste piles (R-36, R-37), and four along the southern perimeter of the site (R-38 through R-41) (Figure 4.2).

The five reconnaissance samples collected between H-5 and H-6 were collected to determine the extent of metals contamination beyond the hot spot outline, and also to determine if PCBs are present in this area. Of the samples collected in this area, R-31 through R-34, all exceeded NYSDEC PCB action levels of 1 ppm (Table 4.11). R-35

had a concentration of .99 ppm. R-32 had the highest concentration of 6 ppm. As in the hot spots, only Aroclors 1242, 1254, and 1260 were detected. The metals analysis indicated that all five samples exceed NYSDEC action levels of 50 ppm for chromium (Table 4.12). In addition, R-32 exceeded action levels for both cadmium and chromium.

Samples R-36 and R-37 were collected west of the soil covered waste piles to determine if significant contamination is present proximal to the residential area that is adjacent to the site. All PCB and metal concentrations are well below NYSDEC action levels in both of these samples (Tables 4.11 and 4.12).

Samples R-38 through R-41 were collected along the souther perimeter of the site on property owned by the Buffalo Brake Beam Corporation to determine if contamination is present south of the fluff piles (Figure 4.2). Samples R-38 and R-39 contained concentrations of PCBs exceeding NYSDEC action levels. Samples R-38 through R-41 were not analyzed for the presence of cadmium, lead, and total chrome.

4.2.3 Shallow Sampling under Waste Piles

Shallow soil samples were collected from beneath the waste piles during test pitting to determine if contamination from the waste piles is leaching into underlying soils. The samples were collected directly beneath the waste/soil interface in conjunction with a waste sample which was collected directly above the waste/soil interface. Soil samples were collected and analyzed for PCBs lead, cadmium, and total chromium.

A total of three soil samples were collected of soils under the metal debris piles at TPM-17, TPM-18, and TPM-21 and analyzed for lead, total chromium, and cadmium. All samples had concentrations below NYSDEC action levels for all three metals (Figure 4.1) (Table 4.13).

Three soil samples were collected under the fluff piles from TPF-23, TPF-25, and TPF-27 and analyzed for PCBs as well as three metals (Tables 4.13 and 4.14). The soil samples collected at TPF-23 exceeded NYSDEC action levels for PCBs, and soil samples at TPF-23 and TPF-25 exceeded NYSDEC action levels for lead.

Three PCB soil samples were collected in the shallow soils underlying the soil covered waste piles from test pits TPS-29, TPS-31, and TPS-33. None of these samples contained PCBs exceeding NYSDEC action levels (Table 4.14). A shallow soil sample was also collected from soils underlying each test pit under the soil covered waste (TPS-29 through TPS-33). These samples were analyzed for cadmium, lead, and chromium (Table 4.13). Soil samples collected from TPS-29 and TPS-31 both contained concentrations of lead exceeding NYSDEC action levels, and TPS-29 contained levels of chromium exceeding NYSDEC action levels.

4.2.4 Test Trench Sampling

A test trench was excavated, using a backhoe, in the vicinity of monitoring well 5, to investigate black sludge-like substance encountered during the installation of MW-5. The first test trench, which was located to the west of MW-5 did not encounter the sludge (Figure 4.1). However, a second trench, east of MW-5, did encounter sludge.

Composite samples were collected from ground surface to 2.5 feet from the second test trench and analyzed for full TCL and TAL parameters (Tables 4.15 through 4.18).

One volatile organic compound, toluene, plus several volatile tentatively identified compounds (TICs) were detected in the test trench samples. Following is a list of TICs and compounds detected in the test trench sample:

SAMPLE NUMBER LIPTT
TEST TRENCH

Compound Name	Retention Times	Estimated Concentration
Toluene		3 ppb
Unknown C8H16	21.98	140 ppb
Unknown Hydrocarbon	22.25	24 ppb
Unknown C9H18 MW126 *	25.84	47 ppb
Unknown C9H18 MW126 *	26.44	55 ppb
Unknown	26.76	55 ppb
Unknown MW126	27.48	40 ppb
Unknown MW126	28.35	44 ppb
Unknown Hydrocarbon	29.35	55 ppb
Unknown C9H18 MW126	29.72	25 ppb

These codes notates the following:

C - indicates the number of carbon atoms in the compounds.

H - indicates the number of hydrogen atoms in the compound.

Semi-volatile organic compound analysis revealed the presence of several compounds present in the test trench sample (Table 4.16). Several tentatively identified semi-volatile organic compounds were detected as well. No compounds from the TCL semi-volatiles list were detected above NYSDEC action levels. However, many unidentifiable compounds were detected at relatively high concentrations, but have no applicable action levels. The detected compounds are as follows:

SAMPLE NUMBER LIPTT
TEST TRENCH

Compound Name	Retention Times	Estimated Concentration
Benzo(a)anthracene	-	170 ppb
Bis(2-ethylhexyl)phthalate	-	6,700 ppb
Chrysene	-	310 ppb
Fluoranthene	-	480 ppb
Phenanthrene	-	320 ppb
Pyrene	-	690 ppb
Unknown MW208 C15H28	17.24	2,500 ppb
Unknown Hydrocarbon	17.67	3,400 ppb
Unknown MW208 C15H28	17.78	3,300 ppb
Unknown Hydrocarbon	18.99	2,900 ppb
Unknown Hydrocarbon	19.60	4,200 ppb
Unknown Hydrocarbron	20.24	12,000 ppb
Unknown Hydrocarbon	20.30	21,000 ppb
Unknown Hydrocarbon	21.42	8,200 ppb
Unknown Hydrocarbon	21.54	15,000 ppb
Unknown Hydrocarbon	22.46	7,600 ppb
Unknown Hydrocarbon	22.54	6,400 ppb
Unknown Hydrocarbon	23.42	14,000 ppb
Unknown Hydrocarbon	23.59	11,000 ppb
Unknown Hydrocarbon	24.37	12,000 ppb
Unknown	25.59	7,900 ppb
Unknown Hydrocarbon	25.94	8,800 ppb
Unknown Hydrocarbon	26.17	11,000 ppb
Unknown Hydrocarbon	27.71	9,500 ppb
Unknown Hydrocarbon	28.25	9,400 ppb
Unknown Hydrocarbon	28.54	7,500 ppb

Total PCBs were detected at .5 ppm, below NYSDEC action levels of 1 ppm (Table 4.9). Also, two pesticides were detected, delta-HC and Heptachlor, but in minor amounts. Several metals were detected (Table 4.18), all below NYSDEC action levels, with the exception of chromium which exceed action levels of 50 ppm.

4.3 LEACHABILITY STUDIES SHALLOW SOIL ZONE

In preparation for completion of the Feasibility Study (FS) for the LIP site, six soil samples from the shallow zone were collected in "hot spots" at the site. Samples were collected and analyzed for TCLP methods to determine if PCBs and metals contamination in the shallow soil zone can potentially leach into the deeper soil horizon and eventually ground water (Figure 3.3 for Sample Locations). Additionally, the comparative purposes, two of the samples were also analyzed for EPToxicity. Samples were analyzed for PCBs, arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver (Tables 4.19 and 4.20).

None of the six samples exceeded the Federal Regulatory levels associated with EPToxicity or TCLP methods, thus the soils in the shallow soil zone cannot be considered a hazardous waste from the standpoint of leachability.

4.4 DEEP SOIL SAMPLES

Due to the presence of deep soil contamination found during the 1992 PRI, five additional deep soil samples were collected during the 1993 additional studies (Figure 4.3). Three deep soil samples, (H2D1, H3D1, and H4D1), were collected at PCB hot spots, (Figure 4.2). These samples were analyzed for PCBs to determine if PCB shallow contamination has migrated to deeper soils. Two deep reconnaissance samples (RD-31, RD-32) were also collected from the area between H-5 and H-6 and were analyzed for PCBs, cadmium, lead, and total chrome. All deep samples were collected from 2 to 4 feet below ground surface.

PCB concentrations of the three deep soil samples collected in hot spots were well below NYSDEC action levels of 10 ppm for deep soil samples (Table 4.21) PCB concentrations in the deep reconnaissance samples were also below NYSDEC action levels. Concentrations of chromium in RD-31 exceed the NYSDEC action levels of 50 ppm for chromium. All other metal concentrations in RD-31 and RD-32 are below action levels.

4.5 GROUND WATER SAMPLES

A second round of ground water samples was collected during the 1993 additional studies and analyzed for volatile organic compounds (VOCs) (Figure 4.4). The analytical method used during the 1992 PRI had a detection limit of 5 ppb. Several NYSDEC water quality action levels are lower than 5 ppb, therefore a lower detection limit was necessary to ensure that the ground water meets all water quality action levels. The 1993 ground water samples were analyzed using Method 524.2 with detection limits as low as .5 ppb.

The ground water sample collected from MW-3 contained concentrations of cis-1,2-dichloroethene exceeding NYSDEC water quality action levels, and MW-5

contained concentrations of benzene exceeding water quality action levels (Table 4.22). Other compounds detected below NYSDEC ground water quality action levels include 1,24-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, toluene, total xylenes, trans-1,2-dichloroethene, and vinyl chloride.

SECTION 4 TABLES

LIST OF FIGURES

Table 4.1
Lehigh Industrial Park–Additional Studies
Metal Debris Piles
Sample Analysis

PCBs (ug/kg) (ppb)	Action Level	Sample Location	
		TPM18 PCB	TPM22 PCB
Aroclor 1016		46 UJ	8000UJ
Aroclor 1221		93 UJ	16000UJ
Aroclor 1232		46 UJ	8000UJ
Aroclor 1242		46 UJ	4400J
Aroclor 1248		46 UJ	8000UJ
Aroclor 1254		330 J	8000UJ
Aroclor 1260		440 J	8000UJ
Total Aroclors	1000	770	4400

Metals (mg/kg) (ppm)	Action Level	Sample Location		
		TPM17W	TPM18W	TPM21W
Cadmium – Total	10	0.88 J	14.9 J	44.6 J
Chromium – Total	50	78.7 J	923 J	296 J
Lead – Total	500	277	194	1070

Shaded area indicates concentrations above NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.2
Lehigh Industrial Park – Additional Studies
Fluff Piles
Sample Analysis

PCBs (ug/kg) (ppb)	Action Level	Sample Location					
		TPF23 PCB1	TPF23 PCB2	TPF24 PCB1	TPF24 PCB2	TPF25 PCB1	TPF25 PCB2
Aroclor 1016		2100 U	2400U	1900 U	4000U	370 U	3900U
Aroclor 1221		4200 U	4800U	3900 U	8100U	760 U	7900U
Aroclor 1232		2100 U	2400U	1900 U	4000U	370 U	3900U
Aroclor 1242		5000 J	25000J	1900 U	4000U	370 U	3900U
Aroclor 1248		2100 U	2400U	1900 U	4000U	370 U	3900U
Aroclor 1254		7700 J	7500J	4700	4400	810 J	6200J
Aroclor 1260		6900	3200J	970 J	4000U	310 J	2300J
Total Aroclors	1000	19600	35700	5670	4400	1120	8500

PCBs (ug/kg) (ppb)	Action Level	Sample Location					
		TPF26 PCB1	TPF26 PCB2	TPF27 PCB1	TPF27 PCB2	TPF28 PCB1	TPF28 PCB2
Aroclor 1016		800 U	1000U	200 UJ	230UJ	190 UJ	4200U
Aroclor 1221		1600 U	2100U	410 UJ	460UJ	390 UJ	8600U
Aroclor 1232		800 U	1000U	200 UJ	230UJ	190 UJ	4200U
Aroclor 1242		1000 J	2800J	180 J	210J	190 UJ	4200U
Aroclor 1248		800 U	1000U	200 UJ	230UJ	190 UJ	4200U
Aroclor 1254		3700 J	2400	340 J	420J	190 UJ	9900
Aroclor 1260		7900	1300J	490 J	490J	140 J	11000
Total Aroclors	1000	12600	6500	1010	1120	140	20900

Metals (mg/kg) (ppm)	Action Levels	Sample Location		
		TPF23W	TPF25W	TPF27W
Cadmium – Total	10	54.6 J	14.1 J	18.6 J
Chromium – Total	50	227 J	126 J	72.3 J
Lead – Total	500	2070	3570	2300

Shaded area indicates concentrations above NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.3
Lehigh Industrial Park–Additional Studies
Waste Piles
TCLP Metals Analysis

TCLP Metals (ug/L) (ppb)	Federal Reg. limit	Sample Location TPS29EPT	TPF23EPT
Arsenic – Total	5000	4 U	4 U
Barium – Total	100000	1770 J	1600 J
Cadmium – Total	1000	624 J	124 J
Chromium – Total	5000	28 U	18 U
Lead – Total	5000	18600 J	257 J
Mercury – Total,	200	0.2	0.2 U
Selenium – Total	1000	4 U	4 U
Silver – Total	5000	0.3 U	0.3 U

Shaded area indicates concentrations exceeding Federal Regulatory Limits
All data corrected in accordance with data validation report

Table 4.4
Lehigh Industrial Park – Additional Studies
Soil Covered Waste Piles
Sample Analysis

PCBs (ug/kg) (ppb)	Action Level	Sample Location				
		TPS29 PCB1	TPS29PCB2	TPS30PCB1	TPS30PCB2	TPS31PCB1
Aroclor 1016		R	2200U	1900 U	2000U	450 U
Aroclor 1221		R	4400U	3900 U	4100U	920 U
Aroclor 1232		R	2200U	1900 U	2000U	450 U
Aroclor 1242		R	1500J	1900 U	2000U	450 U
Aroclor 1248		R	2200U	1900 U	2000U	450 U
Aroclor 1254		R	4800	4500	2100	2100 J
Aroclor 1260		R	4200	2100	5300	450 U
Total Aroclors	1000	0	10500	6600	7400	2100

PCBs (ug/kg) (ppb)	Action Level	Sample Location				
		TPS31PCB2	TPS32PCB1	TPS32PCB2	TPS33 PCB1	TPS33 PCB2
Aroclor 1016		200 U	570UJ	45 U	380UJ	390 UJ
Aroclor 1221		400 U	1200UJ	91 U	780UJ	800 UJ
Aroclor 1232		200 U	570UJ	45 U	380UJ	390 UJ
Aroclor 1242		200 U	410J	43 J	320J	390 UJ
Aroclor 1248		200 U	570U	45 U	380UJ	390 UJ
Aroclor 1254		230	2200J	75 J	960J	2100 J
Aroclor 1260		250	3000J	300	760J	1400 J
Total Aroclors	1000	480	5610	418	2040	3500

Metals (mg/kg) (ppm)	Action Level	Sample Location				
		TPS29W	TPS30W	TPS31W	TPS32W	TPS33W
Cadmium – Total	10	131 J	76.3 J	130 J	97.8 J	5.7 J
Chromium – Total	50	146 J	154 J	127 J	239 J	26.3 U
Lead – Total	500	3440	4410	3550	3840	719

Shaded area indicates concentraitons exceeding NYSDEC Action Level
All data corrected in accordance with data validation report

Table 4.5
Lehigh Industrial Park– Additional Studies
Hot Spot 1
PCB Analysis

PCBs (ug/kg) (ppb)	Action Level	Sample Location			
		H1S1	H1S2	H1S3	H1S4
Aroclor 1016		77UJ	40U	300UJ	42U
Aroclor 1221		160UJ	81U	620UJ	85U
Aroclor 1232		77UJ	40U	300UJ	42U
Aroclor 1242		1800J	40U	14000J	42U
Aroclor 1248		77UJ	40U	300UJ	42U
Aroclor 1254		1700J	120	9700J	37J
Aroclor 1260		660J	64J	2800J	12J
Total Aroclors	1000	4160	184	26500	49

Shaded areas indicate concentrations exceeding NYSDEC Action Level
All data corrected in accordance of data validation report

Table 4.6
Lehigh Industrial Park – Additional Studies
Hot Spot 2
PCB Analysis

PCBs (ug/kg) (ppb)	Action Level	Sample Location				
		H2S1	H2S2	H2S3	H2S4	H2S5
Aroclor 1016		190U	43U	39 U	41U	38 U
Aroclor 1221		390U	87U	79 U	83U	77 U
Aroclor 1232		190U	43U	39 U	41U	38 U
Aroclor 1242		1900J	560	430 J	470	680
Aroclor 1248		190U	43U	39 U	41U	38 U
Aroclor 1254		2100	630	410 J	340	600
Aroclor 1260		2800	380J	280 J	160	310
Total Aroclors	1000	6800	1570	1120	970	1590

PCBs (ug/kg) (ppb)	Action Level	Sample Location		
		H2S6	H2S7	H2S8
Aroclor 1016		200U	190UJ	74 U
Aroclor 1221		400U	390UJ	150 U
Aroclor 1232		200U	190UJ	74 U
Aroclor 1242		2400J	3900J	1200
Aroclor 1248		200U	190UJ	74 U
Aroclor 1254		3800J	3100J	1200
Aroclor 1260		2100J	1400J	840
Total Aroclors	1000	8300	8400	3240

Shaded areas indicate concentrations exceeding NYSDEC Action Level
All data corrected in accordance with data validation report

Table 4.7
Lehigh Industrial Park – Additional Studies
Hot Spot 3
PCB Analysis

PCBs (ug/kg) (ppb)	Action Level	Sample Location						
		H3S1	H3S2	H3S3	H3S4	H3S5	H3S6	H3S7
Aroclor 1016		74 UJ	210UJ	200 UJ	87U	200 U	38U	73 U
Aroclor 1221		150 UJ	420UJ	410 UJ	180U	410 U	77U	150 U
Aroclor 1232		74 UJ	210UJ	200 UJ	87U	200 U	38U	73 U
Aroclor 1242		74 UJ	210UJ	1100 J	770J	4800 J	720	940 J
Aroclor 1248		74 UJ	210UJ	200 UJ	87U	200 U	38U	73 U
Aroclor 1254		850 J	3800J	2600 J	1500	1600 J	240	1600 J
Aroclor 1260		1400 J	9700J	3500 J	1200	770 J	100J	1400 J
Total Aroclors	1000	2250	13500	7200	3470	7170	1060	3940

PCBs (ug/kg) (ppb)	Action Level	Sample Location					
		H3S8	H3S9	H3S10	H3S11	H3S12	H3S13
Aroclor 1016		41U	290 UJ	37U	200UJ	80 U	72U
Aroclor 1221		84U	600 UJ	75U	410UJ	160 U	150U
Aroclor 1232		41U	290 UJ	37U	200UJ	80 U	72U
Aroclor 1242		360	7500 J	1400	2500J	2600	2700
Aroclor 1248		41U	290 UJ	37U	200UJ	80 U	72U
Aroclor 1254		180J	8400 J	720	1700J	1300	1200
Aroclor 1260		140J	3900 J	340J	740J	690 J	630
Total Aroclors	1000	680	19800	2460	4940	4590	4530

Shaded areas indicate concentrations exceeding NYSDEC Action Level
All data corrected in accordance with data validation report

Table 4.8
Lehigh Inustrial Park – Additional Studies
Hot Spot 4
PCB Analysis

PCBs (ug/kg) (ppb)	Action Level	Sample Location					
		H4S1	H4S2	H4S3	H4S4	H4S5	H4S6
Aroclor 1016		190U	92U	40 U	40U	39 U	180U
Aroclor 1221		380U	190U	81 U	82U	80 U	370U
Aroclor 1232		190U	92U	40 U	40U	39 U	180U
Aroclor 1242		1200	680	340	1700	180 J	370J
Aroclor 1248		190U	92U	40 U	40U	39 U	180U
Aroclor 1254		3400J	2100	230	890	260 J	1400J
Aroclor 1260		12000	1600J	190 J	350J	610 J	5100
Total Aroclors	1000	16600	4380	760	2940	1050	6870

PCBs (ug/kg) (ppb)	Action Level	Sample Location				
		H4S7	H4S8	H4S9	H4S10	H4S11
Aroclor 1016		37 U	200U	40U	40UJ	42U
Aroclor 1221		74 U	400U	81U	81UJ	86U
Aroclor 1232		37 U	200U	40U	40UJ	42U
Aroclor 1242		56 J	200U	69J	40UJ	42U
Aroclor 1248		37 U	200U	40U	39J	45J
Aroclor 1254		510 J	1900J	320J	55J	270J
Aroclor 1260		2100	7300	590J	70J	710
Total Aroclors	1000	2666	7490	979	164	965

Shaded areas indicate concentrations exceeding NYSDEC Action Level
All data corrected in accordance with data validation report

Table 4.9
Lehigh Industrial Park–Additional Studies
Hot Spot 5
Metals Analysis

Metals (mg/kg) (ppm)	Action Level	Sample Location			
		H5S1	H5S2	H5S3	H5S4
Cadmium – Total	10	3.3 J	1.7J	2.3 J	6.1J
Chromium – Total	50	735J	41.8J	199 J	43.3J
Lead – Total	500	321 J	1710J	259 J	218J

Shaded areas indicate concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.10
Lehigh Industrial Park – Additional Studies
Hot Spot 6
Metals Analysis

Metals (mg/kg) (ppm)	Action Level	Sample Location				
		H6S1	H6S2	H6S3	H6S4	H6S5
Cadmium – Total	10	1.1 J	1.1J	1.1 J	0.76J	2.9 J
Chromium – Total	50	19.3J	766J	217 J	25.6J	317 J
Lead – Total	500	581 J	307J	625 J	271J	1930 J

Metals (mg/kg) (ppm)	Action Level	Sample Location				
		H6S6	H6S7	H6S8	H6S9	H6S10
Cadmium – Total	10	2.0 J	5.9J	1.9 J	8.1J	1.2 J
Chromium – Total	50	829J	112J	69.7 J	337J	636 J
Lead – Total	500	392 J	428J	240 J	253J	570 J

Shaded areas indicate concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.11
Lehigh Industrial Park – Additional Studies
Reconnaissance Shallow Samples
PCB Analysis

PCBs (ug/kg) (ppb)	Action Level	Sample Location					
		R31	R32	R33	R34	R35	R36
Aroclor 1016		36 U	78U	37 U	37U	39 U	47U
Aroclor 1221		73 U	160U	74 U	76U	79 U	96U
Aroclor 1232		36 U	78U	37 U	37U	39 U	47U
Aroclor 1242		490 J	2300J	81 J	1400	340 J	47U
Aroclor 1248		36 U	78U	37 U	37U	39 U	47U
Aroclor 1254		550	2600J	310 J	450	470	24J
Aroclor 1260		370	1100J	1000 J	160J	180 J	47U
Total Aroclors	1000	1410	6000	1391	2010	990	24

PCBs (ug/kg) (ppb)	Action Level	Sample Location				
		R37	R38	R39	R40	R41
Aroclor 1016		45 U	200UJ	38 UJ	39U	46 U
Aroclor 1221		91 U	410UJ	77 UJ	80U	94 U
Aroclor 1232		45 U	200UJ	38 UJ	39U	46 U
Aroclor 1242		45 U	8200J	1100 J	39U	46 U
Aroclor 1248		45 U	200UJ	38 UJ	39U	46 U
Aroclor 1254		12 J	6800J	680 J	390	42 J
Aroclor 1260		45 U	1800J	180 J	120J	19 J
Total Aroclors	1000	12	16800	1960	510	61

Shaded areas indicate concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.12
Lehigh Industrial Park–Additional Studies
Reconnaissance Shallow
Metals Analysis

Metals (mg/kg) (ppm)	Action Level	Sample Location						
		R31MET	R32MET	R33MET	R34MET	R35MET	R36MET	R37MET
Cadmium – Total	10	4.4 J	22.9J	4.4 J	2.3 J	5.8 BN	1.3J	0.53 J
Chromium – Total	50	209J	250J	378 J	1260 J	504 J	9.9U	16.5 J
Lead – Total	500	390 J	834J	355 J	126 J	134 J	59.2J	37.7 J

Shaded areas indicate concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.13
Lehigh Industrial Park – Additional Studies
Waste Piles – Underlying Soils
Metals Analysis

Fluff Piles

Metals (mg/kg) (ppm)	Action Level	Sample Location		
		TPF23S	TPF25S	TPF27S
Cadmium – Total	10	7.8 J	2.2 J	0.26 J
Chromium – Total	50	35.9 J	31.2 J	7.6 U
Lead – Total	500	638 J	565 J	81.5 J

Metal Debris Piles

Metals (mg/kg) (ppm)	Action level	Sample Location		
		TPM17S	TPM18S	TPM21S
Cadmium – Total	10	0.33 J	0.52 J	0.68 J
Chromium – Total	50	9.1 J	30 J	10.8 U
Lead – Total	500	32.8 J	21.9 J	26.6 J

Soil Covered Waste Piles

Metals (mg/kg) (ppm)	Action Level	Sample Location				
		TPS29S	TPS30S	TPS31S	TPS32S	TPS33S
Cadmium – Total	10	2.7 J	0.24 J	6.2 J	1.4 J	0.72 J
Chromium – Total	50	68.2 J	9.6 U	10.8 U	17.3 J	17.2 J
Lead – Total	500	506 J	45 J	994 J	467 J	74 J

Shaded areas indicate concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.14
Lehigh Industrial Park
Waste Piles–Underlying Soils
PCB Analysis

Fluff Piles

PCBs (ug/kg) (ppb)	Action Level	Sample Location		
		TPF23PCBS	TPF25PCBS	TPF27PCBS
Aroclor 1016		380 U	R	43 U
Aroclor 1221		780 U	R	88 U
Aroclor 1232		380 U	R	43 U
Aroclor 1242		3800 J	R	43 U
Aroclor 1248		380 U	R	43 U
Aroclor 1254		2400 J	R	43 U
Aroclor 1260		1100	R	43 U
Total Aroclors	1000	7300	0	0

Soil Covered Waste Piles

PCBs (ug/kg) (ppb)	Action Level	Sample Location		
		TPS29PCBS	TPS31PCBS	TPS33PCBS
Aroclor 1016		80 U	43U	40 U
Aroclor 1221		160 U	88U	82 U
Aroclor 1232		80 U	43U	40 U
Aroclor 1242		80 U	43U	40 U
Aroclor 1248		80 U	43U	40 U
Aroclor 1254		210 J	48	37 J
Aroclor 1260		80 U	150	34 J
Total Aroclors	1000	210	198	71

Shaded areas indicate concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.15
Lehigh Industrial Park– Additional Studies
Test Trench Analysis
Volatile Organic Compounds

Parameter (ug/kg) (ppb)		Test Trench
1,1,1–Trichloroethane		11UJ
1,1,2,2–Tetrachloroethane		11UJ
1,1,2–Trichloroethane		11UJ
1,1–Dichloroethane		11U
1,1–Dichloroethene		11U
1,2–Dichloroethane		11U
1,2–Dichloroethene (Total)		11U
1,2–Dichloropropane		11UJ
2–Butanone		11UJ
2–Hexanone		11UJ
4–Methyl–2–pentanone		11UJ
Acetone		88U
Benzene		11UJ
Bromodichloromethane		11UJ
Bromoform		11UJ
Bromomethane		11U
Carbon Disulfide		11U
Carbon Tetrachloride		11UJ
Chlorobenzene		11UJ
Chloroethane		11U
Chloroform		11U
Chloromethane		11U
cis–1,3–Dichloropropene		11UJ
Dibromochloromethane		11UJ
Ethyl benzene		11UJ
Methylene chloride		11U
Styrene		11UJ
Tetrachloroethene		11UJ
Toluene		3J
Total Xylenes		11UJ
trans–1,3–Dichloropropene		11UJ
Trichloroethene		11UJ
Vinyl chloride		11U

All data corrected in accordance with data validation report

Table 4.16
Lehigh Industrial Park – Additional Studies
Test Trench Analysis
Semivolatile Organic Compounds

Parameter (ug/kg) (ppb)		Test Trench
1,2,4-Trichlorobenzene		1900U
1,2-Dichlorobenzene		1900U
1,3-Dichlorobenzene		1900U
1,4-Dichlorobenzene		1900U
2,4,5-Trichlorophenol		4500UJ
2,4,6-Trichlorophenol		1900UJ
2,4-Dichlorophenol		1900U
2,4-Dimethylphenol		1900U
2,4-Dinitrophenol		4500UJ
2,4-Dinitrotoluene		1900UJ
2,6-Dinitrotoluene		1900UJ
2-Chloronaphthalene		1900UJ
2-Chlorophenol		1900U
2-Methylnaphthalene		1900U
2-Methylphenol		1900U
2-Nitroaniline		4500UJ
2-Nitrophenol		1900U
3,3'-Dichlorobenzidine		1900UJ
3-Nitroaniline		4500UJ
4,6-Dinitro-2-methylphenol		4500UJ
4-Bromophenyl phenyl ether		1900UJ
4-Chloro-3-methylphenol		1900U
4-Chloroaniline		1900U
4-Chlorodiphenylether		1900UJ
4-Methylphenol		1900U
4-Nitroaniline		4500UJ
4-Nitrophenol		4500UJ
Acenaphthene		1900UJ
Acenaphthylene		1900UJ
Anthracene		1900UJ
Benzo(a)anthracene		170J
Benzo(a)pyrene		1900UJ
Benzo(b)fluoranthene		1900UJ
Benzo(ghi)perylene		1900UJ
Benzo(k)fluoranthene		1900UJ
Bis(2-chloroethoxy) methane		1900U
Bis(2-chloroethyl) ether		1900U
Bis(2-chloroisopropyl) ether		1900U
Bis(2-ethylhexyl) phthalate		6700J
Butyl benzyl phthalate		1900UJ
Carbazole		1900UJ
Chrysene		310J
Di-n-butyl phthalate		1900UJ
Di-n-octyl phthalate		1900UJ
Dibenzo(a,h)anthracene		1900UJ
Dibenzofuran		1900UJ
Diethyl phthalate		1900UJ
Dimethyl phthalate		1900UJ
Fluoranthene		480J
Fluorene		1900UJ
Hexachlorobenzene		1900UJ
Hexachlorobutadiene		1900U
Hexachlorocyclopentadiene		1900UJ
Hexachloroethane		1900U
Indeno(1,2,3-cd)pyrene		1900UJ
Isophorone		1900U
N-Nitroso-Di-n-propylamine		1900U
N-nitrosodiphenylamine		1900UJ
Naphthalene		1900U
Nitrobenzene		1900U
Pentachlorophenol		4500UJ
Phenanthrene		320J
Phenol		1900U
Pyrene		690UJ

All data corrected in accordance with data validation report

Table 4.17
Lehigh Industrial Park– Additional Studies
Test Trench Analysis
Pesticides/PCBs

Parameter (ug/kg) (ppb)	Action Level	Test Trench
4,4'–DDD		19UJ
4,4'–DDE		19UJ
4,4'–DDT		19UJ
Aldrin		9.7UJ
alpha–BHC		9.7UJ
alpha–Chlordane		9.7UJ
Aroclor 1016		190UJ
Aroclor 1221		380UJ
Aroclor 1232		190UJ
Aroclor 1242		190UJ
Aroclor 1248		110J
Aroclor 1254		190J
Aroclor 1260		200J
Total Aroclor	1000	500
beta–BHC		9.7UJ
delta–BHC		1.3J
Dieldrin		19UJ
Endosulfan I		9.7UJ
Endosulfan II		19UJ
Endosulfan Sulfate		19UJ
Endrin		19UJ
Endrin aldehyde		19UJ
Endrin ketone		19UJ
gamma–BHC (Lindane)		9.7UJ
gamma–Chlordane		9.7UJ
Heptachlor		1.9J
Heptachlor epoxide		9.7UJ
Methoxychlor		97UJ
Toxaphene		970UJ

All data corrected in accordance with data validation report

Table 4.18
Lehigh Industrial Park– Additional Studies
Test Trench Analysis
Metals Analysis

Metals (mg/kg) (ppm)	Action Level	Test Trench
Aluminum – Total		893 J
Antimony – Total		13.8 UJ
Arsenic – Total		52.5 J
Barium – Total		25.8 J
Beryllium – Total		1.2 U
Cadmium – Total	10	1.9 J
Calcium – Total		1350
Chromium – Total	50	1040 J
Cobalt – Total		29.0
Copper – Total		475 J
Iron – Total		670000 J
Lead – Total	500	433 J
Magnesium – Total		138 U
Manganese – Total		7990 J
Mercury – Total		0.11 UJ
Nickel – Total		725 J
Potassium – Total		69.1 U
Selenium – Total		0.93 U
Silver – Total		1.0 J
Sodium – Total		215 J
Thallium – Total		1.2 U
Vanadium – Total		R
Zinc – Total		230 U

Shaded area indicates concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with the data validation report

Table 4.19
Lehigh Industrial Park– Additional Studies
Shallow Soil Zone
EP Tox. Results (ppm)

Metals (mg/kg)	Reg. Level (ppm)	LEPT–1S	LEPT–2S
Aluminum – Total			
Antimony – Total			
Arsenic – Total	5	5 U	5 U
Barium – Total	100	602	659
Beryllium – Total			
Cadmium – Total	1	4.5	20
Calcium – Total			
Chromium – Total	5	44	10 U
Cobalt – Total			
Copper – Total			
Iron – Total			
Lead – Total	5	21	83
Magnesium – Total			
Manganese – Total			
Mercury – Total	0.2	0.2 U	0.2 U
Nickel – Total			
Potassium – Total			
Selenium – Total	1	5 U	5 U
Silver – Total	5	1 U	1 U
Sodium – Total			
Thallium – Total			
Vanadium – Total			
Zinc – Total			

Shaded area indicates concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with the data validation report

Table 4.20
Lehigh Industrial Park– Additional Studies
Shallow Soil Zone
TCLP Results (ppm)

Metals (mg/kg)	Reg. Level (ppm)	LTCLP–1S	LTCLP–2S	LTCLP–3S	LTCLP–4S	LTCLP–5S	LTCLP–5S
Aluminum – Total							
Antimony – Total							
Arsenic – Total	5	5 U	5 U	5 U	5 U	5 U	5 U
Barium – Total	100	272	1500	1500	1500	1500	1500
Beryllium – Total							
Cadmium – Total	1	2.8	9	9	9	9	9
Calcium – Total							
Chromium – Total	5	10 U	68	68	68	68	68
Cobalt – Total							
Copper – Total							
Iron – Total							
Lead – Total	5	3	126	126	126	126	126
Magnesium – Total							
Manganese – Total							
Mercury – Total	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel – Total							
Potassium – Total							
Selenium – Total	1	25 U	5 U	5 U	5 U	5 U	5 U
Silver – Total	5	1 U	1 U	1 U	1 U	1 U	1 U
Sodium – Total							
Thallium – Total							
Vanadium – Total							
Zinc – Total							

Shaded area indicates concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with the data validation report

Table 4.21
Lehigh Industrial Park–Additional Studies
Deep Soil Samples

Hot Spot

PCBs (ug/kg) (ppb)	Action Level	Sample Location H2D1	H3D1	H4D1
Aroclor 1016		40 U	37U	39U
Aroclor 1221		80 U	74U	79U
Aroclor 1232		40 U	37U	39U
Aroclor 1242		170	37U	48
Aroclor 1248		40 U	37U	39U
Aroclor 1254		160	63	190J
Aroclor 1260		130	36J	710
Total Aroclors	10000	460	99	948

Reconnaissance

PCBs (ug/kg) (ppb)	Action Level	Sample Location RD31	RD32
Aroclor 1016		39 U	37U
Aroclor 1221		79 U	75U
Aroclor 1232		39 U	37U
Aroclor 1242		560 J	310J
Aroclor 1248		39 U	37U
Aroclor 1254		380	340
Aroclor 1260		260	160
Total Aroclors	10000	1200	810

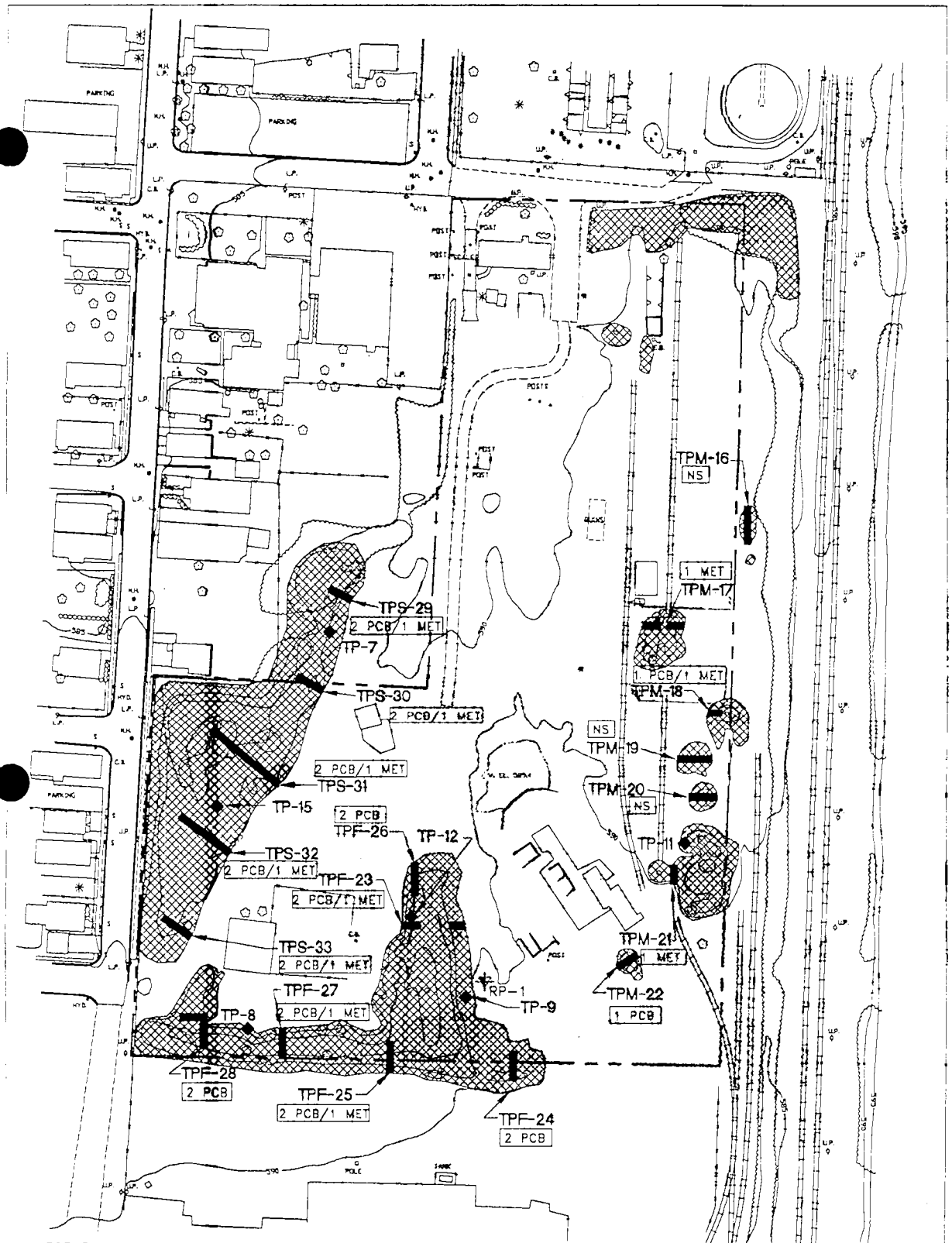
Metals (mg/kg) (ppm)	Action Level	Sample Location RD31MET	RD32MET
Cadmium – Total	10	0.33 U	3.1J
Chromium – Total	50	950J	36.4J
Lead – Total	500	261 J	107J

Shaded areas indicate concentrations exceeding NYSDEC Action Levels
All data corrected in accordance with data validation report

Table 4.2c
Lehigh Industrial Park–Additional Studies
Groundwater Results
Volatile Organic Compounds

Parameter (ug/L) (ppb)	NYSDEC Part 703 ①	Sample Location MW1	MW2	MW3	MW4	MW5
1,1,1,2–Tetrachloroethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,1,1–Trichloroethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,1,2,2–Tetrachloroethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,1,2–Trichloroethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,1–Dichloroethane	5	0.5U	0.5 U	0.5U	0.5 U	0.9
1,1–Dichloroethene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,1–Dichloropropene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,2,3–Trichlorobenzene		0.5U	0.5 U	0.5U	0.5 U	0.5U
1,2,3–Trichloropropane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,2,4–Trichlorobenzene		0.5UJ	0.5 UJ	0.5UJ	0.5 UJ	0.5UJ
1,2,4–Trimethylbenzene		0.5U	0.5 U	0.5U	0.5 U	0.2J
1,2–Dibromo–3–chloropropane	5	0.5U	0.5 U	0.5U	0.5 UJ	0.5U
1,2–Dibromoethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,2–Dichlorobenzene	4.7	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,2–Dichloroethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,2–Dichloropropane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,3,5–Trimethylbenzene		0.5U	0.5 U	0.5U	0.5 U	0.1J
1,3–Dichlorobenzene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,3–Dichloropropane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
1,4–Dichlorobenzene	4.7	0.5U	0.5 U	0.5U	0.5 U	0.5U
2,2–Dichloropropane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Benzene	0.7	0.5U	0.5 U	0.5U	0.2 J	1
Bromobenzene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Bromochloromethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Bromodichloromethane	50	0.5U	0.5 U	0.5U	0.5 U	0.5U
Bromoform	50	0.5U	0.5 U	0.5U	0.5 U	0.5U
Bromomethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Carbon Tetrachloride	5	0.5UJ	0.5 UJ	0.5UJ	0.5 UJ	0.5UJ
Chlorobenzene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Chloroethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Chloroform	100	0.5U	0.5 U	0.5U	0.5 U	0.5U
Chloromethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
cis–1,2–Dichloroethene	5	0.5U	0.5 U	17	0.5 U	0.4J
cis–1,3–Dichloropropene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Dibromochloromethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Dibromomethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Dichlorodifluoromethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Ethyl benzene	5	0.5U	0.5 U	0.5U	0.5 U	0.06J
Hexachlorobutadiene	5	0.5U	0.5 UJ	0.5U	0.5 U	0.5U
Isopropylbenzene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Methylene chloride	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
n–Butylbenzene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
n–Propylbenzene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Naphthalene	10	0.5U	0.5 U	0.5U	0.5 U	0.5U
o–Chlorotoluene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
p–Chlorotoluene	5	0.5UJ	0.5 U	0.5UJ	0.5 U	0.5UJ
p–Cymene		0.5U	0.5 U	0.5U	0.5 U	0.5U
sec–Butylbenzene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Styrene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
tert–Butylbenzene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Tetrachloroethene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Toluene	5	0.5U	0.5 U	0.5U	0.5 U	0.3J
Total Xylenes	5	0.5U	0.5 U	0.5U	0.5 U	0.2J
trans–1,2–Dichloroethene	5	0.5U	0.5 U	4	0.5 U	0.5U
trans–1,3–Dichloropropene	5	0.5U	0.5 UJ	0.5U	0.5 U	0.5U
Trichloroethene	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Trichlorofluoromethane	5	0.5U	0.5 U	0.5U	0.5 U	0.5U
Vinyl chloride	2	0.5U	0.5 U	0.5U	0.5 U	0.3J

① NYSDEC Ambient Water Quality Standards and Guidance Values, Class GA, Part 703, 1991
Shaded areas indicate concentrations exceeding Water Quality Standards
All data corrected in accordance with data validation report



LEGEND:

- PROPERTY BOUNDARY
- CONTOUR INTERVALS AT 5 FOOT
- WASTE PILES
- RP-1 RESIN PILE
- TPM-23 TEST PIT LOCATIONS-1993
- PCB/1 MET INDICATTS THE NUMBER OF SAMPLE ANALYZED FOR PCBs. AND METAILS IN EACH TEST PIT
- NS – NO SAMPLE
- TP-9 ◆ TEST PIT LOCATIONS-1992 (SAMPLED FOR PCBs AND METAILS)

SCALE
0 100' 200'

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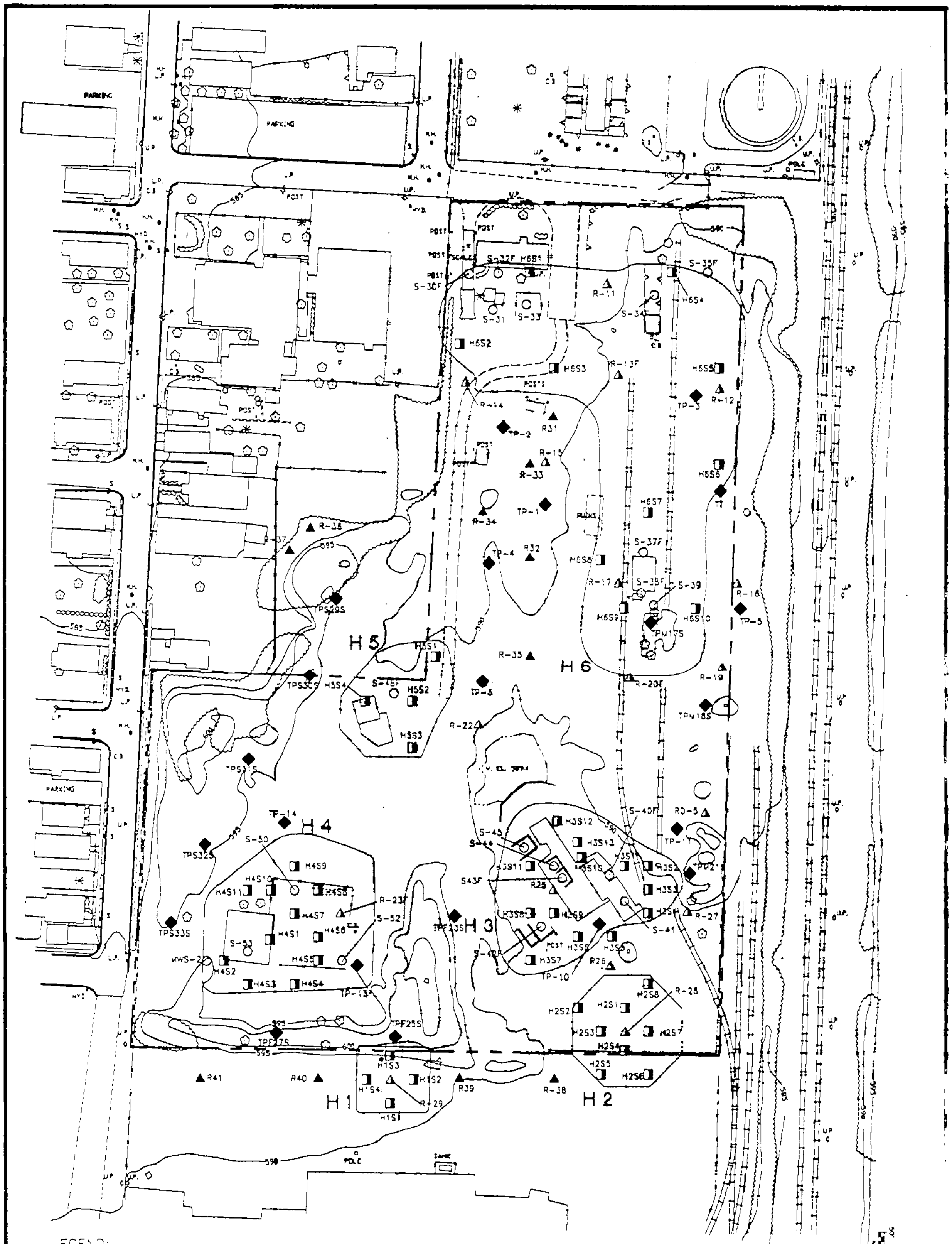
COMPOSITE WASTE SAMPLE LOCATION MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 4.1

REVISED 01/07/93



LEGEND:

- PROPERTY LINE
- CONTOUR INTERVALS AT 5 FOOT
- S-44 SHALLOW SOIL SAMPLE LOCATION 1992
- H3S12 SHALLOW SOIL SAMPLE LOCATION 1993
- RECONNAISANCE SAMPLE LOCATIONS, SHALLOW 1992
- RECONNAISANCE SAMPLE LOCATIONS, SHALLOW 1993
- TEST PIT LOCATION - 1992
- H1 HOT SPOT LOCATION

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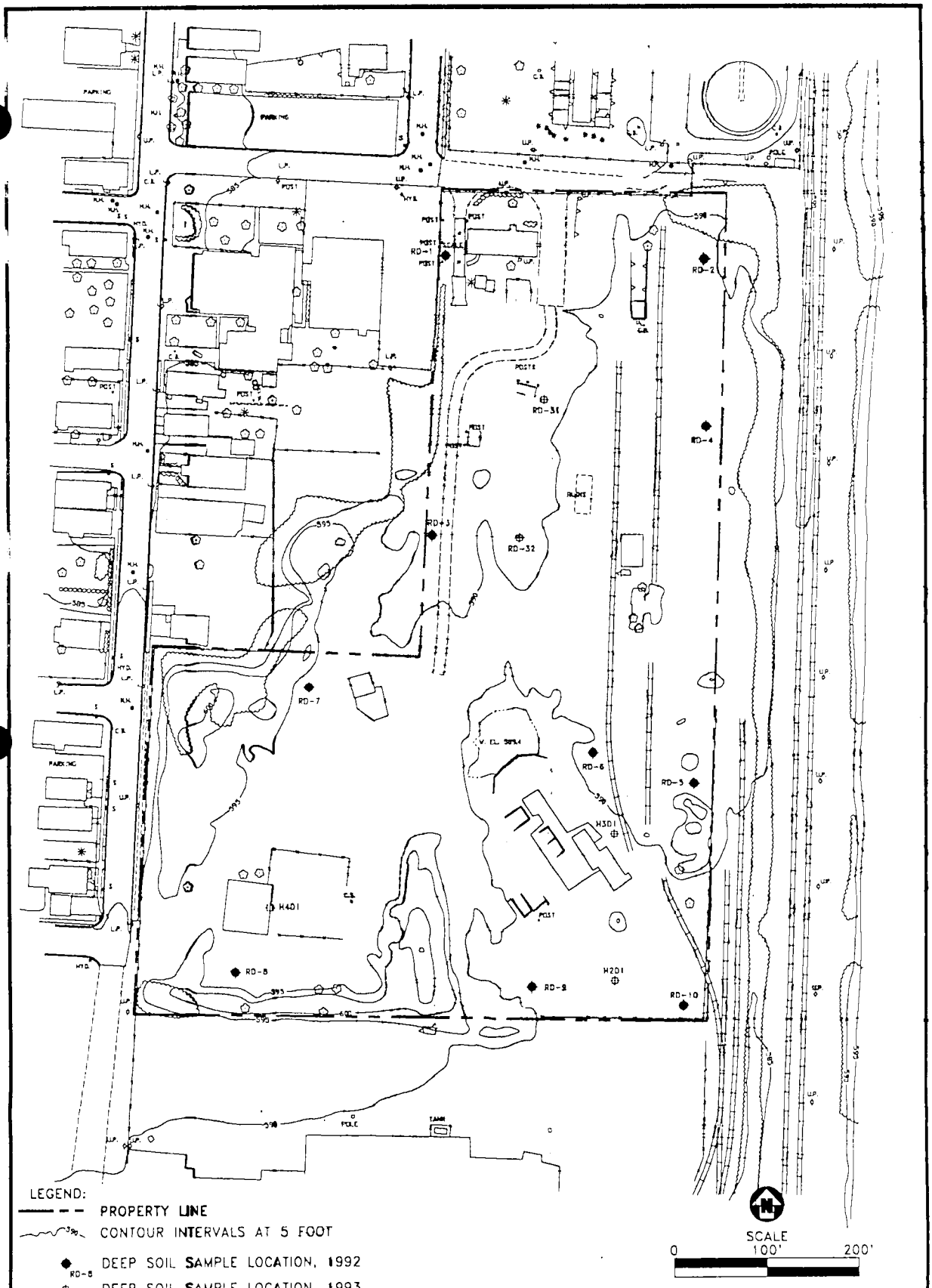
PRELIMINARY REMEDIAL INVESTIGATION

COMPOSITE SOIL SAMPLE LOCATION
COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 4.2



LEGEND:

- PROPERTY LINE
- 595 CONTOUR INTERVALS AT 5 FOOT
- ◆ RD-5 DEEP SOIL SAMPLE LOCATION, 1992
- ⊕ DEEP SOIL SAMPLE LOCATION, 1993

SCALE
0 100' 200'

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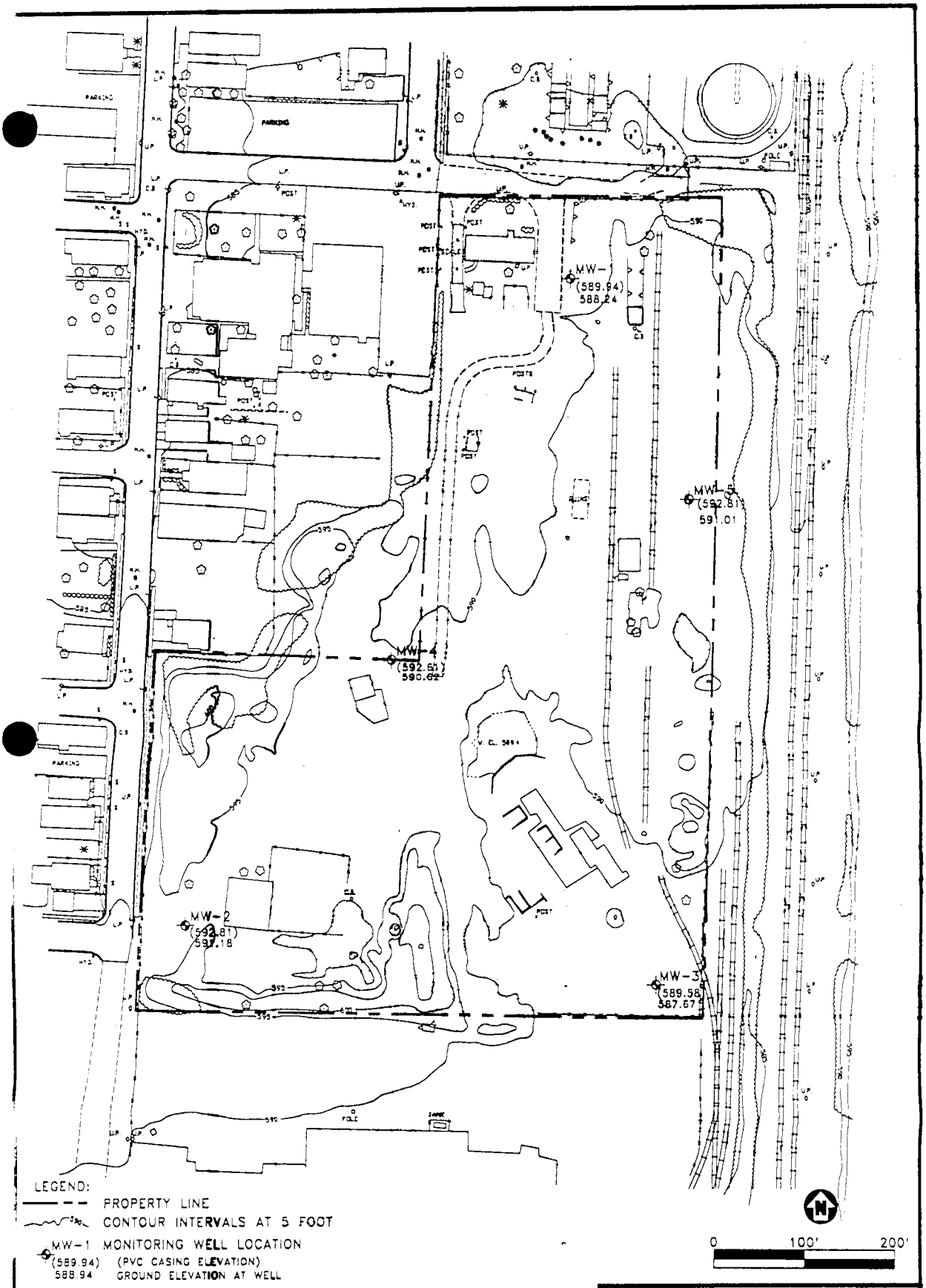
DEEP SOIL HORIZON
COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 4.3

REVISED: 09/13/93
D012501\D\SY27R\SY279CD4.DWG



LEGEND:

PROPERTY LINE

CONTOUR INTERVALS AT 5 FOOT

MW-1 MONITORING WELL LOCATION
(589.94) (PVC CASING ELEVATION)
588.94 GROUND ELEVATION AT WELL

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PRELIMINARY REMEDIAL INVESTIGATION

MONITORING WELL
LOCATION MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 4.4

REVISED: 12/04/92
00183\D\SY279\SY279C04.DWG

SECTION 5

RESULTS AND CONCLUSION
PRI AND ADDITIONAL STUDIES

5.0 INTRODUCTION: RESULTS

This section of the Additional Studies Report summarizes the characteristics, nature, and extent of contamination found at the Lehigh Industrial Park Site. To provide a comprehensive overview of the site, this section of the report will discuss and/or present in map form, analytical results from both the PRI conducted in 1992 and the Additional Studies (AS) results that were collected in 1993. The results of these sampling events will be combined to discuss the four compounds/metals that are pervasive at the site: PCBs, cadmium, lead, and total chrome. Although other contaminants are present at the site, the occurrence of these compounds/metals are localized to areas where significant PCBs, cadmium, lead, and chrome contamination is present; thus discussion of the location and areal extent of the four contaminants of concern also takes into account those areas of the site where other types of localized contamination is present. This approach is consistent with correspondence between the New York State Department of Health to the NYSDEC that lists PCBs, cadmium, lead, and total chrome as the four contaminants of concern at the LIP site after review of the PRI Report.

Since the impact the site has had on ground water appears minimal, and leachability information collected as part of the Additional Studies indicates a very low leaching potential for metals at the site, ground water results collected during 1992 and 1993 will be only briefly discussed.

For ease of discussion, Section 5 will again discuss the site on a horizon by horizon basis (waste, shallow soil zone, and deep soil zone).

5.1 WASTE HORIZON

Waste piles will be discussed collectively since there are no significant differences in concentrations of the four pervasive contaminants of concern between different waste types, even though the waste piles can be visually separated into three distinct types.

Twenty-four test pits were excavated in waste piles: six as part of the 1992 investigative effort (PRI) and 18 during the 1993 effort (AS). The location of these test pits is depicted on Figure 4.1 of this report.

5.1.1 PCBs

Samples of waste were collected and analyzed for PCBs at 19 test pit locations. A total of 30 samples were analyzed for PCBs with the following results. Tables 4.1, 4.2, 4.4 AS Report, and the PRI report list the results as follows:

Test Pit	Total PCBs (ppm)
PRI	
TP7	6.5
TP8	0.94
TP9	17.5
TP11	1.4
TP12	13.4
TP15	4.5
Additional Studies	
TPM-18	0.77
TPM-22	4.4
TPM-23	19.6 35.7
TPM-24	5.67 4.4
TPM-25	1.12 8.5
TPM-26	12.6 6.5
TPM-27	1.01 1.12
TPM-28	0.14 20.9
TPS-29	0.0- rejected 10.5
TPS-30	6.6 7.4
TPS-31	2.1 0.48
TPS-32	5.61 0.42
TPS-33	2.04 3.5

The lowest PCB concentrations were at TPS-29 where no PCBs were detected; the highest PCB concentrations were at TPF-28 where 20.9 ppm is present. Overall, six samples had concentrations below 1 ppm, 17 samples had concentrations greater than 1 ppm but less than 10 ppm, and six samples had PCB concentrations greater than 10 ppm. Average PCB concentration in waste piles is 7.08 ppm on the basis of the 29 samples of waste that have been collected and analyzed. One sample at TPS-29 was rejected by the laboratory due to poor recoveries, thus these averages were calculated on 29 samples instead of 30.

5.1.2 Cadmium

Samples of waste were collected and analyzed for cadmium at 17 test pit locations (Figure 5.2, Tables 4.1, 4.2, 4.4 of the AS and Table 4.10 of the PRI), with the following results:

Test Pit	Concentration (ppm)
PRI	
TP-7	29.6
TP-8	1.4 UJ
TP-9	15.1
TP-11	5.7 U
TP-12	6.9 UJ
TP-15	94.8
Additional Studies	
TPM-17W	.88 J
TPM-18W	14.9 J
TPM-21W	44.6 J
TPF-23W	54.6 J
TPF-25W	14.1 J
TPF-27W	18.6 J
TPS-29	131.0 J
TPS-30W	76.3 J
TPS-31W	130.0 J
TPS-32W	97.8 J
TPS-33W	5.75 J

Lowest cadmium concentrations were at TP-8 and TP-11 where U values (non-detect) were received from the analytical laboratory analysis. The highest concentration of cadmium was at TPS-29 where 131 ppm were detected. Twelve of the 17 samples analyzed for cadmium had concentrations above 10 ppm, five had concentrations below 10 ppm. Average cadmium concentration from waste pile samples is 52 ppm based on 14 samples where cadmium was detected.

5.1.3 Lead

Samples of waste were collected and analyzed for lead at 17 test pit locations (Figure 5.3, Table 4.1, 4.2, 4.4 AS Report; Table 4.10 PRI Report), with the following results

Test Pit	Concentration (ppm)
PRI	
TP-7	1220 J
TP-8	1980 J
TP-9	34,100 J
TP-11	514 J
TP-12	3,610 J
TP-15	6,660 J
Additional Studies	
TPM-17W	277
TPM-18W	194
TPM-21W	1,070
TPF-23W	2,070
TPF-25W	3,570
TPF-27W	2,300
TPS-29	3,440
TPS-30W	4,410
TPS-31W	3,550
TPS-32W	3,840
TPS-33W	719

The lowest concentration of lead was encountered at TPM-18W (194 ppm); the highest concentration was encountered at TP-9 (34,100 ppm). Fifteen of the 17 waste samples analyzed for lead had concentrations greater than 500 ppm. Average concentration of lead in waste piles at the site, based on 17 samples is 4,325 ppm.

5.1.4 Total Chrome

Samples of waste were collected at 17 test pit locations and analyzed for total chrome (Figure 5.4, Tables 4.1, 4.2, 4.4 AS Report; Table 4.10 PRI). The following is a summary of those results:

Test Pit	Concentration (ppm)
PRI	
TP-7	228.0
TP-8	59.3
TP-9	131.0
TP-11	387.0
TP-12	431.0
TP-15	179.0
Additional Studies	
TPM-17W	78.7 J
TPM-18W	923.0 J
TPM-21W	296.0 J
TPF-23W	227.0 J
TPF-25W	126.0 J
TPF-27W	72.3 J
TPS-29	146.0 J
TPS-30W	154.0 J
TPS-31W	127.0 J
TPS-32W	239.0 J
TPS-33W	26.3 U

The lowest concentration of total chrome was encountered at TPS-33W where a U value or non-detect was encountered. The highest concentration of total chrome was at TPM-18W (923 ppm). Only one sample had a concentration less than 50 ppm total chrome. The average concentration of total chrome in waste piles at the LIP site is 223 ppm.

5.1.5 Waste Horizon - Leachability

Two samples from the waste horizon were subjected to TCLP methods analysis for metals to determine if waste piles at the site are hazardous from the stand point of leachability (Figure 4.1 and Table 4.3). Samples were collected from waste at TPF-23 and TPS-29 and analyzed for arsenic, barium, cadmium, bromium, lead, mercury, selenium, and silver. As discussed in Section 4, no metals in TPF-23 exceeded the Federal Regulatory Limit for TCLP, and only lead exceeded the regulatory limit in TPS-29.

5.2 SHALLOW SOIL ZONE

The shallow soil zone discussion will include all sample results that are representative of this zone including results collected during both 1992 (PRI) and 1993 (Additional Studies). Test pit samples from hot spots and in soils underlying the waste piles as well as split spoon samples and/or trowels and shovel sample results from the shallow soil zone will be discussed.

Discussions of the results will focus on the four contaminants of concern (PCBs, cadmium, lead, and total chrome) discussed in correspondence from the NYSDOH to the NYSDEC dated June, 1993, regarding the Lehigh Industrial Park site.

5.2.1 PCBs

Eighty-eight investigative samples from the shallow zone have been analyzed for PCBs, making this zone the most highly investigated zone at the site (Figure 5.5, Tables 4.15 and 4.16 PRI; Tables 4.5 to 4.8, and 4.11 to 4.14, AS). Occurrence of PCBs is pervasive or widespread at the site in low concentrations, however as depicted on Figure 5.5, a number of localized areas or "hot spots" with high concentrations are present at the site.

The range of PCB concentrations in the shallow soil zone at the site range from 0 ppm (at TPF-27) to a high of 62,000 ppm in the southwestern corner of the site (S-53). One sample has concentrations above 500 ppm, one sample have concentrations of PCBs less than 500 ppm, but greater than 50 ppm; 11 samples have PCB concentrations less than 50 ppm but greater than 10 ppm; 45 samples have PCB concentrations less than 10 ppm but greater than 1 ppm. Thirty samples have PCB concentrations less than 1 ppm. The average concentration of PCBs at the site in the shallow soil zone is 710 ppm due to the presence of 62,000 ppm at location S-53. With that sample deleted from the average, the average PCB concentration for the shallow soil zone at the LIP site is 6.02 ppm.

5.2.2 Cadmium

Sixty-five samples were collected and analyzed for cadmium from the shallow soil zone. Cadmium concentrations in this zone at the site range from 0.24 ppm at location R23F to a high of 206 ppm at location S42F (Figure 5.6, Tables 4.16 and 4.17 PRI; Tables 4.9, 4.10, 4.12, and 4.18 AS). Of the 65 samples analyzed for cadmium in the shallow soil zone, 16 samples had concentrations above 10 ppm and 49 samples had concentrations below 10 ppm. Average concentration of cadmium in the shallow zone from the samples collected is 14.13 ppm.

5.2.3 Lead

Lead was analyzed for at 68 different locations in the shallow soil zone (Figure 5.7). Results show that 27 samples had concentrations greater than 500 ppm, 41 samples had concentrations less than 500 ppm (Tables 4.16 and 4.17 PRI report; Tables 4.9, 4.10, 4.12, and 4.18 Additional Studies). Average lead concentration in the shallow soil zone calculated from these results is 647.7 ppm.

5.2.4 Total Chrome

Sixty-eight samples were collected and analyzed for total chrome from the shallow soil zone (Figure 5.8; Tables 4.16, 4.17 PRI Report; Table 4.9, 4.10, 4.12, and 4.18 AS Report). Results of the analyses from the 1992 and 1993 investigative work show 46 samples had concentrations greater than 50 ppm, 22 samples had concentrations less than 50 ppm. This zone has an average value of 258 ppm total chrome based on sampling results.

5.2.5 Shallow Soil Zone - Leachability Studies

No samples were collected and analyzed by EPTox or TCLP methods as part of the PRI. However, as discussed in Section 4.3 of this report, samples were collected from six locations from the shallow soil zone as part of the Additional Studies investigative work. Six were analyzed using TCLP methods, 2 were analyzed using EPTox methods (Figure 5.3; Tables 4.19 and 4.20). None of the 6 samples exceeded federal regulatory limits associated with these methods, thus the shallow soil zone is not considered hazardous waste from the standpoint of leachability and contamination at the site is not readily leachable to ground water.

5.3 DEEP SOIL ZONE

The deep soil zone discussion will include samples collected during 1992 and 1993 for 02-10 feet (1992) and 2-4 feet (1993). Samples were collected primarily using split spoon sampling techniques.

Again, the discussion will focus on the four contaminants of concern noted by correspondence from the NYSDOH to the NYSDEC in June, 1993.

5.3.1 PCBs

Nine samples from the deep soil zone were collected and analyzed for PCBs with the following results (Figure 5.10; Tables 4.20 and 4.21 PRI Report; Tables 4.21 AS Report):

Sample Number	Concentration (ppm)
PRI	
RD-2	.062 JN
RD-3	.071 JN
RD-5	1.070 JN
RD-8	.960 JN
Additional Studies	
H2D1	.460 J
H3D1	.099 J
H4D1	.948 J
RD31	1.200 J
RD32	.810 J

The lowest concentration of PCBs were in the deep soil zone at RD3 (.071 ppm), whereas the greatest concentration was at RD-31 (1.2 ppm). No sample results were above 10 ppm and only two samples, RD-5 and RD-31 are above 1 ppm. Average PCB concentration in deep soil zone from nine samples is .631 ppm. It must be pointed out, that all results are either J values (usable but estimated) or definitive results.

5.3.2 Cadmium

Six samples were collected and analyzed for cadmium from the deep horizon (Figure 5.11, Tables 4.20 and 4.21 AS, Table 4.21 PRI).

Sample Number	Concentration (ppm)
PRI	
RD-2	Rejected
RD-3	0.73 JN
RD-5	1.6 J
RD-8	1.7 J
Additional Studies	
RD-31	0.33 U
RD-32	3.1 J

The lowest concentration of cadmium was at RD-31 which was a U value (non-detect); the highest value was at RD-8 (1.7). All concentrations were below 10 ppm. the average concentration of cadmium in the deep horizon calculated from the six samples is 1.24 ppm.

5.3.3 Lead

Six samples were collected as part of the 1992 and 1993 investigative efforts at the LIP site from the deep soil horizon and analyzed for lead (Figure 5.12, Table 4.21 AS; Tables 4.20 and 4.21 PRI). Results are as follows:

Sample Number	Concentration (ppm)
PRI	
RD-2	167.0 N
RD-3	57.4
RD-5	135.0
RD-8	207.0
Additional Studies	
RD-31	261 J
RD-32	107 J

Results from the analysis of the above referenced samples indicate that lead is present in the deep soil horizon at concentrations from 57.4 ppm to 2.61 ppm (estimated) well below 500 ppm. Average lead concentration in this horizon at the LIP site is calculated at 155.7 ppm.

5.3.4 Total Chrome

Six samples from the deep soil zone were also analyzed for the presence of chrome during 1992 and 1993 investigative work at the LIP site (Figure 5.13, Table 4.21, AS; Table 4.21, PRI). The results are as follows:

Sample Number	Concentration (ppm)
PRI	
RD-2	59 J
RD-3	17.1 J
RD-5	91.8
RD-8	25.5
Additional Studies	
RD-31	950 J
RD-32	36.4 J

Of the six samples, three (RD-2, RD-5, and RD-31) have chrome concentrations in excess of 50 ppm, the other three samples are less than 50 ppm. The average concentrations of chrome in the deep soil horizon is 196.6 ppm. If RD-31 (950 ppm) is taken from the average, the average lead concentration in the deep soil zone then becomes 45.96 ppm.

5.4 GROUND WATER

Five site monitoring wells have undergone two rounds of sampling as follows:

- During the PRI, all five wells were sampled and analyzed for TCL volatiles, semi-volatiles, pesticides/PCBs, and TAL metals. Benzene exceeded the ground water standard in one monitoring well, and four naturally occurring metals exceeded ground water action levels at several monitoring wells; and
- A second round of samples was collected during the Additional Studies and analyzed for volatiles. Two compounds, benzene (MW-5) and 1,2-dichloroethene (MW-3) exceeded NYSDEC water quality action levels.

5.5 GENERAL CONCLUSIONS

This section of the Additional Studies Report draws conclusions regarding the nature of contamination associated with waste piles, the shallow soil zone, the deep soil horizon, and ground water at the LIP site. Additionally, this section of the report will discuss the extent of contamination at the site from the standpoint of extent of contamination present. The basis for these conclusions are analytical results,

interpretive depiction of these results in map form, and correspondence from the NYSDOH to the NYSDEC, dated June 16, 1993 which outlined the following action levels for evaluating contamination and remedial alternatives at the LIP site. This correspondence clearly stated that on the basis of the PRI results, four compounds/metals were considered pervasive at the site: PCBs, cadmium, lead, and total chrome. That correspondence recommended the following action levels for the LIP site:

Surface PCBs	> 1 ppm
Subsurface PCBs	> 10 ppm
Cadmium	> 10 ppm
Lead	> 500 ppm
Total chrome	> 50 ppm

These action levels will be used to determine areas of the site that should be evaluated for remedial purposes.

5.5.1 Waste Horizon

Approximately 16, 875 cubic yards of waste material is located at the site as metal debris piles, fluff piles, and soil covered waste. On the basis of the four contaminants of concern described in the NYSDOH to NYSDEC on June 16, 1993, and the action levels described in that correspondence , the following conclusions can be drawn:

- Waste piles at the site exceeded the action levels of 1 ppm for PCBs in surface materials at 23 of 30 locations;
- Waste piles at the site exceeded the action levels of 10 ppm for cadmium at 12 of 17 locations;
- Waste piles at the site exceeded the action levels of 50 ppm for lead at 15 of 17 locations;
- Waste piles at the site exceeded the action levels of 50 ppm for total chrome at 16 of 17 locations; and
- Lead exceeded the federal regulatory limit for TCLP at 1 of 2 locations. All other values for TCLP metals were within the federal action levels. Based on these results, contaminants from this horizon are not leaching into the shallow soil zone, with the possible exception of lead.

On the basis of the data described above, remedial alternatives should be evaluated for waste piles at the Lehigh Industrial Park Site since they exceed the action levels prescribed by the State of New York, and present site conditions do not preclude human contact with the waste.

5.5.2 Shallow Soil Zone

Approximately 253,000 square feet of the LIP site PCB, cadmium, lead, or total chrome are present at the surface in concentrations above the action levels outlined by the NYSDOH as follows:

PCBs greater than 1 ppm	140,000 square feet
Cadmium greater than 10 ppm	31,875 square feet
Cadmium greater than 20 ppm	13,759 square feet
Lead greater than 500 ppm	85,950 square feet
Total chrome greater than 50 ppm	177,838 square feet

Analytical results indicate:

- 58 samples of 88 samples analyzed exceeded 1 ppm PCBs in the shallow soil zone;
- 49 of 65 samples analyzed exceeded 10 ppm cadmium;
- 27 of 68 samples analyzed for lead exceeded the action levels of 500 ppm;
- 46 of 68 samples analyzed for total chrome exceeded the action levels of 50 ppm for the shallow soil zone; and
- Leachability analyses of metals in shallow soil zone samples indicated metals, particularly the three designated as contaminants of concern are not leaching into the deep soil zone and/or ground water at the site from the shallow soil zone.

On the basis of these results, the shallow soil zone should be evaluated for remedial measures since present site conditions do not preclude human contact with surface soils.

5.5.3 Deep Soil Horizon

Of the four contaminants of concern, only total chrome is found in the deep soil horizon at concentrations that exceed described action levels for 50 ppm for surface samples. No action levels is suggested for subsurface metals (cadmium, lead, chrome), however, leachability information from the shallow soil zone and ground water results indicate the three metals of concern are not leaching into ground water at the site, which is an incomplete pathway. Additionally, human contact with subsurface soils is not readily possible, except under construction type conditions. Accordingly, the deep soil horizon is not recommended for remedial alternatives evaluation at this time, subject to risk evaluation as part of the Focused Feasibility Study for the LIP site.

5.5.4 Ground Water

Of the two rounds of ground water samples collected to date, only two volatile organic compounds, benzene and 1,2-dichloroethene have been detected above NYSDEC water quality action levels. Since there are no known private wells in the vicinity, the ground water pathway is not a complete pathway. At the present time, ground water should not be considered for alternatives evaluation except for continued monitoring.

Cadmium greater than 10 ppm	31,875 square feet
Cadmium greater than 20 ppm	13,759 square feet
Lead greater than 500 ppm	85,950 square feet
Total chrome greater than 50 ppm	177,838 square feet

Analytical results indicate:

- 58 samples of 88 samples analyzed exceeded 1 ppm PCBs in the shallow soil zone;
- 49 of 65 samples analyzed exceeded 10 ppm cadmium;
- 27 of 68 samples analyzed for lead exceeded the action levels of 500 ppm;
- 46 of 68 samples analyzed for total chrome exceeded the action levels of 50 ppm for the shallow soil zone; and
- Leachability analyses of metals in shallow soil zone samples indicated metals, particularly the three designated as contaminants of concern are not leaching into the deep soil zone and/or ground water at the site from the shallow soil zone.

On the basis of these results, the shallow soil zone should be evaluated for remedial measures since present site conditions do not preclude human contact with surface soils.

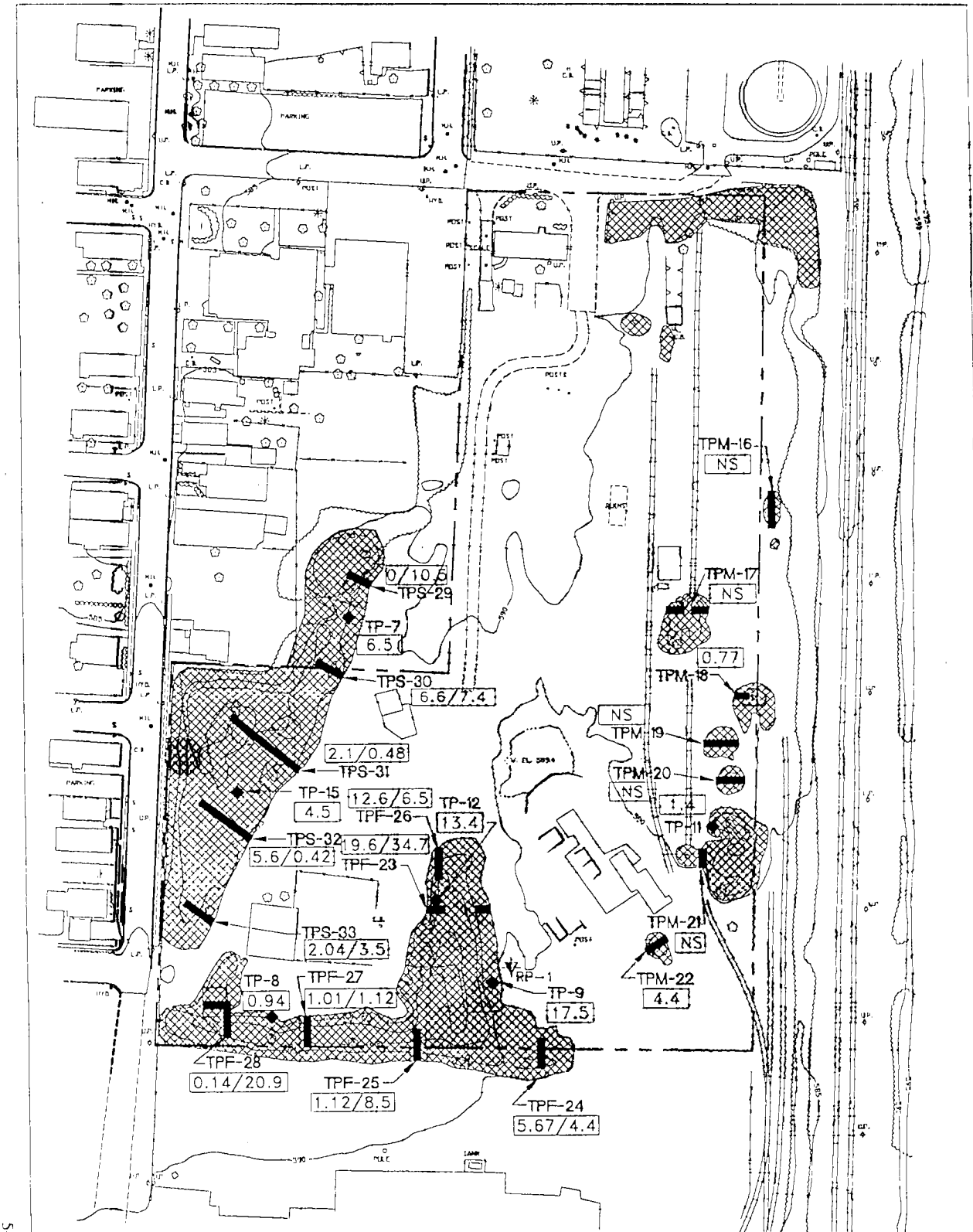
5.5.3 Deep Soil Horizon

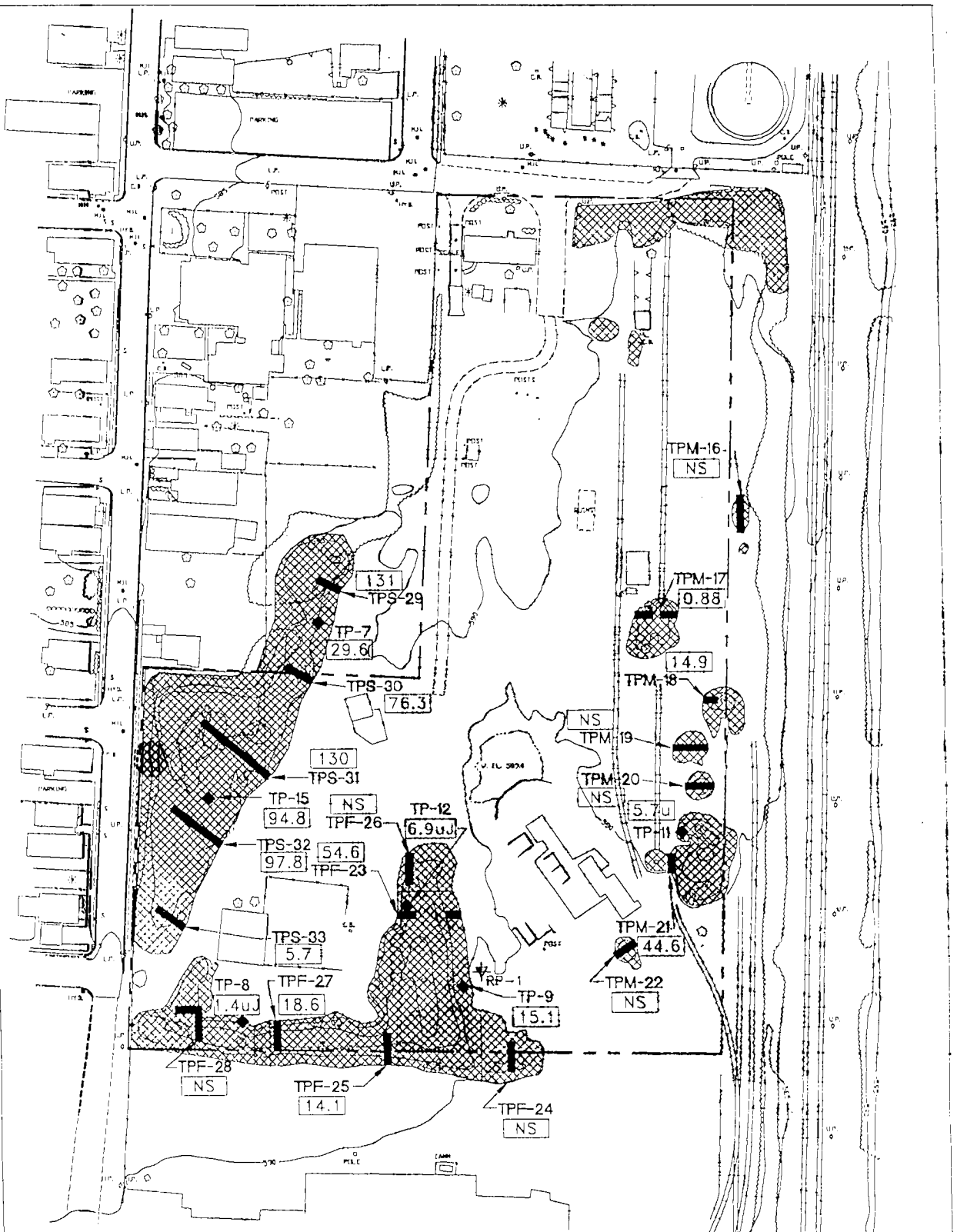
Of the four contaminants of concern, only total chrome is found in the deep soil horizon at concentrations that exceed described action levels for 50 ppm for surface samples. No action levels is suggested for subsurface metals (cadmium, lead, chrome), however, leachability information from the shallow soil zone and ground water results indicate the three metals of concern are not leaching into ground water at the site, which is an incomplete pathway. Additionally, human contact with subsurface soils is not readily possible, except under construction type conditions. Accordingly, the deep soil horizon is not recommended for remedial alternatives evaluation at this time, subject to risk evaluation as part of the Focused Feasibility Study for the LIP site.

5.5.4 Ground Water

Of the two rounds of ground water samples collected to date, only two volatile organic compounds, benzene and 1,2-dichloroethene have been detected above NYSDEC water quality action levels. Since there are no known private wells in the vicinity, the ground water pathway is not a complete pathway. At the present time, ground water should not be considered for alternatives evaluation except for continued monitoring.

SECTION 5 LIST OF FIGURES


TPM-16
NS
TPM-17
NS
0/10.6
TPS-29
TP-7
6.5
0.77
TPM-18
TPS-30
6.6/7.4
NS
TPM-19
2.1/0.48
TPS-31
TPM-20
NS
TP-15
12.6/6.5
4.5
TPF-26
TP-12
13.4
1.4
TP-11
TPS-32
19.6/34.7
5.6/0.42
TPF-23
TPM-21
NS
TPS-33
2.04/3.5
TP-8
0.94
TPF-27
1.01/1.12
RP-1
TP-9
17.5
TPM-22
4.4
TPF-28
0.14/20.9
TPF-25
1.12/8.5
TPF-24
5.67/4.4
LEGEND:
PROPERTY BOUNDARY
CONTOUR INTERVALS AT 5 FOOT
WASTE PILES
RP-1
RESIN PILE
TPM-23
TEST PIT LOCATIONS-1993
0/10500
PCB CONCENTRATIONS (ppb) OF SAMPLES COLLECTED IN EACH TEST PIT (1st SAMPLE/2nd SAMPLE)
NS - NO SAMPLE
TP-9
TEST PIT LOCATIONS-1992
AREAS EXCEEDING 10ppm PCB
SCALE
0
100'
200'
ENGINEERING-SCIENCE, INC.
NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PRELIMINARY REMEDIAL INVESTIGATION
WASTE HORIZON, PCB CONCENTRATION COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK
FIGURE 5.1



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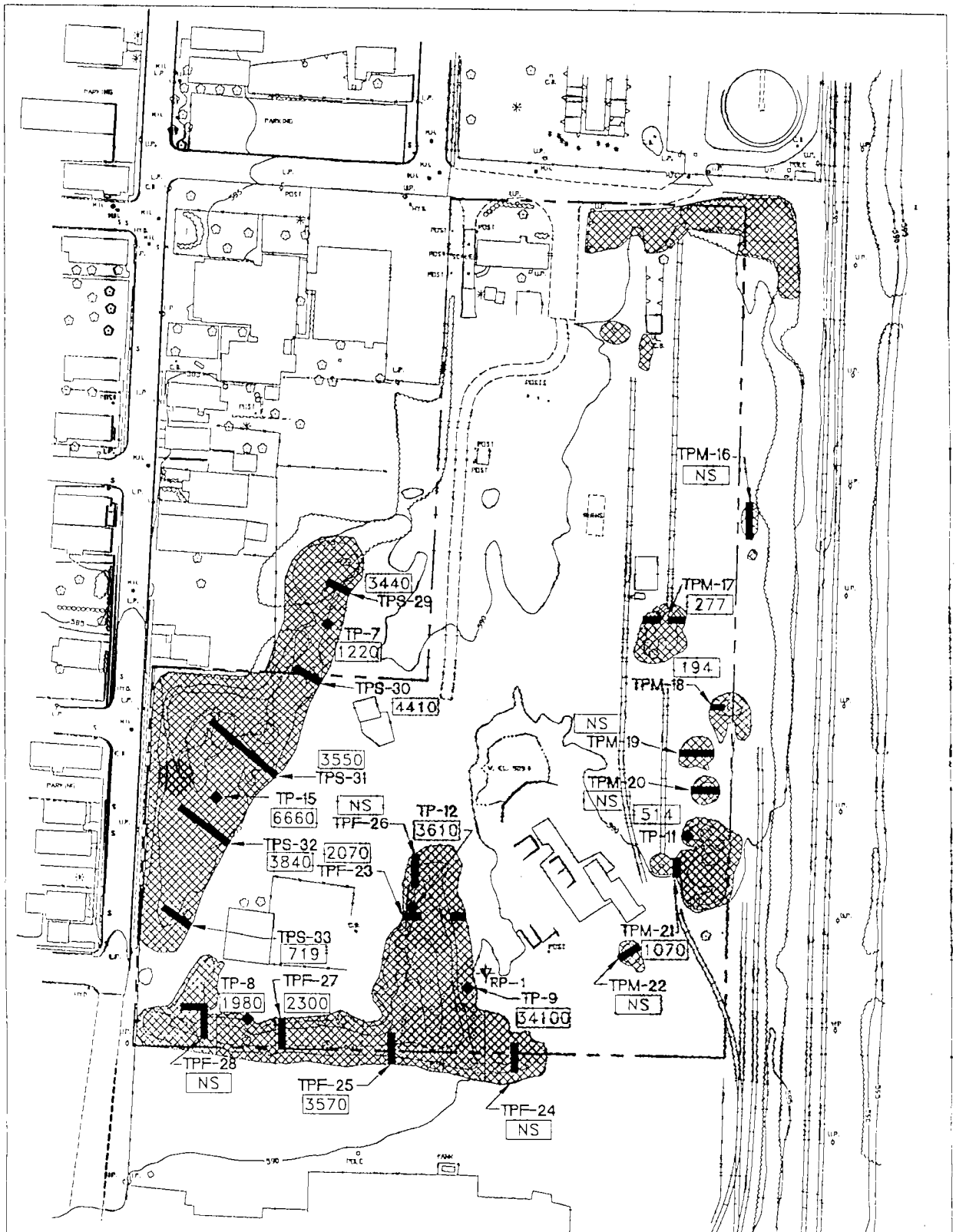
NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PRELIMINARY REMEDIAL INVESTIGATION

WASTE HORIZON, CADMIUM CONCENTRATION COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 5.2

REVISED: 01/07/93
001631\DI\SY2\PA\SY2/RCD3.DWG


TPM-16
NS
3440
TPS-29
TP-7
1220
TPM-17
277
194
TPM-18
TPS-30
4410
NS
TPM-19
3550
TPS-31
TP-15
6660
NS
TPF-26
TP-12
3610
TPM-20
NS
514
TPM-11
TPS-32
3840
2070
TPF-23
TPS-33
719
TPM-21
1070
TP-8
1980
TPF-27
2300
RP-1
TP-9
34100
TPM-22
NS
TPF-28
NS
TPF-25
3570
TPF-24
NS
LEGEND:
PROPERTY BOUNDARY
CONTOUR INTERVALS AT 5 FOOT
WASTE PILES
RP-1 RESIN PILE
TPM-23 TEST PIT LOCATIONS-1993
514 LEAD CONCENTRATIONS, ppm
NS – NO SAMPLE
TP-9 TEST PIT LOCATIONS-1992
AREAS EXCEEDING NYSDEC STANDARDS OF 500ppm LEAD
SCALE
0
100'
200'
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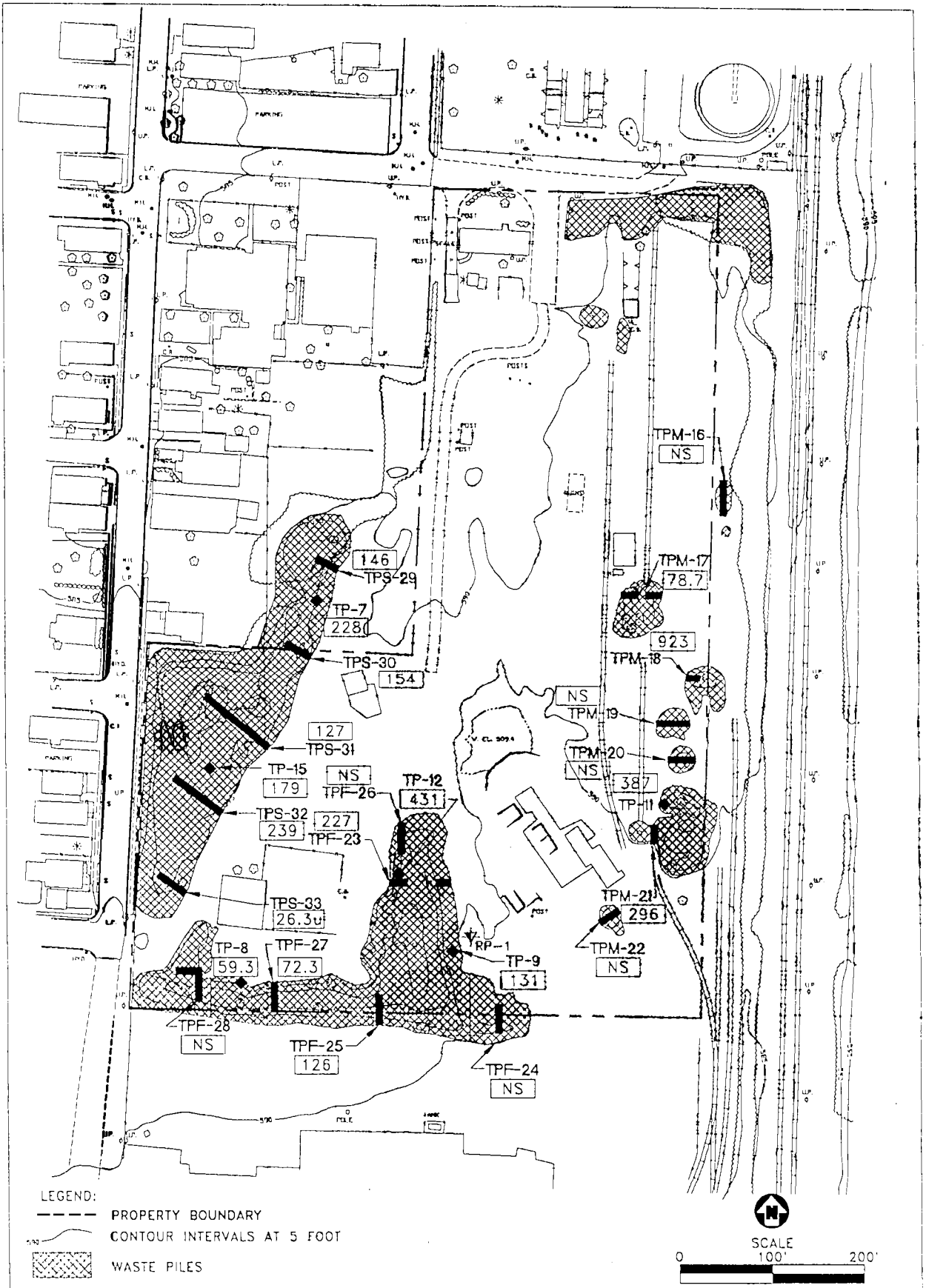
PRELIMINARY REMEDIAL INVESTIGATION
WASTE HORIZON, LEAD CONCENTRATION COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK
FIGURE 5.3


TPM-16
NS
146
TPS-29
TPM-17
78.7
TP-7
228
923
TPS-30
154
TPM-18
NS
TPM-19
127
TPS-31
TPM-20
NS
TP-15
179
NS
TPF-26
TP-12
431
387
TP-11
TPS-32
239
227
TPF-23
TPS-33
26.3u
TPM-21
296
TP-8
59.3
TPF-27
72.3
RP-1
TP-9
131
TPM-22
NS
TPF-28
NS
TPF-25
126
TPF-24
NS
LEGEND:
PROPERTY BOUNDARY
CONTOUR INTERVALS AT 5 FOOT
WASTE PILES
RP-1 RESIN PILE
TPM-23 TEST PIT LOCATIONS-1993
59.3 CONCENTRATION OF TOTAL CHROMIUM, ppm
NS - NO SAMPLE
TP-9 TEST PIT LOCATIONS-1992
AREAS EXCEEDING NYSDEC STANDARDS OF 50ppm CHROMIUM
SCALE
0
100'
200'
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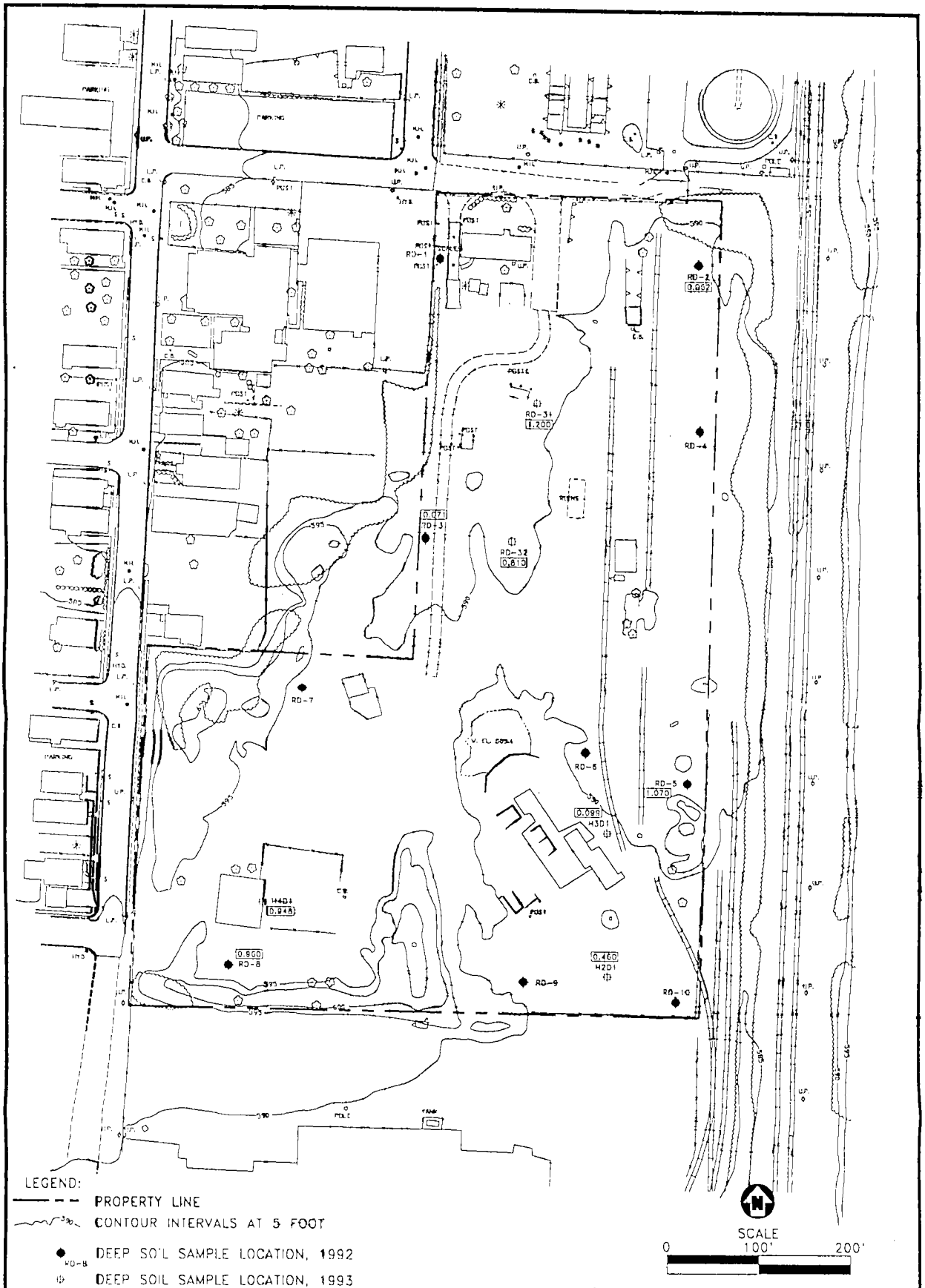
PRELIMINARY REMEDIAL INVESTIGATION
WASTE HORIZON, CHROMIUM CONCENTRATION COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK
FIGURE 5.4



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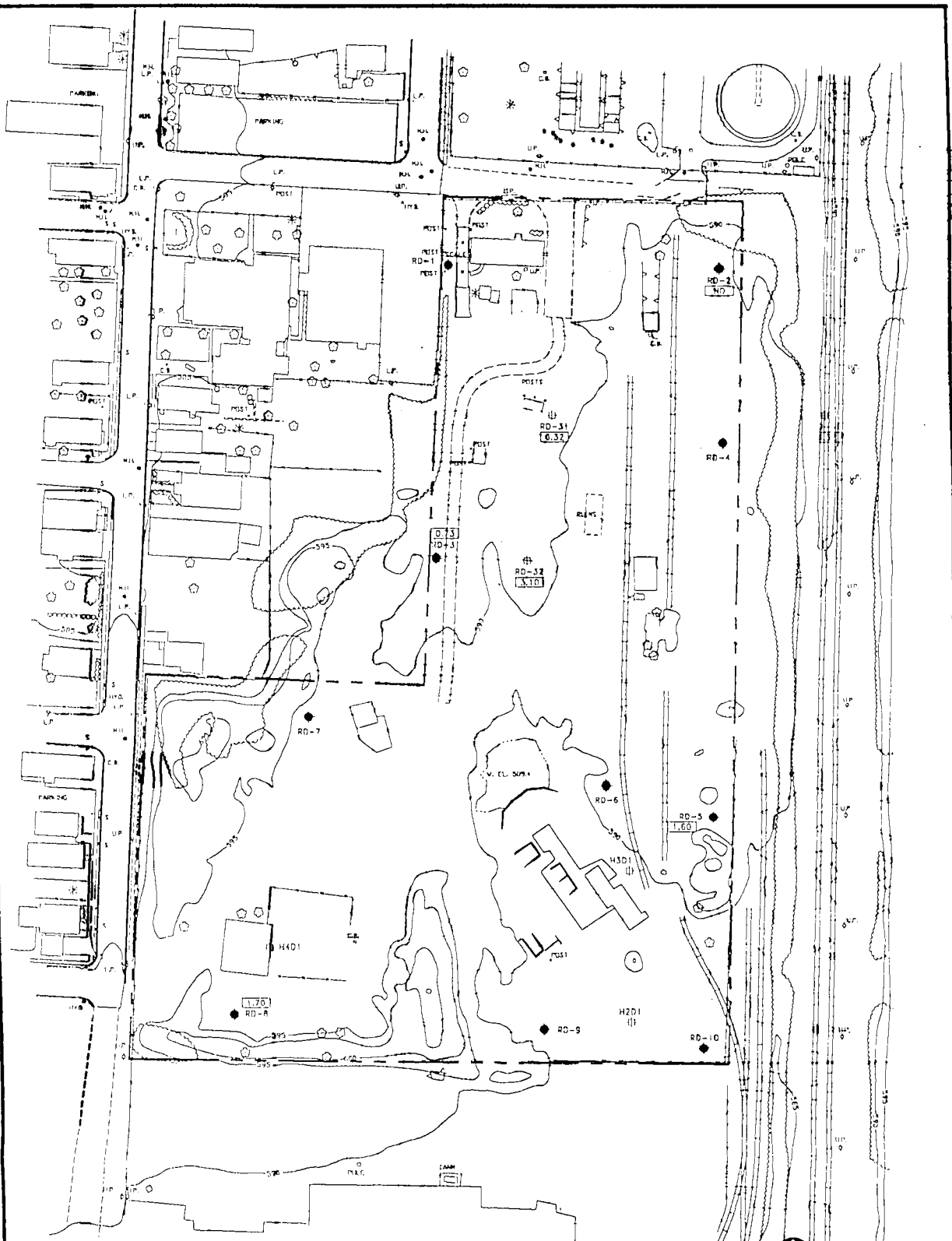
DEEP SOIL HORIZON, PCB CONCENTRATION
COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 5.10

REVISED: 09/13/93
001230\D:\SY279\SY279CO4.DWG



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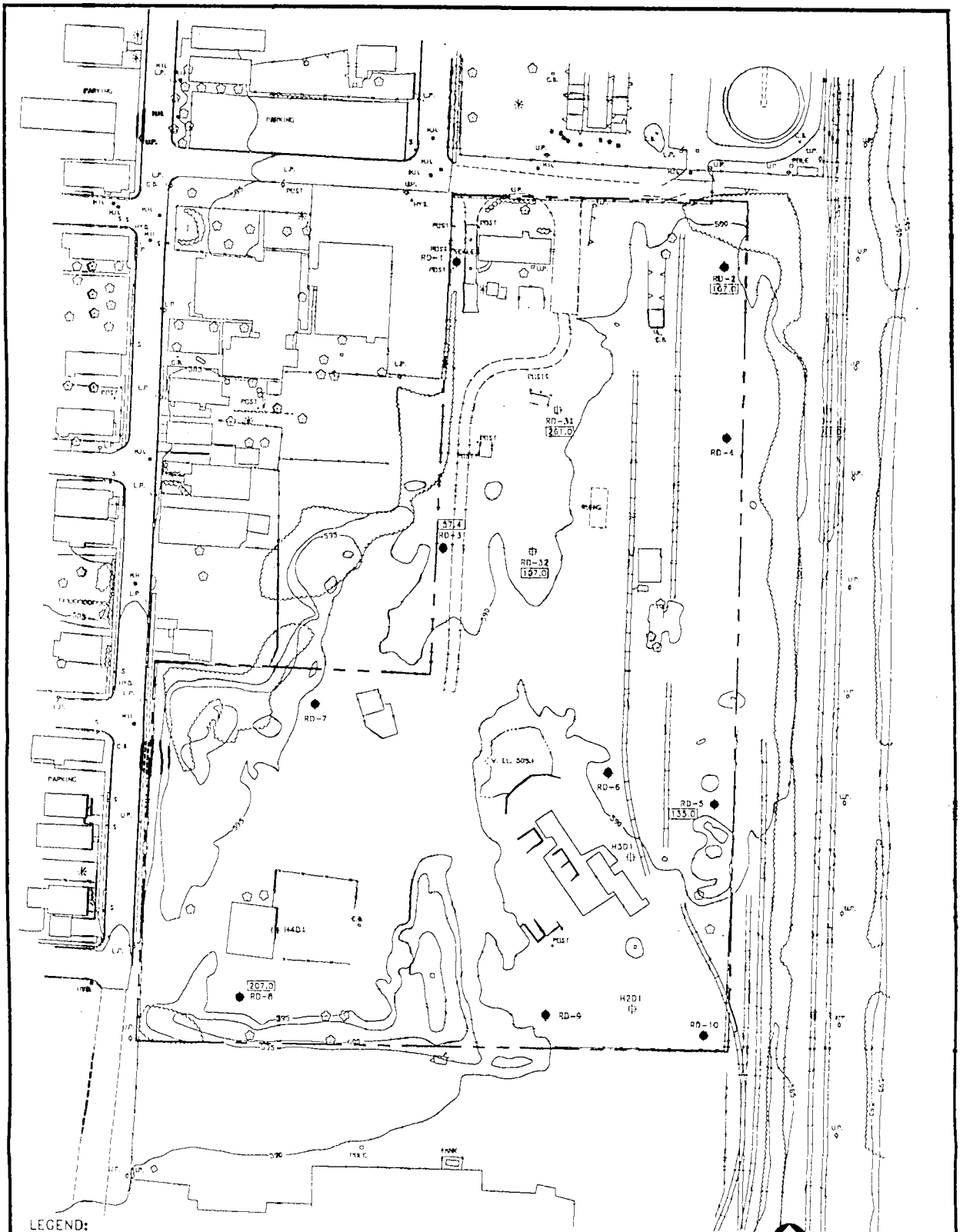
PRELIMINARY REMEDIAL INVESTIGATION

DEEP SOIL HORIZON, CADMIUM CONCENTRATION
COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 5.11

REVISED: 09/13/93
001230\01\5127\SY27EC04.DWG



LEGEND:

PROPERTY LINE

CONTOUR INTERVALS AT 5 FOOT

RD-8 DEEP SOIL SAMPLE LOCATION, 1992

DEEP SOIL SAMPLE LOCATION, 1993

207.0 LEAD CONCENTRATION, ppm

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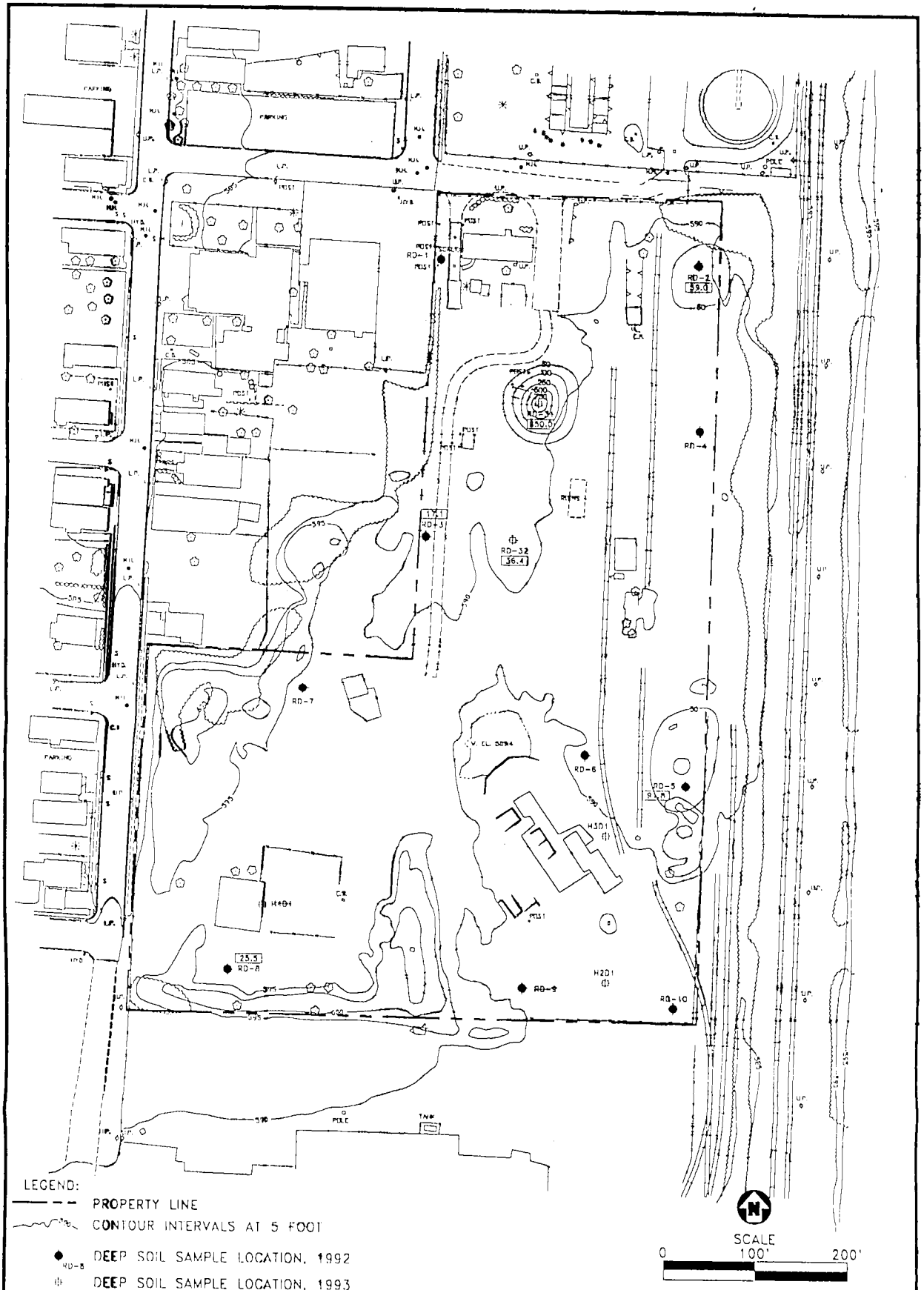
PRELIMINARY REMEDIAL INVESTIGATION

DEEP SOIL HORIZON, LEAD CONCENTRATION
COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 5.12

REVISED: 09/13/93
001250\01\SY27\SY279C04.DWG



LEGEND:

PROPERTY LINE

CONTOUR INTERVALS AT 5 FOOT

RD-8 DEEP SOIL SAMPLE LOCATION, 1992

DEEP SOIL SAMPLE LOCATION, 1993

35.5 TOTAL CHROME CONCENTRATION, ppm

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PRELIMINARY REMEDIAL INVESTIGATION

DEEP SOIL HORIZON, TOTAL CHROME CONCENTRATION
COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

FIGURE 5.13

PLOTTED 09/13/91
00123G\DI\SY27\91\SY27108A.DWG

APPENDIX A

SHALLOW SOIL LEACHABILITY STUDY WORK PLAN

ENGINEERING-SCIENCE, INC.

57 FRANKLIN STREET
BUFFALO, NY 14202-4107
TEL: (716) 854-0528
FAX: (716) 853-6192

FAX copy

December 16, 1992

Mr. Bradley Brown
NYSDEC
Bureau of Western Remediation
50 Wolf Road
Albany, New York 12233

Re: Work Plan for Lehigh Industrial Park
Shallow Soil Leachability Study

Dear Mr. Brown:

Pursuant to your request, Engineering-Science Inc. (ES) is pleased to present a Scope of Work to conduct additional shallow soil sampling under NYSDEC Work Assignment D002478-14, for the Lehigh Industrial Park, Site Number 9-15-145, in Lackawanna, New York. Through the course of several phone conversations, the NYSDEC requested the collection of additional shallow soil samples to be analyzed for leachability characteristics to further define the nature of contaminants at the Lehigh Industrial Park site. This data will supplement existing data delineating the extent of contamination in the shallow fill/soil zone, as described in the October, 1992 Preliminary Remedial Investigation (PRI) Report prepared by ES.

As discussed by telephone, the Scope of Work described in this correspondence will be incorporated into the Work Plan for future work that will outline all of the additional tasks that the NYSDEC has requested in order to conduct a more complete evaluation of the site. That Work Plan will be submitted to the NYSDEC by December 30, 1992.

INTRODUCTION

During a Preliminary Remedial Investigation of the Lehigh Industrial Park site, several contaminants were found to be present across major portions of the site. In the shallow fill/soil zone, the contaminants include PCBs, lead, chromium, cadmium, and total volatile organic compounds. The concentration and spacial occurrence of these contaminants have been roughly delineated. However, the potential for migration of these contaminants is not known, since leach tests within the fill/soil zone have not been conducted. The following is a description of present conditions and a description of the tasks that will be required to complete the requested additional investigations to determine the leachability potential of contaminants at the Lehigh site.

BACKGROUND

Sample results obtained during the Preliminary Remedial Investigation indicate that several contaminants are present at various locations across the site, including lead, cadmium, chromium, PCBs, and total volatile organic compounds. Pursuant to

your directives, the concentrations at which these contaminants warrant further investigation are as follows: lead - 500 parts per million (ppm), cadmium - 10 ppm, chromium - 50 ppm, PCBs - 10 ppm, and total VOCs - 50 parts per billion (ppb). Figures 1, 2, 3, 4, and 5 depict the occurrence of these contaminants at the LIP site in specific concentration zones. In every case, the above referenced contaminants were above these levels. As per NYSDEC directives, only the metals will be investigated during this sampling event.

The spacial distribution of these contaminants overlap creating contaminant "hot spots". Figure 6 shows the composite distribution of the contaminants and Table 1 shows concentrations present at the various sample locations. To determine if characteristic hazardous wastes are present at the site, the leachability of the contaminants must be determined.

SCOPE OF WORK

The following tasks describe the work effort that will be necessary to determine the leachability of contaminants in the shallow soil zone at the Lehigh Site.

Task 1 - Stake Sample Locations. Once the locations for collection of the soil samples are approved by the NYSDEC, their locations will be staked in the field and designated LTCLP(1S-6S). Using Figures 1-6, and Table 1, showing contaminant distribution, it is estimated that six (6) locations will be selected for sampling. Site conditions and surface materials must be considered during sample location selection. Six (6) locations will be sampled for Toxicity Characteristic Leaching Potential (TCLP) metals (Figure 6). In addition, two (2) of these locations will also be sampled for EP Toxicity (EPTox) metals. The reason for conducting EPTox analyses is that the NYSDEC continues to use the EPTox test to assess whether a waste is hazardous as per 6 NYCRR Part 371. The sampling locations will be mutually agreed upon by both Engineering-Science (ES) and NYSDEC personnel.

Task 2 - Soil Sample Acquisition. Due to the compacted nature of the surface material and the possibility of frozen soils at the surface, a backhoe will be utilized to collect samples LTCLP-1S, LTCLP-2S, LTCLP-3S, and LTCLP-4S. Each sample will be a collected from the interval 0 to 2 feet below ground surface. Sample LTCLP-5S will be a composite sample of soils collected from within the concrete bins and pads around the building in the southeastern portion of the property. These samples will be collected using a decontaminated stainless steel hand trowel. It may be necessary to allow the individual samples to thaw before they can be properly composited. Sample LTCLP-6S will be collected to a depth of 0 to 2-feet using a hand auger

Table 1
Contaminant Summary
Lehigh Industrial Park

	Parameter Concentration				
Sample Location	Total VOC's ug/ kg	Lead mg/kg	Chromium mg/kg	Cadmium mg/kg	PCB's mg/kg
S-30F	ND	915	218	47.2	2.92
S-31	NA	2630	342	14.6	2.6
S-32F	ND	78.4	17.9	.74	ND
S-33	NA	209	427	1.8	0.2
R-14	NA	233	782	2.5	0.25
TP-2	NA	77.2	9.4	ND	ND
R-11	NA	271	48.3	ND	0.21
S-34F	4.0	616	70.6	2.4	6.62
S-35F	2.3	264	55	36.3	1.12
R-13F	157	406	983	1.9	2.5
R-12	NA	219	122	1.8	4.7
TP-3	219.7	1020	131	ND	1.57
R-16	NA	203	221	ND	ND
S-37F	88	1010	398	19.6	7.9
S-38F	169	632	522	32.2	0.96
S-39	NA	310	667	13.4	0.29
TP-4	NA	236	40.4	ND	0.45
R-20F	85	294	359	ND	1.2
TP-6	107	4400	32.3	ND	1.26
S-48F	57	741	81.1	35.5	9.9
R-22	NA	167	178	4.6	.47
S-40F	233	844	56.3	19.5	2.4
S-41	NA	887	70.1	31.9	17
S-42F	ND	3860	273	200	10.3
S-43F	ND	2800	638	206	15.4
S-44	NA	2150	234	57.9	12.7
R-25	NA	711	111	5.7	0.18
R-26	NA	192	249	6.7	.76
R-28	NA	244	651	6.2	140
R-29	NA	331	69.3	1.8	20
S-50	NA	630	220	10.8	34
S-52	NA	673	46.5	2.7	4.82
S-53	NA	1940	151	19.1	62000
R-23F	ND	298	155	0.24	1.95
MWS-2	ND	125	655	22.6	.64
	>50 PPB	>500 PPM	>50 PPM	>10 PPM	>=10 PPM

ND- None Detected
NA- Not Applicable (not analyzed for)

SY279\AZ\LIPHOT

because of its location inside the area fenced off for high PCB concentrations. Pursuant to NYSDEC requests, at sample locations LTCLP-3S and LTCLP-6S, EPTox samples will be collected and labeled LEPT-3S and LEPT-6S respectively. All field sampling and decontamination procedures specified in the attached Field Sampling Plan (FSP) will be followed. Any additional field sampling issues or concerns can be referenced in the FSP of the approved Work Plan for the LIP dated March, 1992. Quality control measures including the collection of field blanks and duplicates will be in accordance with the Quality Assurance Project Plan of the approved Work Plan for the LIP site. Attachments 1 and 2 of this Scope of Work are the modified FSP and QAPP for this Scope of Work. Changes to the FSP and QAPP have been made as appropriate to coincide with the Scope of Work for this task.

Task 3 - Sample Analysis. A total of eight (8) sediment samples will be collected at the six locations specified in tasks 1 and 2. Six (6) samples will be analyzed for TCLP metals parameters and two (2) will be analyzed for EPTox metals parameters. Samples collected at the site will be tracked using strict chain of custody procedures. The samples will be analyzed by RECRA Environmental, Inc., an approved laboratory, and results will be available within two weeks of the date of sample receipt at the laboratory. Samples will be analyzed pursuant ASP 1991 protocols.

Task 4 - Data Validation. Data received from the laboratory will be validated by an ES data validator, using EPA Guidelines (EPA, 1988a, 1988b, 1991a, and 1991b) and the DEC Data Validation scope of work which is included as part of work assignment #D002478-14. Before samples are discarded, QA/QC results, sample custody records, sample holding times, and any corrective action will be assessed. Any concerns about the use of the laboratory data for engineering evaluation or other purposes will be documented. Further details on validation are provided in Section 10 of the QAPP of the approved Work Plan for the PRI at the LIP site.

Task 5 - Interpretation and Report Preparation. Following data validation, the analytical data, in conjunction with pertinent data acquired during the PRI will be reduced, tabulated, and evaluated. All data will then be presented to the NYSDEC along with the data results of the project, and the conclusions drawn from the compiled data.

PROJECT MANAGEMENT APPROACH

The project management approach contained in Section 4 of the original Work Plan will also be utilized for the shallow soil leachability study.

HEALTH AND SAFETY

All personnel will adhere to the Health and Safety Plan (HASP) used during the PRI. All personnel will have read the plan and signed a HASP Acceptance form before entering the site. Site specific health and safety information will be given to all personnel by the Site Health and Safety Officer, before work commences. A copy of the Health and Safety Plan will be accessible on-site, at all times.

Monitoring for volatile organic compounds will be performed using a Microtip Photoionization Detector (PID). All personnel on-site will wear proper health and safety clothing as well as proper clothing for winter work conditions. All work will be performed in level D with provisions available to don clothing and work at level C.

Engineering-Science, Inc. (ES) appreciates the opportunity to continue serving the Department at this and other sites. Please call me if you have any questions. We are ready to mobilize on Wednesday, December 16 pending your notice to proceed.

Sincerely,

ENGINEERING-SCIENCE, INC

Peter Petrone /NKW

Peter M. Petrone
Project Manager

N.K. Wohlabaugh

Norman K. Wohlabaugh
Principal Geologist

cc: Enclosure
G.W. Hermance
D.B. Babcock
A.M. Zielinski

ATTACHMENT 1

FIELD SAMPLING PLAN

Each sample collected will be given a unique identification label starting with LTCLP followed by the sample location number (1S-6S) for TCLP samples. The designation LEPT followed by the sample location number and an S will be used for EP Tox samples.

All sampling equipment including augers, spoons, bowls, trowels and shovels, and the backhoe bucket will be cleaned before transport onto the site and will be properly decontaminated before use. Decontamination of sampling equipment will consist of thoroughly washing with a solution of potable water and phosphate free detergent (such as Alconox), rinsing with potable water, rinsing with pesticide-grade methanol, and a final rinse with deionized water. Backhoe bucket, jack pads and tires will be cleaned with a high pressure steam cleaning unit. At no time will decontaminated sampling equipment be allowed to touch the ground surface prior to use.

A backhoe will be utilized to break up frozen soils and hard surface material at four (4) of the six (6) shallow sampling locations. Samples will then be collected using decontaminated stainless steel hand trowels which will scrape the sides of the shallow excavation. Soil from 0 to 2 feet below ground surface will be thoroughly composited and placed in the proper sampling jars, and packed on ice. All exhumed soils will be placed back into the shallow excavation after sample acquisition and the excavation will be restaked. The backhoe bucket will then be thoroughly decontaminated prior to the commencement of operations at the next location.

One soil sample will be collected using a decontaminated hand auger. The sample will be collected from 0 to 2 feet below ground surface. The sample will be quickly composited in a stainless steel bowl, placed in sampling jars, and packed on ice. One sample will be a composite of soils collected from cement bins and pads. Soil from the remaining four (4) locations will be collected, thoroughly composited and placed in sampling jars. All samples will be properly recorded on chain of custody forms, and the samples will be delivered to the contract laboratory.

All information pertinent to field activities and sampling activities will be recorded in the Field Log Book. Entries into the field log book will include the following:

ATTACHMENT 2

QUALITY ASSURANCE PROJECT PLAN

The Quality Assurance Project Plan contained in Appendix B of the Preliminary Remedial Investigation Work Plan will be utilized for this sampling event. Please refer to this document for : Objectives, Sampling Procedures, Sample Tracking and Custody, Calibration Procedures and Frequency, Data Validation and Reporting, and Internal Quality Assurance and Quality Control.

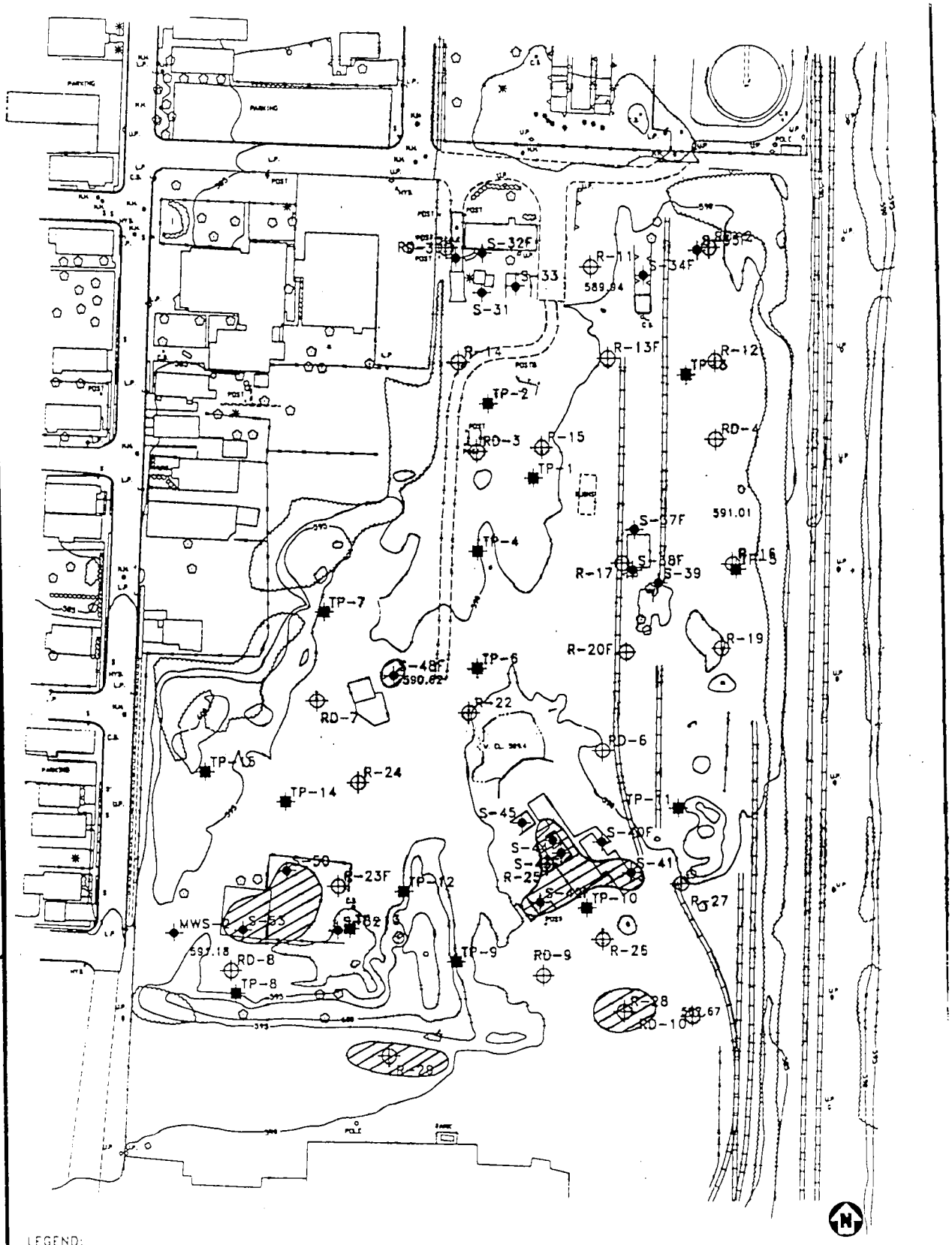
Based on the collection of six (6) TCLP metals samples and two (2) EP Tox metals samples, the following Field Quality Control Samples will also be collected:

1 Matrix spike sample (TCLP)

1 Matrix spike duplicate sample (TCLP)

- Name and title of author, date and time of entry, and physical/environmental conditions during field activity.
- Purpose of sampling activity.
- Location of sampling activity.
- Name and address of field contact.
- Name and title of field crew members.
- Name and title of any site visitors.
- Sample media (soil, sediment, ground water, etc.).
- Number and volume of sample(s) taken.
- Description of sampling point(s).
- Date and time of collection.
- Sample identification number(s).
- Sample distribution (i.e; laboratory).
- Field observations.
- Information pertaining to sample documentation such as:
  - Bottle numbers.
  - Chain-of-Custody Record numbers.

During all excavation and sample collection events, a Microtip ® Photoionization Detector will be used to monitor volatile organic compounds. In the event that soils are frozen, inhibiting compositing efforts, the soils will be thawed via a small space heater. During the thawing process, volatile organic compounds will be monitored. All work will be performed in level D, with Level C standby, should VOC monitoring indicate the need for greater protection.



LEGEND:

- S-50 — SITE SPECIFIC SAMPLE LOCATION
- TP-9 — TEST PIT LOCATION
- R-29 — SOIL SAMPLE LOCATION
- 10 PPM AND GREATER PCB CONCENTRATION IN SHALLOW SOIL ZONE

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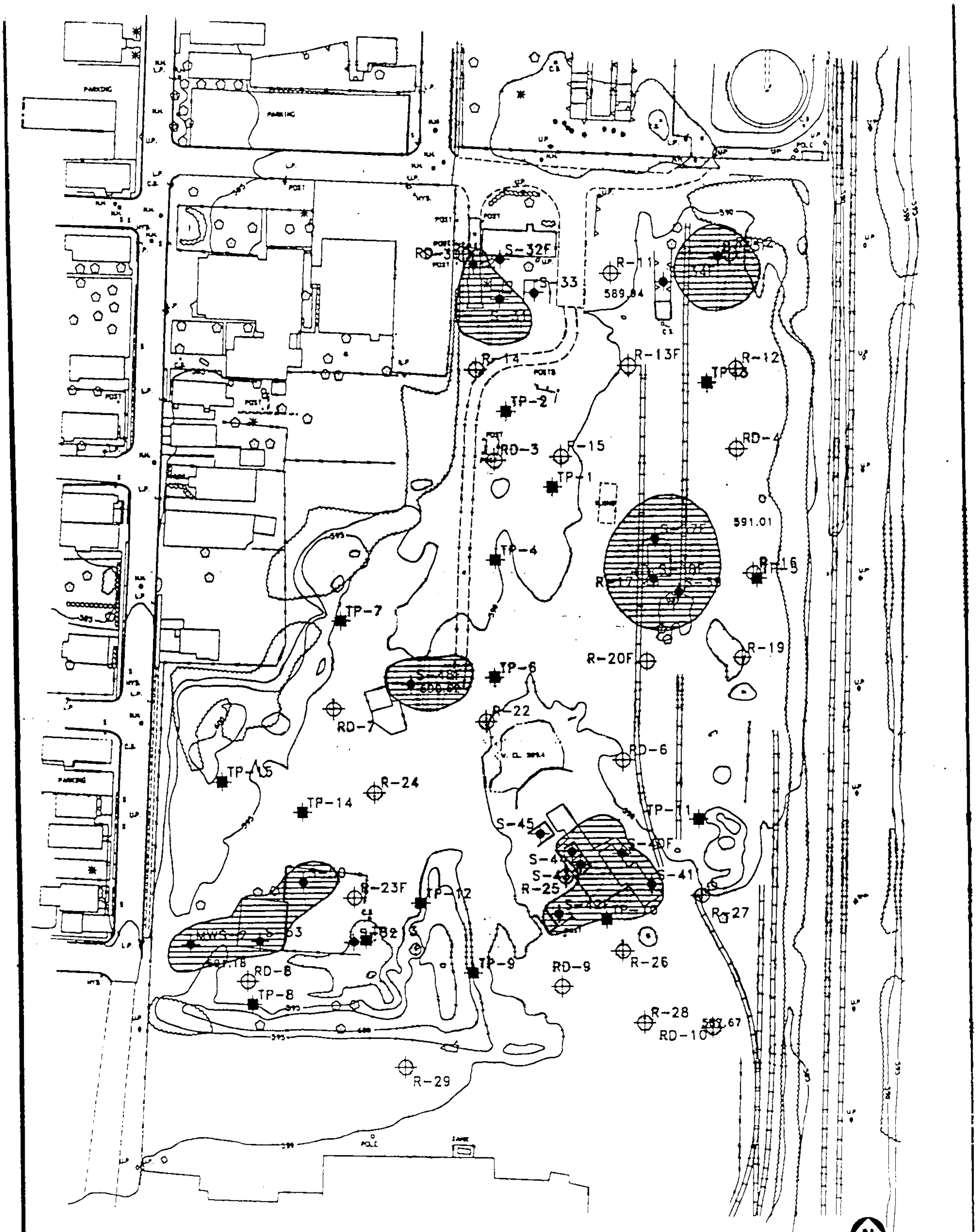
NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PRELIMINARY REMEDIAL INVESTIGATION

PCB CONCENTRATION MAP

LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

i



LEGEND:

S-50 SITE SPECIFIC SAMPLE LOCATION

TP-9 TEST PIT LOCATION

R-29 SOIL SAMPLE LOCATION

10 PPM AND GREATER CADMIUM CONCENTRATION IN SHALLOW SOIL ZONE

25' 0 25' 50'

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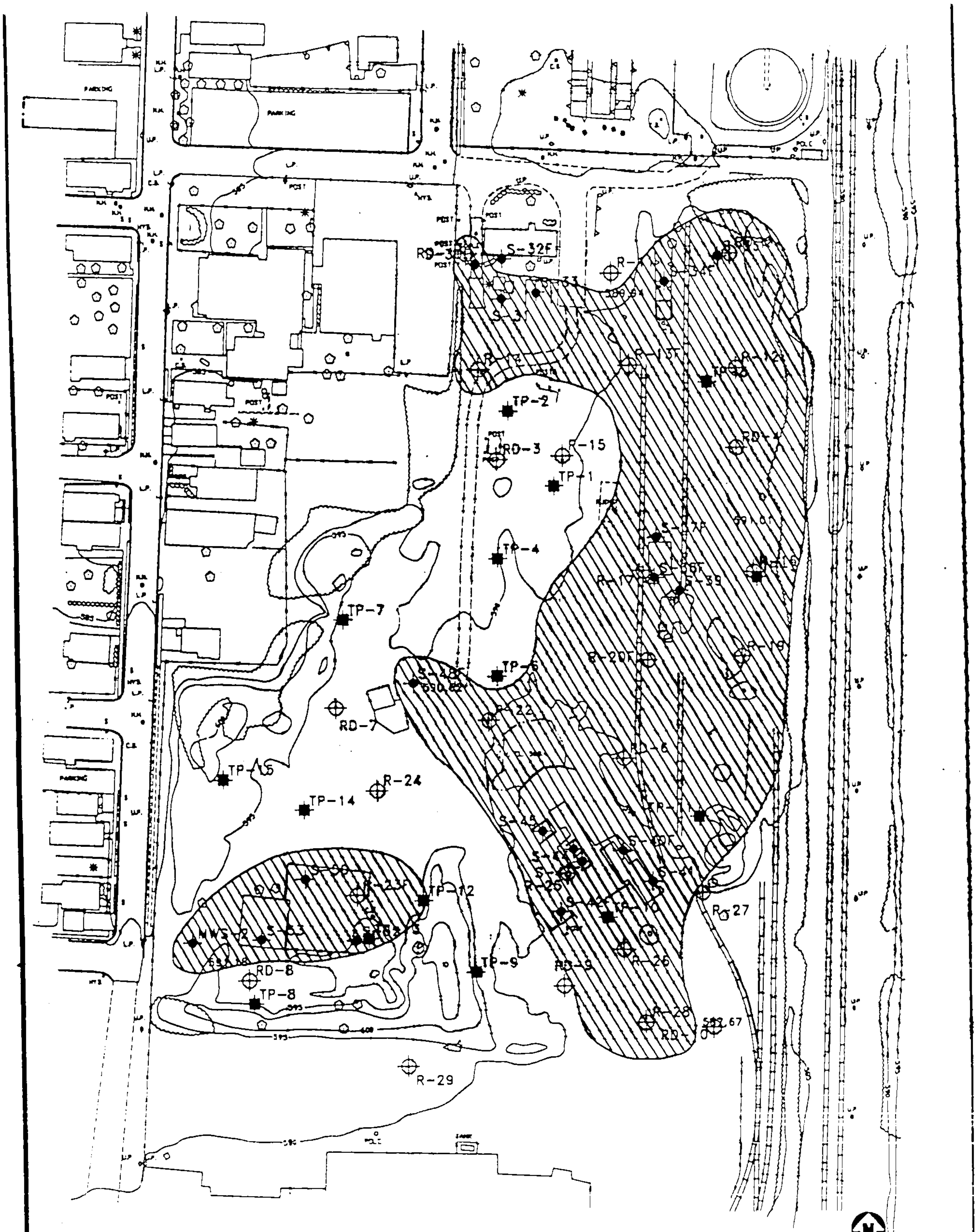
NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION PRELIMINARY REMEDIAL INVESTIGATION

CADMIUM CONCENTRATION MAP

LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

2



25' 0 25' 50'

LEGEND:

S-50 SITE SPECIFIC SAMPLE LOCATION

TP-9 TEST PIT LOCATION

R-29 SOIL SAMPLE LOCATION

50 PPM AND GREATER CHROMIUM CONCENTRATION IN SHALLOW SOIL ZONE

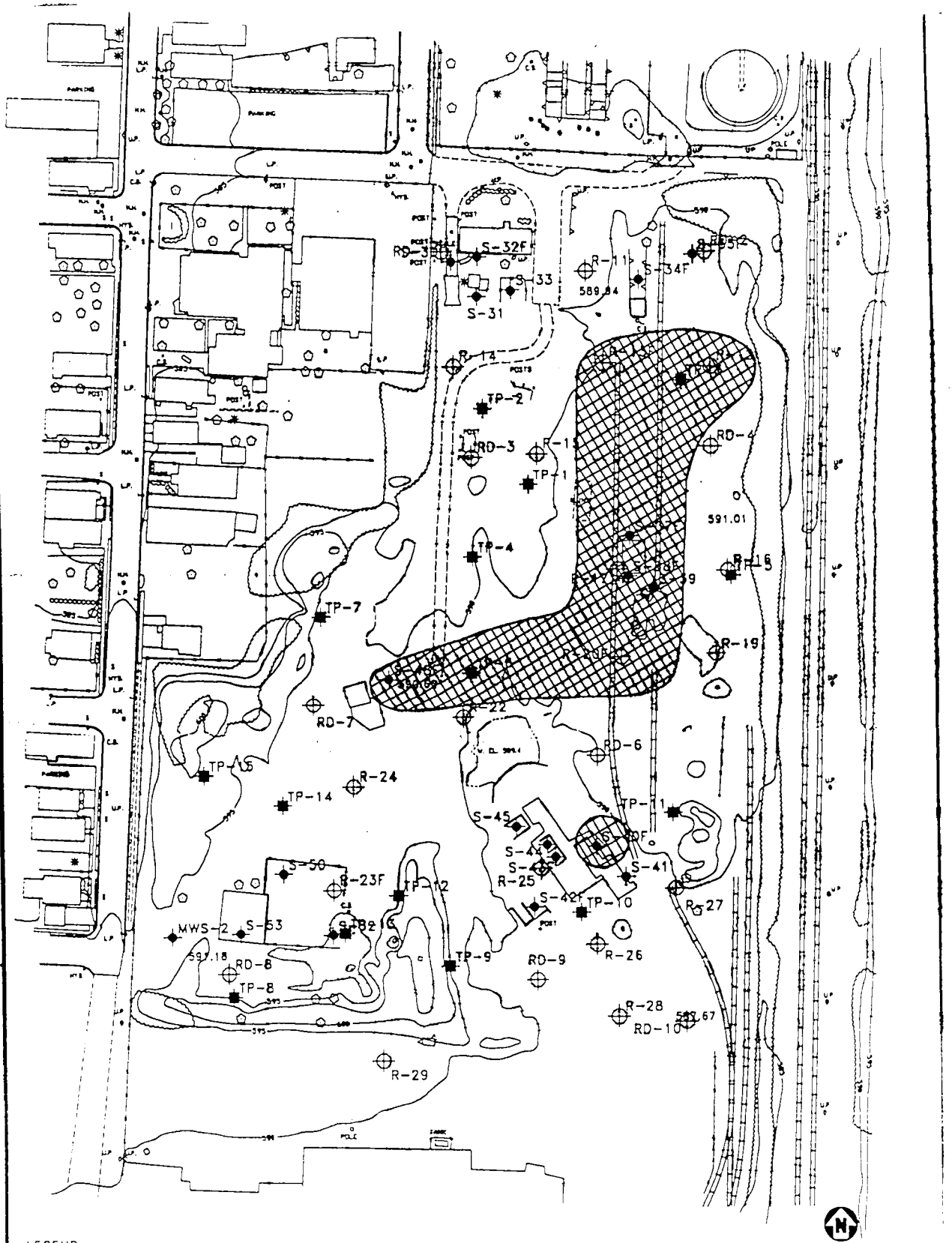
ENGINEERING-SCIENCE, INC.

NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION PRELIMINARY REMEDIAL INVESTIGATION

TOTAL CHROMIUM CONCENTRATION MAP

LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK

3



LEGEND:

- S-50 — SITE SPECIFIC SAMPLE LOCATION
- TP-9 — TEST PIT LOCATION
- R-29 — SOIL SAMPLE LOCATION
- 50 PPB AND GREATER VOC CONCENTRATION IN SHALLOW SOIL ZONE

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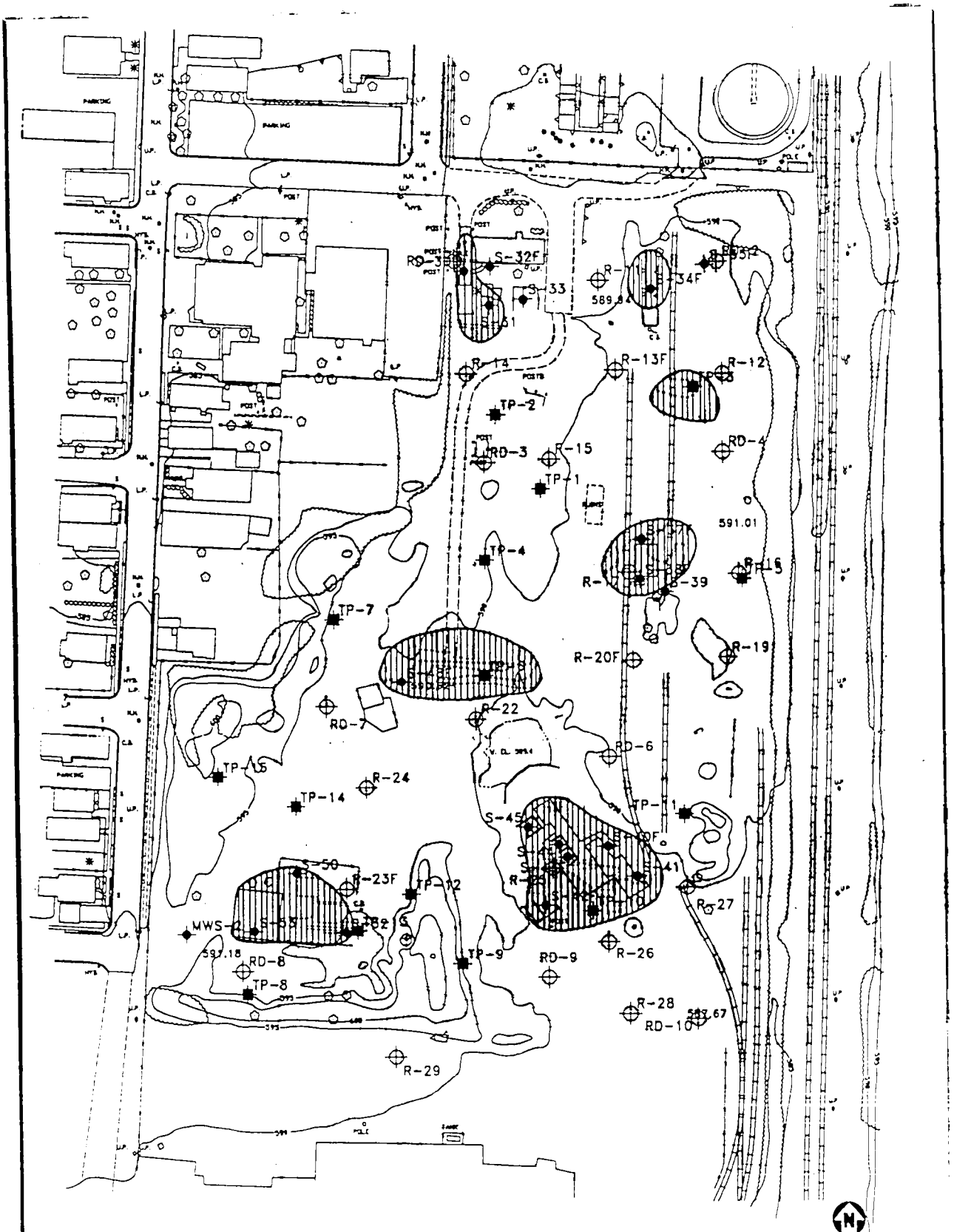
NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PRELIMINARY REMEDIAL INVESTIGATION

TOTAL VOLATILE ORGANIC COMPOUND

LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK



LEGEND:

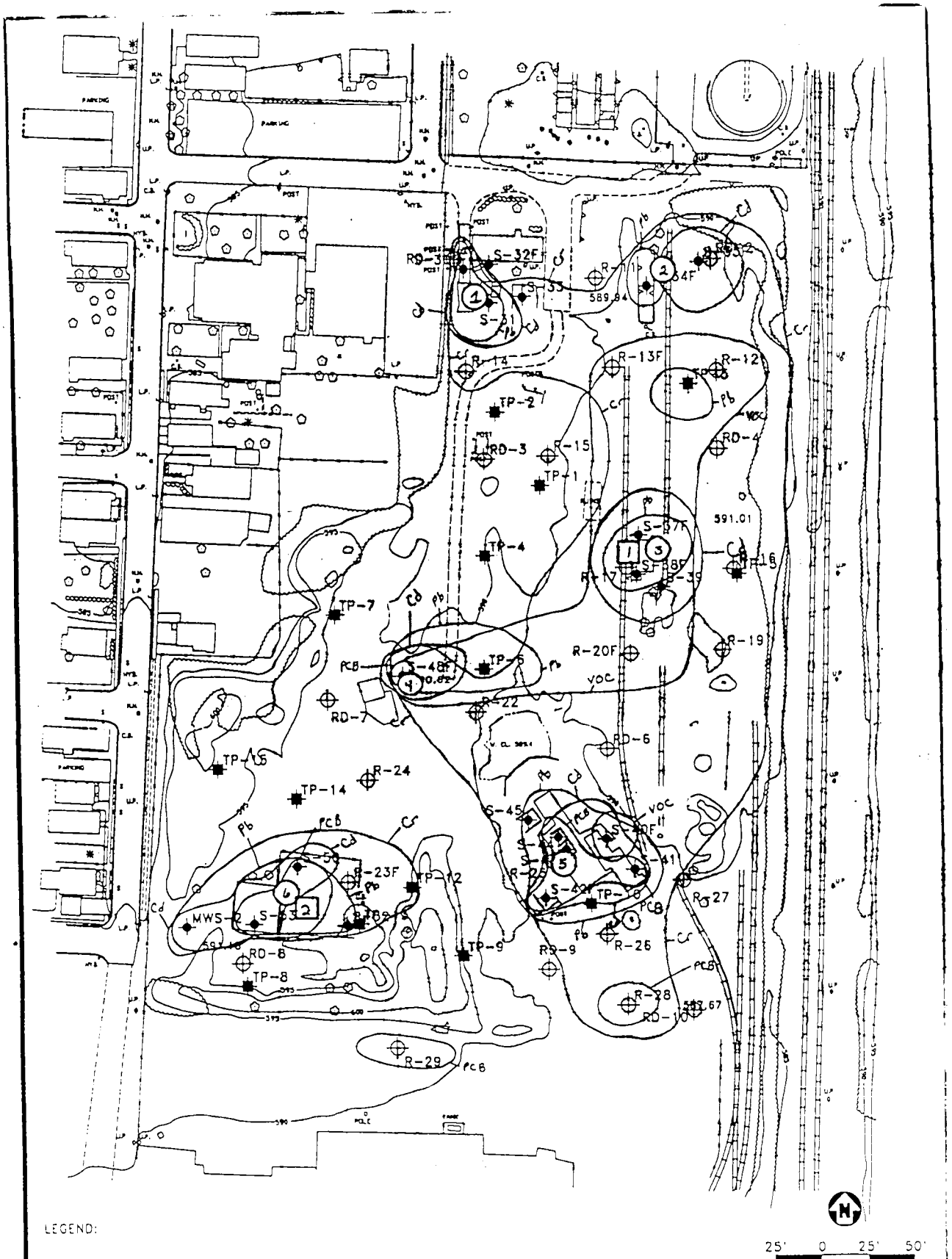
- S-50 — SITE SPECIFIC SAMPLE LOCATION
- TP-9 — TEST PIT LOCATION
- R-29 — SOIL SAMPLE LOCATION
- 500 PPM AND GREATER LEAD CONCENTRATION IN SHALLOW SOIL ZONE

ENGINEERING-SCIENCE, INC.

NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PRELIMINARY REMEDIAL INVESTIGATION

LEAD CONCENTRATION MAP

LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK


S-32F
S-31
R-14
R-13F
R-12
TP-2
RD-3
R-15
TP-1
RD-4
591.01
S-37F
TP-4
R-16
R-17
S-38F
S-39
TP-7
R-19
R-20F
PCB
S-40F
TP-5
VOC
R-22
RD-7
RD-6
TP-13
R-24
TP-14
S-45
S-41
R-23F
TP-12
S-42F
TP-11
R-27
MWS-2
S-33
RD-8
TP-9
R-26
TP-8
R-28
R-29
PCB
N
25' 0 25' 50'
LEGEND:
S-50 SITE SPECIFIC SAMPLE LOCATION
TP-9 TEST PIT LOCATION
R-29 SOIL SAMPLE LOCATION
1 PROPOSED SHALLOW SOIL SAMPLE LOCATION FOR EPTOX
6 PROPOSED SHALLOW SOIL SAMPLE LOCATION FOR TCLP
ENGINEERING-SCIENCE, INC.
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PRELIMINARY REMEDIAL INVESTIGATION
CONTAMINANT COMPOSITE MAP
LEHIGH INDUSTRIAL PARK
LACKAWANNA, NEW YORK
6

MATERIAL COSTS

TASK	Telephone	Photocopy	Postage/ Shipping	Telecopy Domestic	PC's Word Proc.	Auto Cad	Field Equip.	Level D Equip	Level C Equip.	Total
	($) $1.00	(copy) $0.05	($) $1.00	(page) $1.00	(hr) $1.50	(hr) $15.00	($) $1.00	(day) $19.00	(day) $40.00	
Prepare Work Plan	10.0	120.0	10.0	35.0	10.0					185.0
Field Work (Tasks 1,2,3)	10.0	20.0	10.0	5.0	5.0		76.0	4.0	4.0	134.0
Report Preparation (Tasks 4,5)	10.0	300.0	20.0	55.0	16.0	5.0				406.0
Task Management	5.0	50.0	10.0	15.0	4.0					84.0
Total	35.0	490.0	50.0	110.0	35.0	5.0	76.0	4.0	4.0	809.0
Total $	$35.00	$24.50	$50.00	$110.00	$52.50	$75.00	$76.00	$76.00	$160.00	$659.00

TRAVEL COSTS

TASK	Truck Rental	Personal Mileage	Misc. ($)	Total
	(day) $130.00	(mile) $0.23	$1.00	
Prepare Work Plan Field Work (Tasks 1,2,3) Report Preparation (Tasks 4,5) Task Management	2.0	42.0	30.0	
Total	2.0	42.0	30.0	
Total $	$260.00	$9.66	$30.00	$299.66

SUBCONTRACT COSTS

TASK	SJB Drilling	RCRA Lab	Total
Prepare Work Plan Field Work (Tasks 1,2,3) Report Preparation (Tasks 4,5) Task Management	$1,400.00	$2,664.00	$4,064.00

BUDGET SUMMARY

	Total ($)	Total Cost
Total Labor	$9,494.33	
Material Costs	$659.00	
Travel Costs	$299.66	
Subcontractor Costs	$4,064.00	$14,516.99

ENGINEERING-SCIENCE, INC.

LABOR HOURS AND COSTS

	Principal Engr. 1	Principal Engr. 1	Supervising Scient 1	Senior Scient. 1	Staff Scient. 1	Staff Scient. 1	Scient. 1	Special. 1	Total Hours	Direct Costs	Indirect Costs	Subtotal	Fixed Fee	Total
TASK	VIII	VII	VI	V	IV	III	II	I			1.1		0.15	
	$36.81	$28.21	$25.95	$21.12	$19.60	$17.31	$15.49	$12.57						
Prepare Work Plan	4	18					34	12	68					
Field Work (Tasks 1,2,3)		4			4	16	16	2	38					
Report Preparation (Tasks 4,5)		12	1			9	40	15	77					
Task Management	5	6						14	25					
Total Hours	9	40	1		4	25	90	43	212					
Total $	$331.29	$1,128.40	$25.95		$78.40	$432.75	$1,394.10	$540.51		$3,931.40	$4,324.54	$8,255.94	$1,238.39	$9,494.33

APPENDIX B

1992 PRI DATA TABLES

LIST OF TABLES

TABLE 4.1

GENERALIZED SITE STRATIGRAPHY

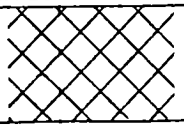
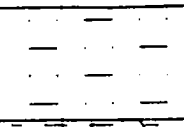
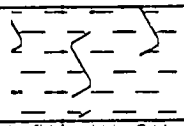
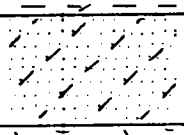
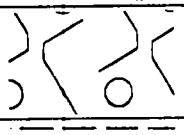
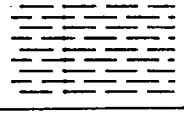
LITHOLOGY	UNIT	APPROX. THICKNESS	DESCRIPTION	
	Fill	0.5–23 FT.	MetalScraps, wood, slag, brick, construction materials, shredded foam rubber, glass and automobile parts, in black sandy matrix.	Waste
	Sand and	0–9 FT.	Black to Brown sand, trace silt, trace clay and gravel. Often dilatant.	Shallow Fill/Soil
	Silty Sand	0–8 FT.	Black to Brown sand, with some silt, and a trace gravel and clay.	
	Silt	0–3 FT.	Brown to Gray silt, with some sand and clay.	Deep Soil
	Clay	0–5 FT.	Gray clay, none to some silt and sand, occasionally varved.	
	Till	0–9 FT.	Gray sand, silt and gravel in varying proportions, occasional iron staining near top of unit.	
	Bedrock	unknown	Bedrock surface, weathered black shale and gray limestone.	

TABLE 4.2

DATA VALIDATION QUALIFIER DEFINITIONS

The following is a list of definitions of the data validation qualifiers used for the Lehigh Industrial Park Site data. When no data validation qualifier is present, the associated value met all QC requirements and the numerical values is a true representation of the concentration in the sample.

ORGANIC DATA QUALIFIERS

Qualifier	Definition
U	The compound was analyzed for and is not present in the sample. The associated numerical value indicates the approximate concentration necessary to detect the compound in this sample.
J	The compound was analyzed for and was found in the sample. The associated numerical value may not be consistent with the amount actually present in the sample. The data is usable and should be considered to be an estimate.
UJ	A combination of the "U" and "J" qualifiers. The compound was analyzed for and was not present in the sample. The associated numerical value may not accurately represent the concentration necessary to detect the compound in the sample.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.
B	This flag is used when the analyte is found in the associated blank as well as in the sample.
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
G	The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
L	The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.
T	This flag is used when the analyte is found in the associated TCLP extraction as well as in the sample.

Table 4.2 Continued

Qualifier	Definition
N	The analysis indicated that the compound is present and there are strong indications that the identification is correct. However, only a tentative identification was possible at this time.
NJ	A combination of the "N" and "J" qualifiers. The analysis indicates that the compound is "tentatively identified" and the associated numerical value may not be consistent with the amount actually in the sample.
P	This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form I and flagged with a "P".
R	The data are unusable for all purposes due to quality control failure. The compound was analyzed for but the presence or absence of the compound cannot be verified.

INORGANIC DATA QUALIFIERS

Qualifier	Definition
B	Indicates a value greater than or equal to the instrument detection limit but less than the contract required detection limit.
U	The compound was analyzed for and is not present in the sample. The associated numerical value indicates the approximate concentration necessary to detect the compound in this samples.
J	The compound was analyzed for and was found in the sample. The associated numerical value may not be consistent with the amount actually present in the sample. The data is usable and should be considered to be an estimate.
UJ	A combination of the "U" and "J" qualifiers. The compound was analyzed for and was not present in the sample. The associated numerical value may not accurately represent the concentration necessary to detect the compound in the sample.
E	Indicates a value estimated or not reported due to the presence of interference.

Table 4.2 Continued

Qualifier	Definition
S	Indicates value determined by Method of Standard Addition.
N	The analysis indicated that the compound is present and there are strong indications that the identification is correct. However, only a tentative identification was possible at this time.
NJ	A combination of the "N" and "J" qualifiers. The analysis indicates that the compound is "tentatively identified" and the associated numerical value may not be consistent with the amount actually in the sample.
*	Indicates duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for method of standard addition is less than 0.995.
M	Indicates duplicate injection results exceeded control limits.
W	Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
G	The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
L	The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.
R	The data are unusable for all purposes due to quality control failure. The compound was analyzed for but the presence or absence of the compound cannot be verified.

Table 4.2 Continued

Qualifier	Definition
S	Indicates value determined by Method of Standard Addition.
N	The analysis indicated that the compound is present and there are strong indications that the identification is correct. However, only a tentative identification was possible at this time.
NJ	A combination of the "N" and "J" qualifiers. The analysis indicates that the compound is "tentatively identified" and the associated numerical value may not be consistent with the amount actually in the sample.
*	Indicates duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for method of standard addition is less than 0.995.
M	Indicates duplicate injection results exceeded control limits.
W	Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
G	The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
L	The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.
R	The data are unusable for all purposes due to quality control failure. The compound was analyzed for but the presence or absence of the compound cannot be verified.

TABLE 4.3

OFF SITE/BACKGROUND CHEMICAL ANALYSIS

VOLATILES	LIPBG5 (µg/kg)	LIPBG6 (µg/kg)	LIPDS (µg/kg)	LIPDS4 (µg/kg)	LPOS2 (µg/kg)	LIPOS3 (µg/kg)	LIPOS4 (µg/kg)	LIPSCREEK (µg/kg)
Chloromethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Bromomethane	13 UJ	12 UJ	12 UJ	11 UJ	13 UJ	12 UJ	14 UJ	14 UJ
Vinyl chloride	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Chloroethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Methylene chloride	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Acetone	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Carbon Disulfide	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
1,1-Dichloroethene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
1,1-Dichloroethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
1,2-Dichloroethene (Total)	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Chloroform	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
1,2-Dichloroethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
2-Butanone	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
1,1,1-Trichloroethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Carbon Tetrachloride	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Bromodichloromethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
1,2-Dichloropropane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
cis-1,3-Dichloropropene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Trichloroethene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Dibromochloromethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
1,1,2-Trichloroethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Benzene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
trans-1,3-Dichloropropene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Bromoform	13 U	12 U	12 UJ	11 UJ	13 U	12 U	14 U	14 UJ
4-Methyl-2-pentanone	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
2-Hexanone	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Tetrachloroethene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
1,1,2,2-Tetrachloroethane	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Toluene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Chlorobenzene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Ethyl benzene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Styrene	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U
Total Xylenes	13 U	12 U	12 U	11 U	13 U	12 U	14 U	14 U

Data qualifiers are defined in Table 4.2.

TABLE 4.3 (CON'T)

OFF SITE/BACKGROUND CHEMICAL ANALYSIS

METALS	LIPBG5 (mg/kg)	LIPBG6 (mg/kg)	LIPDS (mg/kg)	LIPDS4 (mg/kg)	LIPOS2 (mg/kg)	LIPOS3 (mg/kg)	LIPOS4 (mg/kg)	LIPSCREEK (mg/kg)
Aluminum	8680	18800	8240	5410	7170	6740	8360	10000
Antimony	13 UJ	20.9 J	11.7 UJ	50.1 J	13.1 UJ	12.5 UJ	15.1 UJ	13.3 UJ
Arsenic	6.2 J	22.3 J	4.6 J	8.3 J	10.5 J	9.1 J	11.9 J	1.9 J
Barium	84.4	155	83.2	88.9	73.3	52.4	89.7	73.6
Beryllium	1.3 U	3.4	1.2 U	1.2 U	1.3 U	1.3 U	1.5 U	1.3 U
Cadmium	9.8 J	29 J	8.6 J	5.1 J	12.8 J	10.4 J	9.9 J	9.9 J
Calcium	23600	123000	11400	253000	9910	15300	7820	26400
Chromium	27.6 J	80.7 J	16.9 J	22.9 J	38.5 J	23.5 J	29.3 J	20.7 J
Cobalt	7.3 B	5.6 B	4.7 U	4.8 U	8.4 J	7.7 J	7.3 J	11.6 J
Copper	48.5	82.8	37.9 J	34.7 J	43.7 J	45.4 J	65.5 J	44.6 J
Iron	24800 J	49700 J	18800 J	10400 J	26900 J	21900 J	25300 J	25000 J
Lead	196	693	113	72.8	318	142	305	68.2
Magnesium	5200	28700	2650	10700	2660	3650	2380	5540
Manganese	889 J	5480 J	524 J	593 J	1090 J	653 J	883 J	883 J
Mercury	0.38 J	0.11 U	0.12 U	0.51	0.13 U	0.12 U	0.35	0.12 U
Nickel	25.1 J	78.5 J	17.1 J	19.2 J	27.7 J	22.8 J	24.8 J	38.4 J
Potassium	895 J	1850	452 J	710 J	567 J	903 J	567 J	1130 J
Selenium	1.3 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.3 UJ	1.3 UJ	1.5 UJ	1.4 UJ
Silver	2.6 UJ	2.7 J	2.3 UJ	2.4 UJ	2.6 UN	2.5 UJ	3 UJ	2.7 UJ
Sodium	355 J	1000 J	290 J	501 J	329 J	290 J	354 J	518 J
Thallium	1.3 U	1.2 U	1.2 U	1.2 U	1.3 U	1.3 U	1.5 U	1.4 U
Vanadium	20.8	38.6	16.8	9.2 J	26.6	18.8	21.6	21.9
Zinc	341	1800	252	168	575	556	529	247
Cyanide	1.7 U	1.8 U	1.5 U	1.5 U	1.8 U	1.5 U	1.8 U	1.7 U

PESTICIDE/PCB	LIPBG5 (µg/kg)	LIPBG6 (µg/kg)	LIPDS (µg/kg)	LIPDS4 (µg/kg)	LIPOS2 (µg/kg)	LIPOS3 (µg/kg)	LIPOS4 (µg/kg)	LIPSCREEK (µg/kg)
alpha-BHC	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
beta-BHC	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
delta-BHC	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
gamma-BHC (Lindane)	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
Heptachlor	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
Aldrin	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
Heptachlor Epoxide	24 UJ	17 J	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
Endosulfan I	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
Dieldrin	47 UJ	78 UJ	4 UJ	4.1 UJ	4.2 UJ	4 UJ	950 UJ	4.3 UJ
4,4'-DDE	7.1 J	26 J	4 UJ	4.1 UJ	13 J	2.9 J	950 UJ	4.3 UJ
Endrin	47 UJ	78 UJ	4 UJ	4.1 UJ	4.2 UJ	4 UJ	950 UJ	4.3 UJ
Endosulfan II	47 UJ	78 UJ	4 UJ	4.1 UJ	4.2 UJ	4 UJ	950 UJ	4.3 UJ
4,4'-DDD	47 UJ	78 UJ	4 UJ	4.1 UJ	4.2 UJ	4 UJ	950 UJ	4.3 UJ
Endosulfan Sulfate	47 UJ	78 UJ	4 UJ	4.1 UJ	4.2 UJ	4 UJ	950 UJ	4.3 UJ
4,4'-DDT	47 UJ	50 J	4 UJ	4.1 UJ	4.2 UJ	4 UJ	950 UJ	4.3 UJ
Methoxychlor	240 UJ	67 J	21 UJ	21 UJ	22 UJ	21 UJ	4900 UJ	22 UJ
Endrin Ketone	47 UJ	78 UJ	4 UJ	4.1 UJ	4.2 UJ	4 UJ	950 UJ	4.3 UJ
Endrin aldehyde	47 UJ	78 UJ	4 UJ	4.1 UJ	4.2 UJ	4 UJ	950 UJ	4.3 UJ
alpha-Chlordane	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
gamma-Chlordane	24 UJ	39 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.1 UJ	480 UJ	2.2 UJ
Toxephene	2400 UJ	3900 UJ	210 UJ	210 UJ	220 UJ	210 UJ	49000 UJ	220 UJ
Aroclor-1016	470 UJ	780 UJ	40 UJ	41 UJ	42 UJ	40 UJ	9500 UJ	43 UJ
Aroclor-1221	940 UJ	1500 UJ	81 UJ	83 UJ	88 UJ	82 UJ	19000 UJ	87 UJ
Aroclor-1232	470 UJ	780 UJ	40 UJ	41 UJ	42 UJ	40 UJ	9500 UJ	43 UJ
Aroclor-1242	470 UJ	780 UJ	40 UJ	41 UJ	42 UJ	40 UJ	62000 JN	43 UJ
Aroclor-1248	470 UJ	780 UJ	40 UJ	41 UJ	42 UJ	40 UJ	9500 UJ	43 UJ
Aroclor-1254	470 UJ	780 UJ	160 NJ	130 NJ	42 UJ	40 UJ	9500 UJ	43 UJ
Aroclor-1260	580 NJ	780 UJ	40 UJ	41 UJ	110 JN	44 NJ	180000 NJ	84 JN

Data qualifiers are defined in Table 4.2.

TABLE 4.3 (CON'T)

OFF SITE/BACKGROUND CHEMICAL ANALYSIS

SEMIVOLATILES	LIPOS2 (µg/kg)	LIPOS3 (µg/kg)	LIPOS4 (µg/kg)	LIPBG5 (µg/kg)	LIPBG6 (µg/kg)	LIPOS (µg/kg)	LIPOS4 (µg/kg)	LIPSCREEK (ug/kg)
Phenol	430 U	400 U	480 U	470 U	260 J	400 U	R	440 U
Bis(2-chloroethyl) ether	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
2-Chlorophenol	430 U	400 U	480 U	470 U	390 UJ	400 U	R	440 U
1,3-Dichlorobenzene	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
1,4-Dichlorobenzene	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
1,2-Dichlorobenzene	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
2-Methylphenol	430 U	400 U	480 U	470 U	390 UJ	400 U	R	440 U
Bis(2-chloroisopropyl) ether	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
4-Methylphenol	430 U	400 U	480 U	470 U	88 J	31 J	R	440 U
N-Nitroso-Di-n-propylamine	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
Hexachloroethane	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
Nitrobenzene	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
Isophorone	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
2-Nitrophenol	430 U	400 U	480 U	470 U	390 UJ	400 U	R	440 U
2,4-Dimethylphenol	430 U	400 U	480 U	470 U	390 UJ	400 U	R	440 U
Bis(2-chloroethoxy) methane	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
2,4-Dichlorophenol	430 U	400 U	480 U	470 U	390 UJ	400 U	R	440 U
1,2,4-Trichlorobenzene	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
Naphthalene	75 J	400 U	250 J	820	390	63 J	R	38 J
4-Chloroaniline	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
Hexachlorobutadiene	430 U	400 U	480 U	470 U	390 U	400 U	R	440 U
4-Chloro-3-methylphenol	430 U	400 U	480 U	470 U	390 UJ	400 U	R	440 U
2-Methylnaphthalene	68 J	400 U	150 J	310 J	1000	90 J	R	37 J
Hexachlorocyclopentadiene	430 U	400 U	480 U	470 U	390 U	400 U	410 UJ	440 U
2,4,6-Trichlorophenol	430 U	400 U	480 U	470 U	390 UJ	400 U	410 UJ	440 U
2,4,5-Trichlorophenol	1000 U	980 U	1200 U	1100 U	940 UJ	960 U	1000 UJ	1100 U
2-Chloronaphthalene	430 U	400 U	480 U	470 U	390 U	400 U	410 UJ	440 U
2-Nitroaniline	1000 U	980 U	1200 U	1100 U	940 U	960 UJ	1000 UJ	1100 UJ
Dimethyl phthalate	430 U	400 U	480 U	470 U	390 U	400 U	410 UJ	440 U
Acenaphthylene	46 J	400 U	52 J	140 J	770	19 J	410 UJ	58 J
2,6-Dinitrotoluene	430 J	400 U	480 U	470 U	390 U	400 U	410 UJ	440 U
3-Nitroaniline	1000 U	980 U	1200 U	1100 U	940 U	960 U	1000 UJ	1100 U
Acenaphthene	22 J	400 U	390 J	920	6300 DJ	8 J	410 UJ	37 J
2,4-Dinitrophenol	1000 U	980 U	1200 U	1100 U	940 UJ	960 UJ	1000 UJ	1100 UJ
4-Nitrophenol	1000 U	980 U	1200 U	1100 U	940 UJ	960 U	1000 UJ	1100 U
Dibenzofuran	35 J	400 U	260 J	690	4400 DJ	34 J	410 UJ	33 J
2,4-Dinitrotoluene	430 U	400 U	480 U	470 U	390 U	400 U	410 UJ	440 U
Diethyl phthalate	430 U	400 U	480 U	470 U	390 UJ	400 U	410 UJ	440 U
4-Chlorodiphenylether	430 U	400 U	480 U	470 U	390 UJ	400 U	410 UJ	440 U
Fluorene	430 U	400 U	510	1500	8700 J	13 J	410 UJ	87 J
4-Nitroaniline	1000 U	980 U	1200 U	1100 U	940 UJ	960 U	1000 UJ	1100 U
4,6-Dinitro-2-methylphenol	1000 U	980 U	1200 U	1100 U	R	960 U	1000 UJ	1100 U
N-nitrosodiphenylamine	430 U	400 U	480 U	470 U	R	400 U	410 UJ	440 U
4-Bromophenyl phenyl ether	430 U	400 U	480 U	470 U	R	400 U	410 UJ	440 U
Hexachlorobenzene	430 U	400 U	480 U	470 U	R	400 U	410 UJ	440 U
Pentachlorophenol	1000 U	980 U	1200 U	1100 U	R	960 UJ	1000 UJ	1100 UJ
Phenanthrene	610	180 J	5700 D	11000 D	280000 J	150 J	260 J	730 J
Anthracene	100 J	25 J	900	1900	43000 J	30 J	410 UJ	140 J
Carbazole	68 J	22 J	570	1100	53000 J	15 J	410 UJ	96 J
Di-n-butyl phthalate	70 J	29 J	69 J	120 J	R	68 J	410 UJ	440 UJ
Fluoranthene	1200	360 J	9100 D	14000 D	110000 J	210 J	250 J	1800 J
Pyrene	980	280 J	5900 J	11000 D	76000 J	180 J	1100 J	1500 J
Butyl benzyl phthalate	200 J	160 J	350 J	240 J	390 J	1500 J	R	58 J
3,3'-Dichlorobenzidine	430 U	400 U	480 UJ	470 U	390 J	400 UJ	R	440 UJ
Benzo(a)anthracene	670	180 J	3700 J	5100 D	2200 J	130 J	R	940 J
Chrysene	700	220 J	2100 J	3300	1500 J	190 J	R	1000 J
Bis(2-ethylhexyl) phthalate	8300 D	220 J	3400 J	4000 D	920 J	440 J	R	470 J
Di-n-octyl phthalate	430 U	400 U	480 U	470 U	390 UJ	400 UJ	R	440 UJ
Benzo(b)fluoranthene	1300	320 J	5500 D	7400 D	390 UJ	270 J	1200 J	1800 J
Benzo(k)fluoranthene	620	170 J	2200	2600	390 UJ	200 J	R	1500 J
Benzo(a)pyrene	670	240 J	3400	5800 D	39000 J	160 J	R	1200 J
Indeno(1,2,3-cd)pyrene	390 J	180 J	1200	1600	4700 J	110 J	R	870 J
Dibenzo(a,h)anthracene	78 J	33 J	56 J	91 J	10000 J	400 UJ	R	150 J
Benzo(ghi)perylene	240 J	130 J	740	900	17000 J	93 J	R	670 J

Data qualifiers are defined in Table 4.2.

Table 4.4
Detected Semi-Volatile Organic Parameters
Background Samples

PARAMETER	CONCENTRATION ug/kg				
	OS-2	OS-3	OS-4	BG-5	BG-6
Napthelene	75J		250J	620	390
2-Methylnaphthalene	88J		150J	310J	1000
Acenaphthylene	46J		52J	140J	770
2,6 Dinitrotoluene	430J				
Acenaphthene	22J		390J	920	7300E
Dibenzofuran	35J		260J	690	4800E
Fluorene			510	1500	8700E
Phenanthrene	610	180J	5100D	11000D	290000J
Anthracene	100J	25J	900	1900	43000J
Carbazole	68J	22J	570	1100	53000J
Di-n-butylphthalate	70J	29J	69J	120J	
Fluoranthene	1200	360J	9100D	1400D	110000J
Pyrene	980	280J	5900J	11000D	76000J
Butyl benzyl phthalate	200J	160J	350J	240J	390J
3,3'-Dichlorobenzidine					390J
Benzo(a)anthracene	670	180J	3700J	5100D	2200J
Chrysene	700	220J	2100J	3300	1500J
Bis(2-ethylhexyl)phthalate	8300D	220J	3400J	4000D	920J
Benzo(b)fluoranthene	1300	320J	5500D	8100E	
Benzo(k)fluoranthene	620	170J	2200	2600	
Benzo(a)pyrene	870	240J	3400	5800J	39000J
Indeno(1,2,3-cd)pyrene	390J	180J	1200	1600	4700J
Dibenzo(a,h)anthracene	78J	33J	56J	91J	10000J
Benzo(g,h,i)perylene	240J	130J	740	900	17000J

Data qualifiers are defined in Table 4.2.

Table 4.5

Lehigh Industrial Park
Church Yard Sampling Results

Compound (ug/kg)	Sample locations			
	CY-1	CY-2	CY-4	OS-4
Aroclor 1016	43 U	41 U	40 U	45 U
Aroclor 1221	87 U	84 U	82 U	91 U
Aroclor 1232	43 U	41 U	40 U	45 U
Aroclor 1242	43 U	41 U	40 U	45 U
Aroclor 1248	43 U	41 U	40 U	45 U
Aroclor 1254	43 U	41 U	40 U	45 U
Aroclor 1260	43 U	41 U	40 U	45 U

U – Indicates compound was analyzed for but not detected.

TABLE 4.6

LEHIGH INDUSTRIAL PARK
RP1 TCLP ANALYTICAL RESULTS

COMPOUND	REGULATORY LEVEL (ug/l)	CONC. (ug/l)
Vinyl Chloride	200	100 U
1,1-Dichlorethene	700	100 U
Chloroform	6000	100 U
1,2-Dichloroethane	500	100 U
2-Butanone	200000	100 U
Carbon Tetrachloride	500	100 U
Trichloroethene	500	100 U
Benzene	500	100 U
Tetrachloroethene	700	100 U
Chlorobenzene	100000	100 U
1,4-Dichlorobenzene	7500	1700 U
2-Methylphenol	200000	3300
4-Methylphenol	200000	4500
Hexachloroethane	3000	1700 U
Nitrobenzene	2000	1700 U
Hexachlorobutadiene	500	1700 U
2,4,6-Trichlorophenol	2000	1700 U
2,4,5-Trichlorophenol	400000	4200 U
2,4-Dinitrotoluene	130	1700 U
Hexachlorobenzene	130	1700 U
Pentachlorophenol	100000	4200 U
Pyridine	5000	1700 U
3-Methylphenol	200000	1700 U
Arsenic	5000	5 U
Barium	100000	210
Cadmium	1000	2.6 B
Chromium	5000	11
Lead	5000	634 S
Mercury	200	0.2 U
Selenium	1000	5 U
Silver	5000	0.3 U

Data qualifiers are defined in Table 4.2.

TABLE 4.7

DETECTED PARAMETERS FOR TP-9 AND TP-12 (FLUFF PILES)

VOLATILE ORGANIC COMPOUND ANALYSIS (in ug/kg or ppb)

Parameters	Concentration	(location)	Concentration	(Location)
Methylene Chloride	4.0J	(TP-12)	3.0J	(TP-9)
Acetone	490D	(TP-12)	88	(TP-9)
Carbon Disulfide	13	(TP-12)	ND	
Total 1,2-Dichloroethane	47	(TP-12)	ND	
2-Butanone	86	(TP-12)	17	(TP-9)
Trichloroethane	1J	(TP-12)	7	(TP-9)
Benzene	8J	(TP-12)	7	(TP-9)
4-Methyl-2-pentanone	33J	(TP-12)	30J	(TP-9)
2-Hexanone	26J	(TP-12)	25J	(TP-9)
Tetrachloroethane	20J	(TP-9)	ND	
Toluene	130J	(TP-12)	17J	(TP-9)
Chlorobenzene	12J	(TP-12)	6J	(TP-9)
Ethyl benzene	130J	(TP-12)	230J	(TP-12)
Styrene	160J	(TP-12)	22J	(TP-9)
Total Xylenes	320J	(TP-12)	160J	(TP-9)

J = Estimated concentration value

D = Identifies a compound identified at a secondary dilution factor

ND = Not detected

Note: All background VOC analyses were at or below detection limits.

TABLE 4.8

WASTE MATERIALS ZONE
VOLATILE ORGANIC COMPOUND ANALYSIS

VOLATILES	TP-11 (µg/kg)	TP-12 (µg/kg)	TP-15 (µg/kg)	TP-7 (µg/kg)	TP-8 (µg/kg)	TP-9 (µg/kg)	LIPRPI (µg/kg)
Chloromethane	11 U	12 U	12 U	12 U	14 U	13 U	29000 U
Bromomethane	11 U	12 U	12 U	12 U	14 U	13 U	29000 UJ
Vinyl chloride	11 U	12 U	12 U	12 U	14 U	13 U	29000 U
Chloroethane	11 U	12 U	12 U	12 U	14 U	13 U	29000 U
Methylene chloride	1 J	4 J	3 J	0.9 J	14 U	3 J	29000 U
Acetone	11	490 D	12 U	140	14 U	88	29000 U
Carbon Disulfide	11 U	13	12 U	3 J	14 U	13 U	29000 U
1,1-Dichloroethene	11 U	12 U	12 U	12 U	14 U	13 U	29000 U
1,1-Dichloroethane	11 U	12 U	12 U	12 U	14 U	13 U	29000 U
1,2-Dichloroethene (Total)	11 U	12 U	12 U	12 U	14 U	47	29000 U
Chloroform	11 U	12 U	12 U	12 U	14 U	13 U	29000 U
1,2-Dichloroethane	11 U	12 U	12 U	12 U	14 U	13 U	29000 U
2-Butanone	11 U	86	12 U	26	14 U	17	29000 U
1,1,1-Trichloroethane	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 U
Carbon Tetrachloride	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 UJ
Bromodichloromethane	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 U
1,2-Dichloropropane	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 U
cis-1,3-Dichloropropene	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 U
Trichloroethene	11 U	1 J	12 U	12 U	14 U	7 J	29000 U
Dibromochloromethane	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 U
1,1,2-Trichloroethane	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 U
Benzene	11 U	8 J	12 U	12 U	14 U	7 J	29000 U
trans-1,3-Dichloropropene	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 U
Bromoform	11 U	12 U	12 U	12 U	14 U	13 UJ	29000 U
4-Methyl-2-pentanone	11 U	33 J	12 UJ	12 U	14 U	30 J	29000 U
2-Hexanone	11 U	26 J	12 UJ	12 U	14 U	25 J	29000 U
Tetrachloroethene	11 U	12 UJ	12 UJ	12 U	14 U	20 J	29000 U
1,1,2,2-Tetrachloroethane	11 U	12 UJ	12 UJ	12 U	14 U	13 UJ	29000 U
Toluene	11 U	130 J	12 UJ	2 J	14 U	17 J	450000
Chlorobenzene	11 U	12 J	12 UJ	12 U	14 U	6 J	29000 U
Ethyl benzene	11 U	130 J	12 UJ	0.8 J	14 U	230 DJ	29000 U
Styrene	11 U	160 J	12 UJ	12 U	14 U	22 J	29000 U
Total Xylenes	11 U	320 J	12 UJ	2 J	14 U	160 J	29000 U

Data qualifiers are defined in Table 4.2.

TABLE 4.9

SEMI-VOLATILE ORGANIC ANALYSIS ON SAMPLES FROM TP-9 AND TP-12

Parameters	Concentration ug/kg	(Location)	Concentration ug/kg	(Location)
Phenol	130J	(TP-12)		
4-Methylphenol	2200J	(TP-12)		
Naphthalene	910J	(TP-12)	510J	(TP-9)
2-Methylnaphthalene	900J	(TP-12)	580J	(TP-9)
Acenaphthylene	1400J	(TP-12)	47J	(TP-9)
Dimethyl phthalate	510J	(TP-9)		
Fluorene	990J	(TP-12)		
Phenanthrene	740J	(TP-9)		
Di-n-butylphthalate	3100J	(TP-9)		
Fluoranthene	550J	(TP-9)		
Butyl benzo phthalate	25000J	(TP-12)	33000J	(TP-12)
Bis(2-ethylhexyl)phthalate	140000J	(TP-12)	350000J	(TP-9)
Di-n-octyl phthalate	89000J	(TP-9)		

J indicates that the compound was analyzed for and was found in the sample. The associated numerical value may not be consistent with the amount actually present in the sample. The data is usable and should be considered to be an estimate.

TABLE 4.10

WASTE MATERIALS ZONE
METALS AND PESTICIDE/PCB COMPOUND ANALYSIS

METALS	TP-11 (mg/kg)	TP-12 (mg/kg)	TP-15 (mg/kg)	TP-7 (mg/kg)	TP-8 (mg/kg)	TP-9 (mg/kg)	UPAPI (mg/kg)
Aluminum	2020	7370	4670	11200	8630	4410	192
Antimony	5.2 J	9.7 J	23.9 J	4.7 J	6.3 J	47.4 J	2.4 UJ
Arsenic	30.7 J	26.8 J	57.7 J	36.8 J	39.8 J	18.2 J	1.4 J
Barium	344 J	1430 J	2770 J	1330 J	623 J	1420 J	18.3 J
Beryllium	1.1 U	1.4 U	1.2 U	1.3 U	1.4 U	1.3 U	1.2 U
Cadmium	5.7 U	6.9 UJ	94.8	29.6	1.4 UJ	15.1	0.72 J
Calcium	9010 J	35800 J	25000 J	60100 J	36100 J	35500 J	2440 J
Chromium	387	431	179	228	59.3	131	7.8
Cobalt	25 J	50.6 J	33.6 J	18.9 J	15.5 J	26.8 J	4.7 U
Copper	542 J	1090 J	2030 J	2010 J	908 J	46800 J	513
Iron	28500 J	375000 J	262000 J	121000 J	127000 J	160000 J	22100
Lead	514 J	3610 J	6660 J	1220 J	1980 J	34100 J	62.8
Magnesium	1790	8160	8120	11200	6810	9670	146 J
Manganese	3580 J	4390 J	1740 J	4210 J	2080 J	1960 J	130
Mercury	1 J	2.1 J	2.8 J	1.6 J	1.1 J	2.7 J	0.11 U
Nickel	603 J	428 J	533 J	732 J	123 J	236 J	9 J
Potassium	182 J	631 J	287 J	645 J	737 J	496 J	142 U
Selenium	5.7 UJ	6.8 J	11.1 J	1.2 UJ	7.1 UJ	6.6 J	1.2 U
Silver	2.3 UJ	7.8 J	2.5 UJ	2.5 UJ	2.7 UJ	5.7 J	0.17 J
Sodium	364 U	2810	472 U	972 U	502 U	973 U	138 U
Thallium	1.1 U	1.4 U	1.2 U	1.2 U	1.4 UJ	1.2 U	1.2 UJ
Vanadium	32.3 J	74.1 J	24.6 UJ	132 J	27.6 J	31.6 J	4.7 U
Zinc	1830 J	7340 J	15700 J	69800 J	3290 J	9050 J	117
Cyanide	1.4 UJ	1.7 UJ	1.5 UJ	1.6 UJ	1.7 UJ	1.6 UJ	1.5 UJ

PESTICIDE/PCB	TP-11 (µg/kg)	TP-12 (µg/kg)	TP-15 (µg/kg)	TP-7 (µg/kg)	TP-8 (µg/kg)	TP-9 (µg/kg)	UPAPI (µg/kg)
alpha-BHC	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	7.5 UJ
beta-BHC	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	7.5 UJ
delta-BHC	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	7.5 UJ
gamma-BHC (Lindane)	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	7.5 UJ
Heptachlor	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	7.5 UJ
Aldrin	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	7.5 UJ
Heptachlor Epoxide	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	17 J
Endosulfan I	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	7.5 UJ
Dieldrin	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	15 UJ
4,4'-DDE	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	15 UJ
Endrin	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	13 J
Endosulfan II	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	15 UJ
4,4'-DDD	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	15 UJ
Endosulfan Sulfate	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	15 UJ
4,4'-DDT	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	15 UJ
Methoxychlor	200UJ	240 UJ	210 UJ	220 UJ	76 UJ	230 UJ	75 UJ
Endrin Ketone	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	15 UJ
Endrin aldehyde	38UJ	47 UJ	40 UJ	42 UJ	15 UJ	45 UJ	15 UJ
alpha-Chlordane	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	15 J
gamma-Chlordane	20UJ	24 UJ	21 UJ	22 UJ	7.6 UJ	23 UJ	7.5 UJ
Toxaphene	2000UJ	2400 UJ	2100 UJ	2200 UJ	760 UJ	2300 UJ	750 UJ
Aroclor-1016	380UJ	470 UJ	400 UJ	420 UJ	150 UJ	450 UJ	150 UJ
Aroclor-1221	770UJ	950 UJ	810 UJ	850 UJ	300 UJ	910 UJ	300 UJ
Aroclor-1232	380UJ	470 UJ	400 UJ	420 UJ	150 UJ	450 UJ	150 UJ
Aroclor-1242	380UJ	5800 JN	1400 JN	4000 JN	230 JN	14000 JN	150 UJ
Aroclor-1248	380UJ	470 UJ	400 UJ	420 UJ	150 UJ	450 UJ	150 UJ
Aroclor-1254	1400JN	7600 JN	3100 JN	2500 JN	150 UJ	3500 JN	150 UJ
Aroclor-1260	380UJ	470 UJ	400 UJ	420 UJ	710 JN	450 UJ	150 UJ

Data qualifiers are defined in Table 4.2.

TABLE 4.11

WASTE MATERIALS ZONE
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS

SEMIVOLATILES	TP-11 (µg/kg)	TP-12 (µg/kg)	TP-15 (µg/kg)	TP-7 (µg/kg)	TP-8 (µg/kg)	TP-9 (µg/kg)	LIPRPI (µg/kg)
Phenol	R	130 J	400 UJ	R	R	4500 U	13000 J
Bis(2-chloroethyl) ether	R	R	R	R	R	4500 U	19000 U
2-Chlorophenol	R	R	400 UJ	R	R	4500 U	19000 U
1,3-Dichlorobenzene	R	R	R	R	R	4500 U	19000 U
1,4-Dichlorobenzene	R	R	R	26 J	R	4500 U	19000 U
1,2-Dichlorobenzene	R	R	R	R	R	4500 U	19000 U
2-Methylphenol	R	R	400 UJ	73 J	R	4500 U	950 J
Bis(2-chloroisopropyl) ether	R	R	R	R	R	4500 U	19000 U
4-Methylphenol	R	2200 J	400 UJ	580 J	R	4500 U	2000 J
N-Nitroso-Di-n-propylamine	R	R	R	R	R	4500 U	19000 U
Hexachloroethane	R	R	R	R	R	4500 U	19000 U
Nitrobenzene	R	R	R	R	R	4500 U	19000 U
Isophorone	R	R	R	R	R	4500 U	19000 U
2-Nitrophenol	R	R	400 UJ	R	R	4500 U	19000 U
2,4-Dimethylphenol	R	R	400 UJ	310 J	R	4500 U	2900 J
Bis(2-chloroethoxy) methane	R	R	R	R	R	4500 U	19000 U
2,4-Dichlorophenol	R	R	400 UJ	R	R	4500 U	19000 U
1,2,4-Trichlorobenzene	R	R	R	110 J	R	4500 U	19000 U
Naphthalene	100J	910 J	91 J	220 J	570 J	510 J	19000 U
4-Chloroaniline	R	R	R	R	R	4500 U	19000 U
Hexachlorobutadiene	R	R	R	R	R	4500 U	19000 U
4-Chloro-3-methylphenol	R	R	400 UJ	R	R	4500 U	19000 U
2-Methylnaphthalene	R	900 J	140 J	230 J	640 J	580 J	19000 U
Hexachlorocyclopentadiene	R	R	R	R	R	4500 U	19000 UJ
2,4,6-Trichlorophenol	R	R	400 UJ	R	R	4500 U	19000 U
2,4,5-Trichlorophenol	R	R	970 UJ	R	R	11000 U	47000 U
2-Chloronaphthalene	R	R	R	R	23 J	4500 U	19000 U
2-Nitroaniline	R	R	R	R	R	11000 U	47000 UJ
Dimethyl phthalate	R	R	100 J	130 J	R	4500 U	19000 UJ
Acenaphthylene	R	R	R	23 J	540 J	4500 U	19000 UJ
2,6-Dinitrotoluene	R	R	R	R	R	4500 U	19000 UJ
3-Nitroaniline	R	R	R	R	R	11000 U	47000 UJ
Acenaphthene	R	1400 J	R	41 J	170 J	47 J	19000 UJ
2,4-Dinitrophenol	R	R	970 UJ	R	R	11000 U	47000 UJ
4-Nitrophenol	R	R	970 UJ	R	R	11000 U	47000 UJ
Dibenzofuran	R	R	R	R	220 J	4500 U	19000 UJ
2,4-Dinitrotoluene	R	R	R	R	R	4500 U	19000 UJ
Diethyl phthalate	R	R	R	R	R	510 J	19000 UJ
4-Chlorodiphenylether	R	R	R	R	R	4500 U	19000 UJ
Fluorene	R	990 J	R	R	R	4500 U	19000 UJ
4-Nitroaniline	R	R	R	R	R	11000 U	47000 UJ
4,6-Dinitro-2-methylphenol	R	R	970 UJ	R	R	11000 U	47000 UJ
N-nitrosodiphenylamine	R	R	250 J	R	R	4500 U	19000 UJ
4-Bromophenyl phenyl ether	R	R	R	R	R	4500 UJ	19000 UJ
Hexachlorobenzene	R	R	R	R	R	4500 UJ	19000 UJ
Pentachlorophenol	R	R	970 UJ	R	R	11000 UJ	47000 UJ
Phenanthrene	R	R	300 J	R	3000 J	740 J	19000 UJ
Anthracene	R	R	R	R	R	4500 UJ	19000 UJ
Carbazole	R	R	R	R	110 J	4500 UJ	19000 UJ
Di-n-butyl phthalate	R	R	1200 J	R	R	3100 J	19000 UJ
Fluoranthene	R	R	R	R	1200 J	550 J	19000 UJ
Pyrene	R	R	R	R	R	4500 UJ	19000 UJ
Butyl benzyl phthalate	R	25000 J	13000 J	30000 J	R	33000 J	19000 UJ
3,3'-Dichlorobenzidine	R	R	R	R	R	4500 UJ	19000 UJ
Benzo(a)anthracene	R	R	R	R	R	4500 UJ	19000 UJ
Chrysene	R	R	R	R	2600 J	4500 UJ	19000 UJ
Bis(2-ethylhexyl) phthalate	R	140000 J	11000 J	66000 J	R	350000 J	6600 J
Di-n-octyl phthalate	R	R	R	R	R	89000 J	19000 U
Benzo(b)fluoranthene	R	R	R	R	R	R	320 J
Benzo(k)fluoranthene	R	R	R	R	1200 J	R	120 J
Benzo(a)pyrene	R	R	R	R	R	R	19000 U
Indeno(1,2,3-cd)pyrene	R	R	R	R	R	R	19000 U
Dibenzo(a,h)anthracene	R	R	R	R	R	R	19000 U
Benzo(ghi)perylene	R	R	R	R	R	R	180 J

Data qualifiers are defined in Table 4.2.

TABLE 4.12

SHALLOW FILL/SOIL ZONE
VOLATILE ORGANIC COMPOUND ANALYSIS

VOLATILES	TP-3 (µg/kg)	TP-6 (µg/kg)	LIPR13F (µg/kg)	LIPR20F02 (µg/kg)	LIPR23F02 (µg/kg)	LIPS30F (µg/kg)	LIPS32F (µg/kg)	LIPS34F (µg/kg)
Chloromethane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Bromomethane	12 U	11 U	11 U	12 UJ	11 U	15 UJ	12 UJ	12 UJ
Vinyl chloride	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Chloroethane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Methylene chloride	1 J	1 J	11 U	12 U	11 U	15 U	12 U	4 J
Acetone	170	90	130	73	11 U	15 U	12 U	12 U
Carbon Disulfide	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
1,1-Dichloroethene	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
1,1-Dichloroethane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
1,2-Dichloroethene (Total)	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Chloroform	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
1,2-Dichloroethane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
2-Butanone	42	14	27	12	11 U	15 U	12 U	12 U
1,1,1-Trichloroethane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Carbon Tetrachloride	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Bromodichloromethane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
1,2-Dichloropropane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
cis-1,3-Dichloropropene	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Trichloroethene	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Dibromochloromethane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
1,1,2-Trichloroethane	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Benzene	12 U	2 J	11 U	12 U	11 U	15 U	12 U	12 U
trans-1,3-Dichloropropene	12 U	11 U	11 U	12 U	11 U	15 U	12 U	12 U
Bromoform	12 U	11 U	11 U	12 UJ	11 U	15 UJ	12 UJ	12 UJ
4-Methyl-2-pentanone	12 U	11 UJ	11 U	12 U	11 U	15 UJ	12 U	12 UJ
2-Hexanone	12 U	11 UJ	11 U	12 U	11 U	15 UJ	12 U	12 UJ
Tetrachloroethene	12 U	11 UJ	11 U	12 U	11 U	15 UJ	12 U	12 UJ
1,1,2,2-Tetrachloroethane	12 U	11 UJ	11 U	12 UJ	11 U	15 UJ	12 U	12 UJ
Toluene	12 UJ	11 UJ	11 U	12 UJ	11 U	15 UJ	12 U	12 UJ
Chlorobenzene	12 UJ	11 UJ	11 U	12 UJ	11 U	15 UJ	12 U	12 UJ
Ethyl benzene	12 UJ	11 UJ	11 U	12 UJ	11 U	15 UJ	12 U	12 UJ
Styrene	12 UJ	11 UJ	11 U	12 UJ	11 U	15 UJ	12 U	12 UJ
Total Xylenes	6 J	11 UJ	11 U	12 UJ	11 U	15 UJ	12 U	12 UJ

Data qualifiers are defined in Table 4.2.

TABLE 4.12 (CON'T)

SHALLOW FILL/SOIL ZONE
VOLATILE ORGANIC COMPOUND ANALYSIS

VOLATILES	LIPS35F02 (µg/kg)	LIPS37F (µg/kg)	LIPS38F (µg/kg)	LIPS40F (µg/kg)	LIPS42FS (µg/kg)	LIPS43FS (µg/kg)	LIPS48F02 (µg/kg)
Chloromethane	12 U	14 U	12 U	15 U	17 U	15 U	11 U
Bromomethane	12 UJ	14 UJ	12 UJ	15 UJ	17 UJ	15 UJ	11 UJ
Vinyl chloride	12 U	14 U	12 U	15 U	17 U	15 U	11 U
Chloroethane	12 U	14 U	12 U	15 U	17 U	15 U	11 U
Methylene chloride	12 U	14 U	6 J	15 U	17 U	15 U	11 U
Acetone	23	88	67	180	17 U	15 U	57
Carbon Disulfide	12 U	14 U	12 U	15 U	17 U	15 U	11 U
1,1-Dichloroethene	12 U	14 U	12 U	15 U	17 U	15 U	11 U
1,1-Dichloroethane	12 U	14 U	12 U	15 U	17 U	15 U	11 U
1,2-Dichloroethene (Total)	12 U	14 U	12 U	15 U	17 U	15 U	11 U
Chloroform	12 U	14 U	12 U	15 U	17 U	15 U	11 U
1,2-Dichloroethane	12 U	14 U	12 U	15 U	17 U	15 U	11 U
2-Butanone	12 U	14 U	12 U	53	17 U	15 U	11 J
1,1,1-Trichloroethane	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
Carbon Tetrachloride	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
Bromodichloromethane	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
1,2-Dichloropropane	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
cis-1,3-Dichloropropene	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
Trichloroethene	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
Dibromochloromethane	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
1,1,2-Trichloroethane	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
Benzene	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
trans-1,3-Dichloropropene	12 U	14 UJ	12 UJ	15 U	17 U	15 U	11 U
Bromoform	12 UJ	14 UJ	12 UJ	15 UJ	17 UJ	15 UJ	11 UJ
4-Methyl-2-pentanone	12 U	14 UJ	44 J	15 UJ	17 U	15 U	11 U
2-Hexanone	12 U	14 UJ	52 J	15 UJ	17 U	15 U	11 U
Tetrachloroethene	12 U	14 UJ	12 UJ	15 UJ	17 U	15 U	11 U
1,1,2,2-Tetrachloroethane	12 U	14 UJ	12 UJ	15 UJ	17 U	15 U	11 U
Toluene	12 U	14 UJ	12 UJ	15 UJ	17 U	15 U	11 U
Chlorobenzene	12 U	14 UJ	12 UJ	15 UJ	17 U	15 U	11 U
Ethyl benzene	12 U	14 UJ	12 UJ	15 UJ	17 U	15 U	11 U
Styrene	12 U	14 UJ	12 UJ	15 UJ	17 U	15 U	11 U
Total Xylenes	12 U	14 UJ	12 UJ	15 UJ	17 U	15 U	11 U

Data qualifiers are defined in Table 4.2.

TABLE 4.13
SHALLOW FILL/SOIL ZONE SEMI-VOLATILE DETECTIONS

Parameter	Concentration Range (ug/kg)	Number of Detection
Phenol	3,300,000J	1
2-Methylphenol	370,000J	1
4-Methylphenol	530,000J	1
2,4 Dimethylphenol	2,200,000J	1
1,2,4-Trichlorobenzene	20J	1
Napthalene	10J - 290J	5
2-Methylnaphthalene	69J - 430J	4
4-Chloro-3-methylphenol	47J	1
Dimethylphthalate	180J	1
Acenaphthylene	27J - 490J	6
Acenaphthene	26J - 320J	4
Dibenzofuran	19J - 89J	5
Fluorene	14J - 50J	4
Phenanthene	180J - 4,600	10
Anthracene	26J - 1,000J	9
Carbazole	17J - 120J	6
Di-n-butylthalate	800J - 3,500J	3
Fluoranthene	180J - 16,000J	9
Pyrene	390J - 16,000J	9
Butylbenzylphthalate	230J - 120,000J	5
Benzo (a) anthracene	160J - 11,000J	7
Chrysene	190J - 2,200J	8
Bis (2-ethylhexyl) phthalate	250J - 78,000J	6
Benzo (b) fluoranthene	470J - 15,000J	7
Benzo (k) fluoranthene	230J - 5,700J	6

TABLE 4.13 CONT'D.

Parameter	Concentration Range (ug/kg)	Number of Detection
Benzo (a) pyrene	270J - 5,500J	4
Indeno (1,2,3-cd) pyrene	120J, 2,900J	2
Dibenzo (a,h) anthracene	600J	1
Benzo (ghi) perylene	93J, 1,600J	2

J = estimated concentration

TABLE 4.14

SHALLOW FILL/SOIL ZONE
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS

SEMIVOLATILES	TP-3 (µg/kg)	TP-8 (µg/kg)	LIPR13F (µg/kg)	LIPR20F02 (µg/kg)	LIPR23F02 (µg/kg)	LIPS30F (ug/kg)	LIPS32F (ug/kg)	LIPS34F (ug/kg)
Phenol	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
Bis(2-chloroethyl) ether	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
2-Chlorophenol	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
1,3-Dichlorobenzene	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
1,4-Dichlorobenzene	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
1,2-Dichlorobenzene	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
2-Methylphenol	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
Bis(2-chloroisopropyl) ether	R	4000 UJ	380 UJ	360 UJ	380 U	R	470 U	410 UJ
4-Methylphenol	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
N-Nitroso-Di-n-propylamine	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
Hexachloroethane	R	4000 U	380 U	360 U	380 U	R	470 U	410 UJ
Nitrobenzene	R	4000 U	380 U	360 U	380 U	R	470 U	410 U
Isophorone	R	4000 U	380 U	360 U	380 U	R	470 U	410 U
2-Nitrophenol	R	4000 U	380 U	360 U	380 U	R	470 U	410 U
2,4-Dimethylphenol	R	4000 U	380 U	360 U	380 U	R	470 U	410 U
Bis(2-chloroethoxy) methane	R	4000 U	380 U	360 U	380 U	R	470 U	410 U
2,4-Dichlorophenol	R	4000 U	380 U	360 U	380 U	R	470 U	410 U
1,2,4-Trichlorobenzene	R	4000 U	380 U	360 U	380 U	R	470 U	410 U
Naphthalene	R	4000 U	45 J	10 J	62 J	290 J	470 U	190 U
4-Chloroaniline	R	4000 U	380 U	360 U	380 U	R	470 U	410 U
Hexachlorobutadiene	R	4000 U	380 U	360 U	380 U	R	470 U	400 U
4-Chloro-3-methylphenol	R	4000 U	380 U	47 J	380 U	R	470 U	410 U
2-Methylnaphthalene	R	4000 U	69 J	360 U	77 J	430 J	470 U	230 J
Hexachlorocyclopentadiene	R	4000 UJ	380 UJ	360 UJ	380 UJ	430 UJ	470 U	410 UJ
2,4,6-Trichlorophenol	R	4000 U	380 UJ	360 UJ	380 U	430 UJ	470 U	410 U
2,4,5-Trichlorophenol	R	9700 U	920 U	880 UJ	920 U	1000 UJ	1100 U	990 U
2-Chloronaphthalene	R	4000 U	380 U	360 UJ	380 U	430 UJ	470 U	410 U
2-Nitroaniline	R	9700 U	920 U	880 UJ	920 U	1000 UJ	1100 U	990 U
Dimethyl phthalate	R	4000 U	380 U	360 UJ	380 U	430 UJ	470 U	410 U
Acenaphthylene	R	490 J	27 J	360 UJ	30 J	67 J	470 U	430
2,6-Dinitrotoluene	R	4000 U	380 U	360 UJ	380 U	430 UJ	470 U	410 U
3-Nitroaniline	R	9700 U	920 U	880 UJ	920 U	1000 UJ	1100 U	990 U
Acenaphthene	R	320 J	380 U	360 UJ	380 U	35 J	470 U	26 J
2,4-Dinitrophenol	R	9700 U	920 U	880 UJ	920 U	1000 UJ	1100 U	990 U
4-Nitrophenol	R	9700 U	920 U	880 UJ	920 U	1000 UJ	1100 U	990 U
Dibenzofuran	R	4000 U	19 J	360 UJ	31 J	89 J	470 U	55 J
2,4-Dinitrotoluene	R	4000 U	380 UJ	360 UJ	380 U	430 UJ	470 U	410 U
Diethyl phthalate	R	4000 U	380 U	360 UJ	380 U	430 UJ	470 U	410 U
4-Chlorodiphenylether	R	4000 U	380 U	360 UJ	380 U	430 UJ	470 U	410 U
Fluorene	R	4000 U	14 J	360 UJ	26 J	430 UJ	470 U	50 J
4-Nitroaniline	R	9700 U	920 UJ	880 UJ	920 U	1000 UJ	1100 U	990 U
4,6-Dinitro-2-methylphenol	R	9700 U	920 U	880 UJ	920 U	1000 UJ	1100 U	990 U
N-nitrosodiphenylamine	R	4000 U	18 UJ	360 UJ	380 U	430 UJ	470 U	410 U
4-Bromophenyl phenyl ether	R	4000 UJ	380 U	360 UJ	380 U	430 UJ	470 U	410 U
Hexachlorobenzene	R	4000 U	380 U	360 UJ	380 U	430 UJ	470 U	410 U
Pentachlorophenol	R	9700 U	920 U	880 UJ	920 U	1000 UJ	1100 U	990 UJ
Phenanthrene	680J	4600	180 J	360 UJ	320 J	470 J	250 J	620 J
Anthracene	R	1000 J	33 J	360 UJ	75 J	780 J	26 J	620 J
Carbazole	R	770 J	17 J	360 UJ	30 J	430 UJ	20 J	120 J
Di-n-butyl phthalate	R	4000 UJ	380 UJ	360 UJ	380 UJ	430 UJ	470 UJ	410 UJ
Fluoranthene	570J	16000 J	220 J	360 UJ	450 J	430 UJ	180 J	1700 J
Pyrene	580J	16000 J	470 J	360 UJ	580 J	430 UJ	390 J	8900 J
Butyl benzyl phthalate	R	4000 UJ	270 J	360 UJ	230 J	430 UJ	470 UJ	410 UJ
3,3'-Dichlorobenzidine	R	4000 UJ	380 UJ	360 UJ	380 UJ	430 UJ	470 UJ	410 UJ
Benzo(a)anthracene	330J	11000 J	160 J	360 UJ	300 J	430 UJ	470 UJ	1700 J
Chrysene	190J	9700 J	250 J	360 UJ	350 J	1500 J	470 UJ	2200 J
Bis(2-ethylhexyl) phthalate	R	4000 UJ	500 J	360 UJ	250 J	430 UJ	470 UJ	410 J
Di-n-octyl phthalate	R	4000 UJ	380 UJ	360 UJ	380 UJ	R	R	R
Benzo(b)fluoranthene	470J	15000 J	550 J	360 UJ	500 J	R	R	4900 J
Benzo(k)fluoranthene	R	5700 J	230 J	360 UJ	230 J	R	R	1600 J
Benzo(a)pyrene	R	5500 J	380 UJ	360 UJ	270 J	R	R	2200 J
Indeno(1,2,3-cd)pyrene	R	2900 J	380 UJ	360 UJ	120 J	R	R	R
Dibenzo(a,h)anthracene	R	600 J	380 UJ	360 UJ	380 UJ	R	R	R
Benzo(ghi)perylene	R	1600 J	380 UJ	360 UJ	93 J	R	R	R

Data qualifiers are defined in Table 4.2.

TABLE 4.14 (CON'T)

SHALLOW FILL/SOIL ZONE
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS

SEMIVOLATILES	LIP35F02 (ug/kg)	LIPS37F (ug/kg)	LIPS38F (ug/kg)	LIPS40F (ug/kg)	LIPS42FS (ug/kg)	LIPS43FS (ug/kg)	LIPS48F02 (ug/kg)
Phenol	R	3300000 J	9400 UJ	R	1200 U	R	370 UJ
Bis(2-chloroethyl) ether	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2-Chlorophenol	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
1,3-Dichlorobenzene	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
1,4-Dichlorobenzene	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
1,2-Dichlorobenzene	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2-Methylphenol	R	370000 J	9400 UJ	R	470 U	R	370 UJ
Bis(2-chloroisopropyl) ether	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
4-Methylphenol	R	530000 J	9400 UJ	R	470 U	R	370 UJ
N-Nitroso-Di-n-propylamine	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
Hexachloroethane	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
Nitrobenzene	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
Isophorone	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2-Nitrophenol	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2,4-Dimethylphenol	R	2200000 J	9400 UJ	R	470 U	R	370 UJ
Bis(2-chloroethoxy) methane	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2,4-Dichlorophenol	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
1,2,4-Trichlorobenzene	R	12000 UJ	9400 UJ	R	20 J	R	370 UJ
Naphthalene	R	12000 UJ	9400 UJ	R	99 J	R	370 UJ
4-Chloroaniline	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
Hexachlorobutadiene	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
4-Chloro-3-methylphenol	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2-Methylnaphthalene	R	12000 UJ	9400 UJ	R	150 J	R	370 UJ
Hexachlorocyclopentadiene	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2,4,6-Trichlorophenol	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2,4,5-Trichlorophenol	R	29000 UJ	23000 UJ	R	1100 U	R	890 UJ
2-Chloronaphthalene	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
2-Nitroaniline	R	29000 UJ	23000 UJ	R	1100 UJ	R	890 UJ
Dimethyl phthalate	R	12000 UJ	9400 UJ	R	180 J	R	370 UJ
Acenaphthylene	R	12000 UJ	9400 UJ	R	89 J	R	370 UJ
2,6-Dinitrotoluene	R	12000 UJ	9400 UJ	R	470 U	R	370 UJ
3-Nitroaniline	R	29000 UJ	23000 UJ	R	1100 U	R	890 UJ
Acenaphthene	R	12000 UJ	9400 UJ	R	35 J	R	370 UJ
2,4-Dinitrophenol	R	29000 UJ	23000 UJ	R	1100 UJ	R	890 UJ
4-Nitrophenol	R	29000 UJ	23000 UJ	R	1100 U	R	890 UJ
Dibenzofuran	R	12000 UJ	9400 UJ	R	39 J	R	370 UJ
2,4-Dinitrotoluene	R	12000 UJ	9400 UJ	R	470 UJ	R	370 UJ
Diethyl phthalate	R	12000 UJ	9400 UJ	R	67 J	R	370 UJ
4-Chlorodiphenylether	R	12000 UJ	9400 UJ	R	470 UJ	R	370 UJ
Fluorene	R	12000 UJ	9400 UJ	R	43 J	R	370 UJ
4-Nitroaniline	R	29000 UJ	23000 UJ	R	1100 UJ	R	890 UJ
4,6-Dinitro-2-methylphenol	R	29000 UJ	23000 UJ	R	1100 UJ	R	890 UJ
N-nitrosodiphenylamine	R	12000 UJ	9400 UJ	R	46 J	R	370 UJ
4-Bromophenyl phenyl ether	R	12000 UJ	9400 UJ	R	470 UJ	R	370 UJ
Hexachlorobenzene	R	12000 UJ	9400 UJ	R	470 UJ	R	370 UJ
Pentachlorophenol	R	29000 UJ	23000 UJ	R	1100 UJ	R	890 UJ
Phenanthrene	420 J	12000 UJ	9400 UJ	R	280 J	R	300 J
Anthracene	130 J	12000 UJ	9400 UJ	R	500 J	R	81 J
Carbazole	74 J	12000 UJ	9400 UJ	R	470 UJ	R	43 J
Di-n-butyl phthalate	R	12000 UJ	9400 UJ	R	3500 J	1300 J	800 J
Fluoranthene	990 J	12000 UJ	9400 UJ	R	850 J	R	590 J
Pyrene	650 J	12000 UJ	9400 UJ	R	1600 J	R	880 J
Butyl benzyl phthalate	360 UJ	12000 UJ	9400 UJ	28000 J	120000 J	33000 J	23000 J
3,3'-Dichlorobenzidine	360 UJ	12000 UJ	9400 UJ	R	470 UJ	R	370 UJ
Benzo(a)anthracene	310 J	12000 UJ	9400 UJ	R	470 UJ	R	310 J
Chrysene	340 J	12000 UJ	9400 UJ	R	470 UJ	R	330 J
Bis(2-ethylhexyl) phthalate	360 UJ	12000 UJ	9400 UJ	R	9600 J	78000 J	15000 J
Di-n-octyl phthalate	R	R	9400 UJ	R	470 UJ	R	370 UJ
Benzo(b)fluoranthene	R	R	9400 UJ	R	600 J	R	1100 J
Benzo(k)fluoranthene	R	R	9400 UJ	R	480 J	R	510 J
Benzo(a)pyrene	R	R	9400 UJ	R	630 J	R	370 UJ
Indeno(1,2,3-cd)pyrene	R	R	9400 UJ	R	470 UJ	R	370 UJ
Dibenzo(a,h)anthracene	R	R	9400 UJ	R	470 UJ	R	370 UJ
Benzo(ghi)perylene	R	R	9400 UJ	R	470 UJ	R	370 UJ

Data qualifiers are defined in Table 4.2.

TABLE 4.15

LEHIGH INDUSTRIAL PARK
PCB RESULTS/ ENSYS COMPARISON

PCB (ug/kg) (Qualifier)	SAMPLE LOCATION											
	R-11	R-12RE	R-13	R-14RE	R-16RE	R-20	R-22RE	R23RE	R-25RE	R-28	R-29	RD2
AROCLOR 1016												
AROCLOR 1221												
AROCLOR 1232												
AROCLOR 1242									380 J			
AROCLOR 1248		1900 J		120 J			190 J	250 J			20000 NJ	
AROCLOR 1254	210 JN	2800 J	1100 JN	130 J		1200 JN				140000 NJ		62 NJ
AROCLOR 1260			1400 JN		ND		280 J	1700 J	800 J			
Total PCB's												
ppb	210	4700	2500	250	0	1200	470	1950	1180	140000	20000	62
ppm	0.21	4.7	2.5	0.25	0	1.2	0.47	1.95	1.18	140	20	0.062
Ensys results	>5	>5	<5	<5	<5	+	>5	<5	>5	>5	>5	<5
results match			*	*	*			*		*	*	*

PCB (ug/kg)	SAMPLE LOCATION											
	RD3	RD5	RD8	S-50RE	S-52	S-53RE	R-26	S-31	S-32	S-33	S-39	S-41
AROCLOR 1016												
AROCLOR 1221												
AROCLOR 1232					380 NJ							
AROCLOR 1242					720 J	3E+07 J						
AROCLOR 1248			290 NJ									
AROCLOR 1254	25 NJ	470 NJ		11000 J	1400 J		510 NJ				290 NJ	
AROCLOR 1260	46 NJ	600 NJ	670 NJ	23000 J	2700 J	3E+07 J		2600 NJ	ND	200 NJ		17000 NJ
Total PCB's												
ppb	71	1070	960	34000	5200	6E+07	510	2600	0	200	290	17000
ppm	0.07	1.07	0.96	34	5.2	62000	0.51	2.6	0	0.2	0.29	17
Ensys results	<5	>5	>5	>5	<5	>5,>50	>5	>5	<5	<5	>5	>5
Results match	*			*		*			*	*		*

+ - No EnSys results obtained
ND - none detected
Data qualifiers are defined in Table 4.2.

TABLE 4.15 (CON'T)

LEHIGH INDUSTRIAL PARK
PCB RESULTS/ ENSYS COMPARISON

PCB (ug/kg)	SAMPLE LOCATION										
	S-44	MWS-2	S-30	S-34	S-35	S-37	S-38	S-40	S-42	S-43	S-48
AROCLOR 1016											
AROCLOR 1221											
AROCLOR 1232											
AROCLOR 1242			420 NJ								
AROCLOR 1248	7500 NJ				180 NJ				3700 NJ	8800 NJ	7200 NJ
AROCLOR 1254				520 NJ		7900 NJ	960 NJ				
AROCLOR 1260	5200 NJ	640 NJ	2500 NJ		940 NJ			2400 NJ	6600 NJ	6600 NJ	2700 NJ
Total PCB's											
ppb	12700	640	2920	520	1120	7900	960	2400	10300	15400	9900
ppm	12.7	0.64	2.92	0.52	1.12	7.9	0.96	2.4	10.3	15.4	9.9
Ensys results	>5	<5	>5	>5	<5	>5	<5	<5	>5	>5	>5
results match	*	*			*	*	*	*	*	*	*

TABLE 4.16

SHALLOW FILL/SOIL ZONE
METALS AND PESTICIDE/PCB COMPOUND ANALYSIS

METALS	TP-2 (mg/kg)	TP-3 (mg/kg)	TP-4 (mg/kg)	TP-6 (mg/kg)	LIPR1104 (mg/kg)	LIPR1202 (mg/kg)	LIPR13F (mg/kg)	LIPR1402 (mg/kg)	LIPR1602 (mg/kg)
Aluminum		7890		3270			8090 J		
Antimony		1.2 J		1.1 U			30.6 J		
Arsenic	5	20.3 J	17.7 J	29.2 J	10.1 J	8.5 J	23 J	6.1 J	25.5 J
Barium		545 J		537 J			200 J		
Beryllium		1.2 U		1.1 U			1.2 U		
Cadmium	1.2	3.8 U	1.2 U	3.7 U	R	1.8 J	1.9 J	2.5 J	R
Calcium		5120 J		36900 J			185000		
Chromium	9.4	131	40.4	32.3	48.3 J	122 J	983 J	782 J	221 J
Cobalt		7.8 J		4.4 J			9.4 J		
Copper		380 J		64.9 J			373 J		
Iron		68300 J		20600 J			105000 J		
Lead	77.2	1020 J	238 J	4400 J	271 N	219 J	406	233	203
Magnesium		1580		7810			10900		
Manganese		603 J		581 J			18100 J		
Mercury	0.14	0.51 J	0.31 J	0.18 J	0.67	0.11 U	0.99	0.19	0.1 U
Nickel		68.2 J		25.8 J			243 J		
Potassium		430 J		436 J			922 J		
Selenium		1.2 J		1.1 UJ			R		
Silver		2.3 UJ		2.2 UJ			3.1 J		
Sodium		300 U		379 U			416 J		
Thallium		1.2 UJ		1.1 U			1.2 U		
Vanadium		21 J		15 J			264		
Zinc		3080 J		1560 J			428 J		
Cyanide		1.5 U		1.4 U			1.5 U		

PESTICIDE/PCB	TP-2 (µg/kg)	TP-3 (µg/kg)	TP-4 (µg/kg)	TP-6 (µg/kg)	LIPR1104 (µg/kg)	LIPR1202RE (µg/kg)	LIPR13F (µg/kg)	LIPR1402RE (µg/kg)	LIPR1602RE (µg/kg)
alpha-BHC	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
beta-BHC	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
delta-BHC	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
gamma-BHC (Lindane)	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
Heptachlor	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
Aldrin	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
Heptachlor Epoxide	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
Endosulfan I	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
Dieldrin	4.0	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
4,4'-DDE	4.0	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
Endrin	4.0	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
Endosulfan II	.84	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
4,4'-DDD	4.0	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
Endosulfan Sulfate	4.0	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
4,4'-DDT	4.0	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
Methoxychlor	21	R	R	200 UJ	96 UJ	200 UJ	200 UJ	19 UJ	190 UJ
Endrin Ketone	4.0	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
Endrin aldehyde	4.0	R	R	40 UJ	19 UJ	39 UJ	38 UJ	3.7 UJ	37 UJ
alpha-Chlordane	.40	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
gamma-Chlordane	2.1	R	R	20 UJ	9.6 UJ	20 UJ	20 UJ	1.9 UJ	19 UJ
Toxaphene	210	R	R	2000 UJ	960 UJ	2000 UJ	2000 UJ	190 UJ	1900 UJ
Aroclor-1016	40	R	R	400 UJ	190 UJ	390 UJ	380 UJ	37 UJ	370 UJ
Aroclor-1221	81	R	R	810 UJ	380 UJ	780 UJ	780 UJ	75 UJ	750 UJ
Aroclor-1232	40	R	R	400 UJ	190 UJ	390 UJ	380 UJ	37 UJ	370 UJ
Aroclor-1242	40	R	R	400 UJ	190 UJ	390 UJ	380 UJ	37 UJ	370 UJ
Aroclor-1248	40	R	R	400 UJ	190 UJ	1900 J	380 UJ	120 J	370 UJ
Aroclor-1254	40	860JN	220 JN	960 JN	210 JN	2800 J	1100 JN	130 J	370 UJ
Aroclor-1260	40	920JN	230 JN	300 JN	190 UJ	390 UJ	1400 JN	37 UJ	370 UJ

Data qualifiers are defined in Table 4.2

TABLE 4.16 (CON'T)

SHALLOW FILL/SOIL ZONE
METALS AND PESTICIDE/PCB COMPOUND ANALSYS

METALS	LIPR20F02 (mg/kg)	LIPR2202 (mg/kg)	LIPR23F02 (mg/kg)	LIPR2502 (mg/kg)	R2602 (mg/kg)	LIPR2802 (mg/kg)	LIPR2902 (mg/kg)	LIPMWS202 (mg/kg)	LIPS30F (mg/kg)
Aluminum	6150 J		7680 J					4180	10600
Antimony	14.6 J		9.2 UJ					12.4 UJ	24.2 J
Arsenic	24.6 J	12.9 J	11.5 J	4.4 J	4.9	5.5 J	8.2 J	4.1 J	17 J
Barium	48.7 J		216 J					104	290
Beryllium	1.2 U		1.1 U					1.2 U	1.6 U
Cadmium	R	4.6 J	0.24 J	5.7 J	6.7 J	6.2 J	1.8 J	22.6 J	47.2 J
Calcium	2680 J		71500 J					61200	76200
Chromium	359 J	178 J	155 J	111 J	249 J	651 J	83.9 J	655 J	218 J
Cobalt	22.2		5.6 J					4.9 U	12.7 J
Copper	2160 J		109 J					61.8 J	1360 J
Iron	139000 J		68100 J					51800 J	84500 J
Lead	294	167	298	711	192 J	244	331	125	915
Magnesium	1700		9470					13400	9410
Manganese	1290 J		4990 J					12700 J	4830 J
Mercury	0.1 U	0.11 U	0.49	0.27	0.34 J	0.22	0.22	0.1 U	1.3
Nickel	2380 J		83.3 J					147 J	158 J
Potassium	709 J		938 J					273 J	783 J
Selenium	R		R					1.3 UJ	1.5 UJ
Silver	2.6 UJ		2.3 UJ					3.2 N	3.1 UJ
Sodium	217 J		358 J					574 J	540 J
Thallium	1.2 J		1.1 U					1.3 UJ	1.6 U
Vanadium	26.6		98.7					227	94.9
Zinc	575 J		856 J					206	1760
Cyanide	1.5 UJ		1.4 U					1.5 U	1.9 U

PESTICIDE/PCB	LIPR20F02 (µg/kg)	LIPR2202RE (µg/kg)	LIPR23F02RE (µg/kg)	LIPR2502RE (µg/kg)	LIPR2602 (µg/kg)	LIPR2802 (µg/kg)	LIPR2902 (µg/kg)	LIPMWS202 (µg/kg)	LIPS30F (µg/kg)
alpha-BHC	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
beta-BHC	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
delta-BHC	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
gamma-BHC (Lindane)	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
Heptachlor	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
Aldrin	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
Heptachlor Epoxide	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
Endosulfan I	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
Dieldrin	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
4,4'-DDE	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
Endrin	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
Endosulfan II	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
4,4'-DDD	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
Endosulfan Sulfate	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
4,4'-DDT	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
Methoxychlor	190 UJ	76 UJ	180 UJ	190 UJ	180 UJ	4000 UJ	210 UJ	230 UJ	220 UJ
Endrin Ketone	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
Endrin aldehyde	37 UJ	15 UJ	36 UJ	37 UJ	34 UJ	780 UJ	40 UJ	44 UJ	43 UJ
alpha-Chlordane	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
gamma-Chlordane	19 UJ	7.6 UJ	18 UJ	19 UJ	18 UJ	400 UJ	21 UJ	23 UJ	22 UJ
Toxaphene	1900 UJ	760 UJ	1800 UJ	1900 UJ	1800 UJ	40000 UJ	2100 UJ	2300 UJ	2200 UJ
Aroclor-1016	370 UJ	150 UJ	350 UJ	370 UJ	340 UJ	7800 UJ	400 UJ	440 UJ	430 UJ
Aroclor-1221	750 UJ	300 UJ	730 UJ	760 UJ	690 UJ	16000 UJ	820 UJ	890 UJ	870 UJ
Aroclor-1232	370 UJ	150 UJ	360 UJ	370 UJ	340 UJ	7800 UJ	400 UJ	440 UJ	430 UJ
Aroclor-1242	370 UJ	150 UJ	360 UJ	380 J	340 UJ	7800 UJ	400 UJ	440 UJ	420 JN
Aroclor-1248	370 UJ	190 J	250 J	370 UJ	340 UJ	7800 UJ	20000 JN	440 UJ	430 UJ
Aroclor-1254	1200 JN	150 UJ	360 UJ	370 UJ	510 NJ	140000 JN	400 UJ	440 UJ	430 UJ
Aroclor-1260	370 UJ	280 J	1700 J	800 J	340 UJ	7800 UJ	400 UJ	640 NJ	2500 NJ

Data qualifiers are defined in Table 4.2.

TABLE 4.16 (CON'T)

SHALLOW FILL/SOIL ZONE
METALS AND PESTICIDE/PCB COMPOUND ANALYSIS

METALS	LIPS31 (mg/kg)	LIPS32F (mg/kg)	LIPS33 (mg/kg)	LIPS34F (mg/kg)	LIPS35F02 (mg/kg)	LIPS37F (mg/kg)	LIPS38F (mg/kg)	LIPS39 (mg/kg)	LIPS40F (mg/kg)
Aluminum		6780		10200	8810	3530	3130		2290
Antimony		2.5 UJ		2.4 UJ	11.6 J	2.8 UJ	2.3 UJ		3.2 UJ
Arsenic	**24.6 J**	**5.5 J**	**8**	**3.1 J**	**13.5 J**	**10.4 J**	**12.1 J**	**12.1**	**15.1 J**
Barium		**54.3**		**208**	**131**	**264**	**61.3**		**247**
Beryllium		1.2 U		1.7	1.2	1.4 U	1.2 U		1.6 U
Cadmium	14.6 J	0.74 J	1.8 J	2.4 J	38.3 J	19.8 J	32.2 J	13.4 J	19.5 J
Calcium		5410 J		75700 J	49100	14600	4980 J		4710 J
Chromium	342 J	17.8 J	427 J	70.8 J	55 J	398 J	522 J	887 J	58.3 J
Cobalt		5.1 J		9.8 J	9 J	25.7	37.5		11.3 J
Copper		45.7 J		551 J	321 J	1110 J	14400 J		185 J
Iron		15900 J		85800 J	77700 J	315000 J	501000 J		53100 J
Lead	2830 J	78.4 S	209 J	816	264	1010	632	310 J	844
Magnesium		2110		11200	7270	3780	885 J		1550 J
Manganese		358 J		2090 J	1050 J	4820 J	4010 J		388 J
Mercury	0.99 J	0.18	0.12 J	0.4	0.17	0.63	0.1 U	0.47 J	0.3
Nickel		20.1 J		106 J	70.2 J	351 J	703 J		52.5 J
Potassium		448 J		871 J	815 J	288 J	381 J		380 J
Selenium		1.2 UJ		1.2 UJ	1.2 UJ	1.4 UJ	1.1 UJ		1.6 UJ
Silver		0.15 J		0.69 J	2.3 UJ	2.5 J	1.3 J		0.71 J
Sodium		200 J		736 J	419 J	368 J	198 J		408 J
Thallium		1.2 U		1.2 U	1.2 U	1.4 U	1.1 U		1.6 U
Vanadium		13.2		17.2	14.4	45.4	4.7 U		34.9
Zinc		109		849	509	3570	813		1670
Cyanide		1.5 U		1.6 U	1.4 U	1.8 U	1.5 U		1.9 U

PESTICIDE/PCB	LIPS31 (µg/kg)	LIPS32F (µg/kg)	LIPS33 (µg/kg)	LIPS34F (µg/kg)	LIPS35F02 (µg/kg)	LIPS37F (µg/kg)	LIPS38F (µg/kg)	LIPS39 (µg/kg)	LIPS40F (µg/kg)
alpha-BHC	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
beta-BHC	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
delta-BHC	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
gamma-BHC (Lindane)	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
Heptachlor	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
Aldrin	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
Heptachlor Epoxide	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
Endosulfan I	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
Dieldrin	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
4,4'-DDE	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
Endrin	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
Endosulfan II	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
4,4'-DDD	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
Endosulfan Sulfate	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
4,4'-DDT	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
Methoxychlor	220 UJ	24 UJ	190 UJ	210 UJ	180 UJ	470 UJ	190 UJ	190 UJ	110 UJ
Endrin Ketone	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
Endrin aldehyde	43 UJ	4.6 UJ	37 UJ	41 UJ	36 UJ	91 UJ	37 UJ	38 UJ	22 UJ
alpha-Chlordane	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
gamma-Chlordane	22 UJ	2.4 UJ	19 UJ	21 UJ	18 UJ	47 UJ	19 UJ	19 UJ	11 UJ
Toxaphene	2200 UJ	240 UJ	1900 UJ	2100 UJ	1800 UJ	4700 UJ	1900 UJ	1900 UJ	1100 UJ
Aroclor-1016	430 UJ	46 UJ	370 UJ	410 UJ	360 UJ	910 UJ	370 UJ	380 UJ	220 UJ
Aroclor-1221	860 UJ	94 UJ	750 UJ	830 UJ	730 UJ	1900 UJ	740 UJ	740 UJ	450 UJ
Aroclor-1232	430 UJ	46 UJ	370 UJ	410 UJ	360 UJ	910 UJ	370 UJ	380 UJ	220 UJ
Aroclor-1242	430 UJ	46 UJ	370 UJ	410 UJ	360 UJ	910 UJ	370 UJ	380 UJ	220 UJ
Aroclor-1248	430 UJ	46 UJ	370 UJ	410 UJ	180 JN	910 UJ	370 UJ	380 UJ	220 UJ
Aroclor-1254	430 UJ	46 UJ	370 UJ	520 JN	360 UJ	7900 JN	980 JN	290 JN	220 UJ
Aroclor-1260	2600 NJ	46 UJ	200 JN	410 UJ	940 NJ	910 UJ	370 UJ	380 UJ	2400 NJ

Data qualifiers are defined in Table 4.2.

TABLE 4.18 (CON'T)

SHALLOW FILL/SOIL ZONE
METALS AND PESTICIDE/PCB COMPOUND ANALYSIS

METALS	LIPS41 (mg/kg)	LIPS42FS (mg/kg)	LIPS43FS (mg/kg)	LIPS44S (mg/kg)	LIPS48F02 (mg/kg)	LIPS5002 (mg/kg)	LIPS5202 (mg/kg)	LIPS5302 (mg/kg)
Aluminum		5930	5390		19700			
Antimony		27.3 J	23.9 J		14.6 J			
Arsenic	**15 S**	**43.1 J**	**19.2 J**	**13.6**	**9.2 J**	**8.7 J**	**15.4 J**	**9.2 J**
Barium		2450	1430		330			
Beryllium		1.7 U	1.6 U		3			
Cadmium	31.9 J	200 J	206 J	57.9 J	35.5 J	10.8 J	2.7 J	19.1 J
Calcium		28100	31700		119000			
Chromium	70.1 J	273 J	838 J	234 J	81.1 J	220 J	46.5 J	151 J
Cobalt		45.5	42.6		5.8 J			
Copper		1150 J	1160 J		145 J			
Iron		280000 J	335000 J		49700 J			
Lead	887 J	3880	2800	2150 J	741	630	873	1940
Magnesium		6920	6570		32000			
Manganese		2490 J	2810 J		2770 J			
Mercury	0.3 J	4.6	4.6	5 J	0.17	0.31	0.57	0.7
Nickel		411 J	461 J		99.6 J			
Potassium		535 J	604 J		1420			
Selenium		1.7 UJ	1.6 UJ		1.1 UJ			
Silver		3.7 J	3.3 UJ		2.3 UJ			
Sodium		788 J	849 J		1120 J			
Thallium		1.7 U	1.6 U		1.1 UJ			
Vanadium		33.4	47.5		41.5			
Zinc		11000	7170		892			
Cyanide		1.8	1.6		1.4 U			

PESTICIDE/PCB	LIPS41 (µg/kg)	LIPS42FS (µg/kg)	LIPS43FS (µg/kg)	LIPS44S (µg/kg)	LIPS48F02 (µg/kg)	LIPS5002RE (µg/kg)	LIPS5202RE (µg/kg)	LIPS5302RE (µg/kg)
alpha-BHC	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
beta-BHC	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
delta-BHC	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
gamma-BHC (Lindane)	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
Heptachlor	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
Aldrin	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
Heptachlor Epoxide	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
Endosulfan I	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
Dieldrin	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
4,4'-DDE	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
Endrin	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
Endosulfan II	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
4,4'-DDD	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
Endosulfan Sulfate	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
4,4'-DDT	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
Methoxychlor	1100 UJ	240 UJ	230 UJ	240 UJ	190 UJ	920 UJ	200 UJ	200000 UJ
Endrin Ketone	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
Endrin aldehyde	210 UJ	48 UJ	44 UJ	47 UJ	37 UJ	180 UJ	38 UJ	39000 UJ
alpha-Chlordane	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
gamma-Chlordane	110 UJ	24 UJ	23 UJ	24 UJ	19 UJ	92 UJ	20 UJ	20000 UJ
Toxaphene	11000 UJ	2400 UJ	2300 UJ	2400 UJ	1900 UJ	9200 UJ	2000 UJ	2000000 UJ
Aroclor-1016	2100 UJ	480 UJ	440 UJ	470 UJ	370 UJ	1800 UJ	380 UJ	390000 UJ
Aroclor-1221	4300 UJ	940 UJ	890 UJ	960 UJ	750 UJ	3600 UJ	780 UJ	800000 UJ
Aroclor-1232	2100 UJ	480 UJ	440 UJ	470 UJ	370 UJ	1800 UJ	380 JN	390000 UJ
Aroclor-1242	2100 UJ	480 UJ	440 UJ	470 UJ	370 UJ	1800 UJ	720 J	26000000 J
Aroclor-1248	2100 UJ	3700 NJ	8800 NJ	7300 JN	7200 NJ	1800 UJ	380 UJ	390000 UJ
Aroclor-1254	2100 UJ	480 UJ	440 UJ	470 UJ	370 UJ	11000 J	1400 J	390000 UJ
Aroclor-1260	17000 JN	6800 NJ	6600 NJ	5200 NJ	2700 NJ	23000 J	2700 J	34000000 J

Data qualifiers are defined in Table 4.2.

TABLE 4.17

TAL METAL CONCENTRATION RANGES

Parameters	Concentration ug/kg Range	Detections	# of Samples Tested
Aluminum	2020 - 19,700	16	16
Antimony	1.2J - 30.6J	9	16
Arsenic	3.1J - 43.1J	35	35
Barium	48.7J - 2450	16	16
Beryllium	1.2-3	3	16
Cadmium	0.24J - 206J	28	35
Calcium	2680J - 185000	16	35
Chromium	9.4 - 983	35	35
Cobalt	4.4J - 45.5	16	16
Copper	45.7J - 14400J	16	16
Iron	15900J - 315000J	16	16
Lead	77.2J - 4400J	35	35
Magnesium	655J - 32000	16	16
Manganese	358J - 18100J	16	16
Mercury	0.12J - 4.6	30	35
Nickel	20.1J - 2360J	16	16
Potassium	2669J - 1420	16	16
Selenium	1.2J	1	16
Silver	0.15J - 3.7J	8	16
Sodium	196J - 1120J	14	16
Thallium	1.2J	1	16
Vanadium	13.2J - 264	15	16
Zinc	109 - 11000	16	16
Cyanide	1.6, 1.8	2	16

TABLE 4.18

DEEP SOIL ZONE
VOLATILE ORGANIC COMPOUND ANALYSIS

VOLATILES	LIPRD308 (µg/kg)
Chloromethane	12 U
Bromomethane	12 U
Vinyl chloride	12 U
Chloroethane	12 U
Methylene chloride	12 U
Acetone	34
Carbon Disulfide	12 U
1,1–Dichloroethene	12 U
1,1–Dichloroethane	12 U
1,2–Dichloroethene (Total)	12 U
Chloroform	12 U
1,2–Dichloroethane	12 U
2–Butanone	12 U
1,1,1–Trichloroethane	12 U
Carbon Tetrachloride	12 U
Bromodichloromethane	12 U
1,2–Dichloropropane	12 U
cis–1,3–Dichloropropene	12 U
Trichloroethene	12 U
Dibromochloromethane	12 U
1,1,2–Trichloroethane	12 U
Benzene	12 U
trans–1,3–Dichloropropene	12 U
Bromoform	12 U
4–Methyl–2–pentanone	12 U
2–Hexanone	12 U
Tetrachloroethene	12 U
1,1,2,2–Tetrachloroethane	12 U
Toluene	12 U
Chlorobenzene	12 U
Ethyl benzene	12 U
Styrene	12 U
Total Xylenes	12 U

Data qualifiers are defined in Table 4.2.

TABLE 4.19

DEEP SOIL ZONE
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS

SEMIVOLATILES	UPRD308 (µg/kg)
Phenol	410 UJ
Bis(2-chloroethyl) ether	410 UJ
2-Chlorophenol	410 UJ
1,3-Dichlorobenzene	410 UJ
1,4-Dichlorobenzene	410 UJ
1,2-Dichlorobenzene	410 UJ
2-Methylphenol	410 UJ
Bis(2-chloroisopropyl) ether	410 UJ
4-Methylphenol	410 UJ
N-Nitroso-Di-n-propylamine	410 UJ
Hexachloroethane	410 UJ
Nitrobenzene	410 U
Isophorone	410 U
2-Nitrophenol	410 U
2,4-Dimethylphenol	410 U
Bis(2-chloroethoxy) methane	410 U
2,4-Dichlorophenol	410 U
1,2,4-Trichlorobenzene	410 U
Naphthalene	410 U
4-Chloroaniline	410 U
Hexachlorobutadiene	410 U
4-Chloro-3-methylphenol	410 U
2-Methylnaphthalene	410 U
Hexachlorocyclopentadiene	410 UJ
2,4,6-Trichlorophenol	410 U
2,4,5-Trichlorophenol	990 U
2-Chloronaphthalene	410 U
2-Nitroaniline	990 U
Dimethyl phthalate	410 U
Acenaphthylene	410 U
2,6-Dinitrotoluene	410 U
3-Nitroaniline	990 U
Acenaphthene	410 U
2,4-Dinitrophenol	990 U
4-Nitrophenol	990 U
Dibenzofuran	410 U
2,4-Dinitrotoluene	410 U
Diethyl phthalate	410 U
4-Chlorodiphenylether	410 U
Fluorene	410 U
4-Nitroaniline	990 U
4,6-Dinitro-2-methylphenol	990 U
N-nitrosodiphenylamine	410 U
4-Bromophenyl phenyl ether	410 UJ
Hexachlorobenzene	410 U
Pentachlorophenol	990 U
Phenanthrene	410 U
Anthracene	410 U
Carbazole	410 U
Di-n-butyl phthalate	410 UJ
Fluoranthene	410 U
Pyrene	410 U
Butyl benzyl phthalate	87 J
3,3'-Dichlorobenzidine	410 U
Benzo(a)anthracene	410 U
Chrysene	410 U
Bis(2-ethylhexyl) phthalate	790
Di-n-octyl phthalate	410 U
Benzo(b)fluoranthene	410 U
Benzo(k)fluoranthene	410 U
Benzo(a)pyrene	410 U
Indeno(1,2,3-cd)pyrene	410 U
Dibenzo(a,h)anthracene	410 U
Benzo(ghi)perylene	410 U

Data qualifiers are defined in Table 4.2.

TABLE 4.20

DEEP SOIL ZONE - PCB CONCENTRATION/TYPE

Sample	PCB Type	Concentration	Total Concentration
RD-2	Aroclor-1254	62JN ug/kg	62JN ug/kg
RD-3	Aroclor-1254	25JN ug/kg	
	Aroclor-1260	46JN ug/kg	71JN ug/kg
RD-5	Aroclor-1254	470JN ug/kg	
	Aroclor-1260	600JN ug/kg	1070JN ug/kg
RD-8	Aroclor-1248	290JN ug/kg	
	Aroclor-1260	670JN ug/kg	960JN ug/kg

J = estimated value

N = presumptive evidence of a compound

TABLE 4.21

DEEP SOIL ZONE
METALS AND PESTICIDE/PCB COMPOUND ANALYSIS

METALS	LIPRD2095 (mg/kg)	LIPRD508 (mg/kg)	LIPRD8095 (mg/kg)	LIPRD308 (mg/kg)
Aluminum				7550 J
Antimony				8.8 UJ
Arsenic	11 J	3.6 J	10.2 J	4.6 J
Barium				83 J
Beryllium				1.1 U
Cadmium	R	1.6 J	1.7 J	0.73 J
Calcium				23400 J
Chromium	59 J	91.8 J	25.5 J	17.1 J
Cobalt				5.7 J
Copper				31.4 J
Iron				18900 J
Lead	167 N	135	207	57.4
Magnesium				3510
Manganese				490 J
Mercury	0.26	0.1 U	0.16	0.1 U
Nickel				24.1 J
Potassium				828 J
Selenium				R
Silver				2.2 UJ
Sodium				431 J
Thallium				1.1 UJ
Vanadium				20.2
Zinc				127 J
Cyanide				1.4 U

PESTICIDE/PCB	LIPRD2095 (µg/kg)	LIPRD5008 (µg/kg)	LIPRD8095 (µg/kg)	LIPRD308 (µg/kg)
alpha–BHC	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
beta–BHC	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
delta–BHC	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
gamma–BHC (Lindane)	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
Heptachlor	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
Aldrin	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
Heptachlor Epoxide	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
Endosulfan I	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
Dieldrin	3.8 UJ	37 UJ	16 UJ	4.1 UJ
4,4'–DDE	3.8 UJ	37 UJ	16 UJ	4.1 UJ
Endrin	3.8 UJ	37 UJ	16 UJ	4.1 UJ
Endosulfan II	3.8 UJ	37 UJ	16 UJ	4.1 UJ
4,4'–DDD	3.8 UJ	37 UJ	16 UJ	4.1 UJ
Endosulfan Sulfate	3.8 UJ	37 UJ	16 UJ	4.1 UJ
4,4'–DDT	3.8 UJ	37 UJ	16 UJ	4.1 UJ
Methoxychlor	19 UJ	190 UJ	82 UJ	21 UJ
Endrin Ketone	3.8 UJ	37 UJ	16 UJ	4.1 UJ
Endrin aldehyde	3.8 UJ	37 UJ	16 UJ	4.1 UJ
alpha–Chlordane	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
gamma–Chlordane	1.9 UJ	19 UJ	8.2 UJ	2.1 UJ
Toxaphene	190 UJ	1900 UJ	820 UJ	210 UJ
Aroclor–1016	38 UJ	370 UJ	160 UJ	41 UJ
Aroclor–1221	76 UJ	750 UJ	320 UJ	83 UJ
Aroclor–1232	38 UJ	370 UJ	160 UJ	41 UJ
Aroclor–1242	38 UJ	370 UJ	160 UJ	41 UJ
Aroclor–1248	38 UJ	370 UJ	290 JN	41 UJ
Aroclor–1254	62 JN	470 JN	160 UJ	25 JN
Aroclor–1260	38 UJ	600 JN	670 JN	46 JN

Data qualifiers are defined in Table 4.2.

TABLE 4.22

LEHIGH INDUSTRIAL PARK
GROUND WATER DATA

VOLATILE ORGANICS		SAMPLE LOCATION					
PARAMETER	PART 703 STND (ug/l)	LIPMW1 (ug/l)	LIPMW1DUP (ug/l)	LIPMW2 (ug/l)	LIPMW3 (ug/l)	LIPMW4 (ug/l)	LIPMW5 (ug/l)
Chloromethane		10 U	10U	10 U	10U	10 U	10U
Bromomethane	5	10 U	10U	10 U	10U	10 U	10U
Vinyl chloride	2	10 UJ	10UJ	10 UJ	10UJ	10 UJ	10UJ
Chloroethane	5	10 U	10U	10 U	10U	10 U	10U
Methylene chloride	5	10 U	10U	10 U	10U	10 U	10U
Acetone		10 U	10U	10 U	10U	10 U	10U
Carbon Disulfide		10 U	10U	10 U	10U	10 U	10U
1,1-Dichloroethene	5	10 UJ	10UJ	10 UJ	10UJ	10 UJ	10UJ
1,1-Dichloroethane	5	10 U	10U	10 U	10U	10 U	10U
1,2-Dichloroethene (Total)		10 U	10U	10 U	5J	10 U	10U
Chloroform	100	10 U	10U	10 U	10U	10 U	10U
1,2-Dichloroethane	5	10 U	10U	10 U	10U	10 U	10U
2-Butanone		10 U	10U	10 U	10U	10 U	10U
1,1,1-Trichloroethane	5	10 U	10U	10 U	10U	10 U	10U
Carbon Tetrachloride	5	10 U	10U	10 U	10U	10 U	10UJ
Bromodichloromethane		10 U	10U	10 U	10U	10 U	10U
1,2-Dichloropropane	5	10 U	10U	10 U	10U	10 U	10U
cis-1,3-Dichloropropene	5	10 U	10U	10 U	10U	10 U	10U
Trichloroethene	5	10 U	10U	10 U	10U	10 U	10U
Dibromochloromethane	5	10 U	10U	10 U	10U	10 U	10U
1,1,2-Trichloroethane	5	10 U	10U	10 U	10U	10 U	10U
Benzene	0.7	10 U	10U	10 U	10U	10 U	1J
trans-1,3-Dichloropropene	5	10 U	10U	10 U	10U	10 U	10U
Bromoform		10 UJ	10UJ	10 UJ	10UJ	10 UJ	10U
4-Methyl-2-pentanone		10 U	10U	10 U	10U	10 U	10U
2-Hexanone		10 U	10U	10 U	10U	10 U	10U
Tetrachloroethene	5	10 U	10U	10 U	10U	10 U	10U
1,1,2,2-Tetrachloroethane	5	10 U	10U	10 U	10U	10 U	10U
Toluene	5	10 U	10U	10 U	10U	10 U	10U
Chlorobenzene	5	10 U	10U	10 U	10U	10 U	10U
Ethyl benzene	5	10 U	10U	10 U	10U	10 U	10U
Styrene	5	10 U	10U	10 U	10U	10 U	10U
Total Xylenes	5	10 U	10U	10 U	10U	10 U	10U

Data qualifiers are defined in Table 4.2.

LEHIGH INDUSTRIAL PARK
GROUND WATER DATA

SEMIVOLATILE ORGANICS

PARAMETER	PART 703 STND(ug/l)	SAMPLE LOCATION LIPMW1 (ug/l)	LIPMW1DUP (ug/l)	LIPMW2 (ug/l)	LIPMW3 (ug/l)	LIPMW4 (ug/l)	LIPMW5 (ug/l)
Phenol	1	10 U	10U	10 U	10U	10 U	10U
Bis(2-chloroethyl) ether	1	10 U	10U	10 U	10U	10 U	10U
2-Chlorophenol		10 U	10U	10 U	10U	10 U	10U
1,3-Dichlorobenzene	5	10 U	10U	10 U	10U	10 U	10U
1,4-Dichlorobenzene	4.7	10 U	10U	10 U	10U	10 U	10U
1,2-Dichlorobenzene	4.7	10 U	10U	10 U	10U	10 U	10U
2-Methylphenol		10 U	10U	10 U	10U	10 U	10U
Bis(2-chloroisopropyl) ether		10 U	10U	10 U	10U	10 U	10U
4-Methylphenol		10 U	10U	10 U	10U	10 U	10U
N-Nitroso-Di-n-propylamine		10 U	10U	10 U	10U	10 U	10U
Hexachloroethane	5	10 U	10U	10 U	10U	10 U	10U
Nitrobenzene	5	10 U	10U	10 U	10U	10 U	10U
Isophorone	50	10 U	10U	10 U	10U	10 U	10U
2-Nitrophenol		10 U	10U	10 U	10U	10 U	10U
2,4-Dimethylphenol		10 U	10U	10 U	10U	10 U	10U
Bis(2-chloroethoxy) methane	5	10 U	10U	10 U	10U	10 U	10U
2,4-Dichlorophenol		10 U	10U	10 U	10U	10 U	10U
1,2,4-Trichlorobenzene	5	10 U	10U	10 U	10U	10 U	10U
Naphthalene	10	10 U	10U	10 U	10U	10 U	10U
4-Chloroaniline	5	10 U	10U	10 U	10U	10 U	10U
Hexachlorobutadiene	5	10 U	10U	10 U	10U	10 U	10U
4-Chloro-3-methylphenol		10 U	10U	10 U	10U	10 U	10U
2-Methylnaphthalene		10 U	10U	10 U	10U	10 U	10U
Hexachlorocyclopentadiene	5	10 UJ	10UJ	10 UJ	10UJ	10 UJ	10UJ
2,4,6-Trichlorophenol		10 UJ	10UJ	10 UJ	10UJ	10 UJ	10UJ
2,4,5-Trichlorophenol		25 U	25U	25 U	25U	25 U	25U
2-Chloronaphthalene	10	10 U	10U	10 U	10U	10 U	10U
2-Nitroaniline	5	25 U	25U	25 U	25U	25 U	25U
Dimethyl phthalate	50	10 U	10U	10 U	10U	10 U	10U
Acenaphthylene		10 U	10U	10 U	10U	10 U	10U
2,6-Dinitrotoluene	5	10 U	10U	10 U	10U	10 U	10U
3-Nitroaniline	5	25 U	25U	25 U	25U	25 U	25U
Acenaphthene	20	10 U	10U	10 U	10U	10 U	10U
2,4-Dinitrophenol		25 UJ	25UJ	25 UJ	25UJ	25 UJ	25UJ
4-Nitrophenol		25 U	25U	25 U	25U	25 U	25U
Dibenzofuran		10 U	10U	10 U	10U	10 U	10U
2,4-Dinitrotoluene	5	10 U	10U	10 U	10U	10 U	10U
Diethyl phthalate	50	10 U	10U	10 U	10U	10 U	10U
4-Chlorodiphenylether		10 U	10U	10 U	10U	10 U	10U
Fluorene	50	10 U	10U	10 U	10U	10 U	10U
4-Nitroaniline	5	25 U	25U	25 U	25U	25 U	25U
4,6-Dinitro-2-methylphenol		25 UJ	25UJ	25 UJ	25UJ	25 UJ	25UJ
N-nitrosodiphenylamine	50	10 U	10U	10 U	10U	10 U	10U
4-Bromophenyl phenyl ether		10 U	10U	10 U	10U	10 U	10U
Hexachlorobenzene	0.35	10 U	10U	10 U	10U	10 U	10U
Pentachlorophenol		25 U	25U	25 U	25U	25 U	25U
Phenanthrene	50	10 U	10U	10 U	10U	10 U	10U
Anthracene	50	10 U	10U	10 U	10U	10 U	10U
Carbazole		10 U	10U	10 U	10U	10 U	10U
Di-n-butyl phthalate	50	10 U	10U	10 U	10U	10 U	10U
Fluoranthene	50	10 U	10U	10 U	10U	10 U	10U
Pyrene	50	10 U	10U	10 U	10U	10 U	10U
Butyl benzyl phthalate	50	10 U	10U	10 U	10U	10 U	10U
3,3'-Dichlorobenzidine	5	10 U	10U	10 U	10U	10 U	10U
Benzo(a)anthracene		10 U	10U	10 U	10U	10 U	10U
Chrysene	0.002	10 U	10U	10 U	10U	10 U	10U
Bis(2-ethylhexyl) phthalate	50	0.7 J	0.4J	10 U	10U	0.6 J	0.8J
Di-n-octyl phthalate	50	10 U	10U	10 U	10U	10 U	10U
Benzo(b)fluoranthene	0.002	10 U	10U	10 U	10U	10 U	10U
Benzo(k)fluoranthene	0.002	10 U	10U	10 U	10U	10 U	10U
Benzo(a)pyrene		10 U	10U	10 U	10U	10 U	10U
Indeno(1,2,3-cd)pyrene	0.002	10 U	10U	10 U	10U	10 U	10U
Dibenzo(a,h)anthracene		10 U	10U	10 U	10U	10 U	10U
Benzo(ghi)perylene		10 U	10U	10 U	10U	10 U	10U

Data qualifiers are defined in Table 4.2.

LEHIGH INDUSTRIAL PARK
GROUND WATER DATA

METALS

PARAMETER	Part 703 Stnds (ug/l)	SAMPLE LOCATION LIPMW1 (ug/l)	LIPMW1DU (ug/l)	LIPMW2 (ug/l)	LIPMW3 (ug/l)	LIPMW4 (ug/l)	LIPMW5 (ug/l)
Aluminum		235 J	565J	200 J	600J	220 J	925J
Antimony	3	10 U	10U	10 U	10U	10 U	10U
Arsenic	25	5.0 U	5.0U	5.0 U	5.0U	5.0 U	5.0U
Barium	1000	105 J	121J	50.0 U	50.0U	50.0 U	78.0J
Beryllium	3	5.0 U	5.0U	5.0 U	5.0U	5.0 U	5.0U
Cadmium	10	5.0 U	5.0U	5.0 U	5.0U	5.0 U	5.0U
Calcium		123000 J	133000J	161000 J	207000J	206000 J	46600J
Chromium	50	10 U	10U	10 U	10U	10 U	10U
Cobalt		20.0 U	20.0U	20.0 U	20.0U	20.0 U	20.0U
Copper	200	17.0 U	11.1U	54.0 U	16.0U	246 J	10J
Iron	300	343 J	846J	59.0 U	1250	103 U	1070J
Lead	50	4.0 U	4.7 U	5.0 U	5.0U	5.0 U	6.0U
Magnesium	35000	23300	25900	16500	49900	33700	11200
Manganese	300	702 J	1400J	29.0 J	183J	379 J	85.0J
Mercury	2	0.20 UJ	0.20UJ	0.20 UJ	0.20UJ	0.20 UJ	0.20UJ
Nickel	700	30.0 UJ	30.0UJ	30.0 UJ	30.0UJ	62.0 J	30.0UJ
Potassium		4060 J	6580J	3000 J	9180J	2610 J	3700J
Selenium	10	5.0 UJ	5.0UJ	5.0 UJ	5.0UJ	5.0 UJ	5.0UJ
Silver	50	4.0 U	10UJ	4.0 J	10J	6.0 J	10J
Sodium	20000	116000	118000	15200	132000	76500	79700
Thallium	4	6.0 U	6.0U	6.0 UJ	6.0U	6.0 U	6.0U
Vanadium		20.0 U	20.0U	20.0 U	20.0U	20.0 U	20.0U
Zinc	300	17.0 U	31.8U	40.0 U	27.0U	245 J	23.0U
Cyanide		10 UJ	10UJ	10 UJ	10UJ	10 UJ	10J

PESTICIDES/PCB

PARAMETER	PART 703 STND (ug/l)	LIPMW1 (ug/l)	LIPMW1DUP (ug/l)	LIPMW2 (ug/l)	LIPMW3 (ug/l)	LIPMW4 (ug/l)	LIPMW5 (ug/l)
alpha-BHC		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
beta-BHC		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
delta-BHC		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
gamma-BHC (Lindane)		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
Heptachlor		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
Aldrin		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
Heptachlor epoxide		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
Endosulfan I		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
Dieldrin		0.12 U	0.11U	0.10 U	0.10U	0.10 U	0.10U
4,4'-DDE		0.12 U	0.11U	0.10 U	0.10U	0.10 U	0.10U
Endrin		0.12 U	0.11U	0.10 U	0.10U	0.10 U	0.10U
Endosulfan II		0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD		0.12 U	0.11U	0.10 U	0.10U	0.10 U	0.10U
Endosulfan Sulfate		0.12 U	0.11U	0.10 U	0.10U	0.10 U	0.10U
4,4'-DDT		0.12 U	0.11U	0.10 U	0.10U	0.10 U	0.10U
Methoxychlor	35	0.62 U	0.54U	0.50 U	0.52U	0.50 U	0.52U
Endrin ketone		0.12 UJ	0.11UJ	0.10 UJ	0.10UJ	0.10 UJ	0.10UJ
Endrin aldehyde	5	0.12 U	0.11U	0.10 U	0.10U	0.10 U	0.10U
alpha-Chlordane		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
gamma-Chlordane		0.062 U	0.054U	0.050 U	0.052U	0.050 U	0.052U
Toxaphene		6.2 U	5.4U	5.0 U	5.2U	5.0 U	5.2U
Aroclor 1016		1.2 U	1.1U	1.0 U	1.0U	1.0 U	1.0U
Aroclor 1221		2.5 U	2.2U	2.0 U	2.1U	2.0 U	2.1U
Aroclor 1232		1.2 U	1.1U	1.0 U	1.0U	1.0 U	1.0U
Aroclor 1242		1.2 U	1.1U	1.0 U	1.0U	1.0 U	1.0U
Aroclor 1248		1.2 U	1.1U	1.0 U	1.0U	1.0 U	1.0U
Aroclor 1254		1.2 U	1.1U	1.0 U	1.0U	1.0 U	1.0U
Aroclor 1260		1.2 U	1.1U	1.0 U	1.0U	1.0 U	1.0U

Data qualifiers are defined in Table 4.2.

APPENDIX C

FIELD NOTES

6/1/93 Site Reconnaissance

Personnel: Ann Zielinski
Wesley Xia

Arrived at Site 1:30 p.m.

Near N W Corner of Site - South of Church lot - several trees have fallen over, there is a clear view of the Churchyard. A large Chunk (pile) of metal and several large tires.

Site Recon -
Fence has been knocked over at SE Corner - Corner post and 5 posts North -- the post in the RR bed was backed over & pulled other posts down

No new dumping on site

- Roger's will be here 8:00 am Weds.
3:00 - begin locating Grid pts.
Located northern area of site
4:30 left site

6/2/93 SY 279.04.03

8:00 am. Anne Zielinski, Wiedong Xia } ES on Site

Work Plan:
Mark as many sampling pts as feasible
will have to survey pts on 11S1, 11S2, & 11S3

8:45 am Rogers Fence on Site to assess material needed to repair fence

11:15 Out for Lunch

12:20 Back to Site from Lunch
Ball Toilet Service arrived. ES informed Ball Toilet to install the portable toilet in-side the fenced decon area.

2:45 - Complete Staking

- Roger's Fence still here - waiting for supplies

3:30 Spoke w/ Jim Kyles - gate apparently may not be large enough for backhoe - will need to know width. Roger from Roger's Fence can give us quotes + schedules as to when gates can be enlarged

4:45 Roger short of materials - will be back at 5:00 am to finish

4:50 Left Site

(150)

Lehigh - Fence repairs

6/3/93 SX 279.04.01

7:50 Arrive on site
A. Zielinski - ES
Roger - Roger's Fence

Roger will complete fence repairs, if he has proper material

- The gate may need to be enlarged to fit backhoe through.

Roger will come back & complete fence at the same time as gate.

9:10 Left Site

(151)

Lehigh - Test Pitting

6/8/93 SX 279.04.03

8:15 Anne Zielinski - ES
Norm Wohlabaugh - ES
- Clear - high 60's

SJB apparently drove around the fence through the Church parking lot to gain access to the site. They repaired the Decon pad and delivered a water tank.

Norm stated that Mark Gaudy of SJB would arrive at approx 11:00 am. With the backhoe.

8:45 NKW Left Site

9:50 Dale Dolph - ES
Arrive on site

10:25 NKW Back on Site
10:25 SJB - Art Koske on site to unload equipment & fill water tank.

(150)

Test Pitting - Lehigh

6/5/93 SY279.04.03

10:35 Calibrate PID # NA910112

Have SCBA for backup

10:40 Steve Scharf & NYSDEC

11:00 Brad Brown on site

12:00 Left for lunch

12:50 Backhoe on site - Art Koske will be operator

Hitachi UH082

1:35 Begin steam cleaning

2:00 Dale gave site specific H&S

present:
Steve Scharf
Art Koske
Anne Zielinski

(153)

Lehigh TP

SY279.04.03

6/5/93

2:20 2:15 begin at TPM 15

raining

large pieces of scrap metal 5-6' below top of mound (near ground surface (~3' long)

0.0 PID & no readings on explosimeter

Waste - Metals - fine to CS - springs - Iron, Copper - Stainless, some chrome - crusted

Underlying soil - F Brown fine to M-Sand, Some silt - well sorted, Damp

2:40 - 4PT TPM 12 WS
4PT TPM 12 S
grab - for Total Pb, Cr

(154) Lehigh - Test Pitting

6/3/93 SY279.04.03

2:30 Sample of thin black layer under fill & above soil - med to ~~SC~~ CS Sand & metals - stained black - approx ¼ thick LIP TPM 18 PCB

Photo #1 Waste approx 1-12" thick - thin layer of black material (sampled) then brown Sand.

Photo #2 - Picture of soil & waste from TPM 18

Waste Pit Dimensions approx 15' Deep, x 15' long x 10' Wide

~2:30 Jim Fenon on site w/ 2 coworkers

3:00 Brad Brown on Site

(155) SY279.04.03

6/3/93 Lehigh Test Pitting

Fill in Test Pit - move to Decon Pad

3:15 Begin Decon

3:25 - Move To TPM16

3:35 Begin TPM16
- considerable Stainless steel, metal Shavings "Coils" - steel Cables - large plate - 3'x4' Crushed flattened drum w/ stained soil PID 0.0
↳ similar to remainder of Pile

at approx 4'-5' depth - oily, Black Hard pan, as in previous test pit in 1992
↳ at ground surface under pile PID 0.0

Photo #3 - of TPM16

Photo #4 - exhumed material including Black, "hard Pan"

3:50 - begin replacing exhumed material

(156) SY279.04.03

4/8/93 Lehigh TP

4:00 Begin Decon

4:15 Begin TPM 17 from East side

Exhumed Material: Brown/Black Metal fragments - fine to Cs (sm Pebble) size becoming more black ~~as~~ w/ depth. O.O PID

4:35 ~~Ba~~ Moved backhoe to West side & began digging

PID O.O

Did not hit Cement pac

Collected 2 samples

4:50 LP TPM 17W Total Cr, Pb, Cd
TPM 17S
grab samples

(157) SY279.04.03

4/8/93 Lehigh TP

Soil: Sand & Silt, tr gravel, tr clay - Gray Till

4:50 O.O on PID, ~~4:50~~ began filling in pit.
Photos 5 - East side of pit / Photo 6 East side of pit

5:25 begin Decon

5:35 Leave Site

equipment used

3 Level C: 4 sets cartridges
3 - Tyvek (2 PE)
2 Boots
15 gloves
1 - 4 gas meter
+ camera

(31)

5X279.04.03

6/9/93 Lehigh TP

7:00 Arrive on Site
A-Zielinski ?
Dale Dolph ? ES

Weather. Sunny; High 60's,
breezy

7:15 Art Koske - SJB arrive

7:15 Calibrate PID, Ser # NA910112
Change batteries in 4 gas
Meter

7:20 Preparation

8:00 Begin excavation on
TPM19

Exhumed Material:
Red BR to Black fine to Pebble
Size metal chips - loose
1 lg Chunk of ?
cement or Metal
~2 x 2 x 1' Slag

5X279.04.03

6/9/93 Lehigh TP (32)

TP Dimensions
10' long x 6' d. x 5 ft wd

Strat: metals to
ground surface
at ground surface,
Black ~~Slag~~ Cs Mat -
~1' thick
then Till: Grey Sand & Silt, Sm Gravel - rounded
trace clay - dense, damp

Picture #~~8~~ looking West
TPM19
PID - 0.0 20.5 O_2 0 LEL

Backtracking =
TPM16 - whole pile
excavated 15'L x 10 w x 8-10 dp

TPM17 -
East Sd 15' L x 10' D x 5' W
West Sd 10' L x 10' D x 5' W
? Wooden wall separated
excavations: approx
8-10' tall

(33) Lehigh TP

6-9-93 5X279.04.03

8:15 Beginning to rain

8:20 Steam clean backhoe

8:25 Steve Schaub - NYSDEC arrive on site

8:35 Begin excavation on TPM20

Exhumed Material:

fill to Pebble Sz Metal cuttings, - Considerable amount of scrap metal: plate, shots, pipes, cables. Becoming more black 0 depth - lg chunks of metal - rusted PID-0.0 or melted together Metal ribbons, grates, manhole Covers crushed drum, Some heavy object above ground surface in middle of pile - could not get to gr. surface 0.0 - typos - all normal

Photo #8 - excavation at TPM-20 looking E-SE

(34) Lehigh TP 5X279.04.03

6/8/93

Photo #7 - Test Pit TPM20 - 5L x 5W x 7'D

10 start

9:00 Return Mat to pit

9:10 Steve Schaub left site

9:15 move to TPM21 begin excavation

Exhumed Material:

Metal cuttings; as per other pits Considerable amounts of scrap metal and trash - Plastic, hoses, brake drums Chrome bumper, crushed drums Some corrugated siding,

* Southern most pit was very dusty at center - excavation ceased and began on Northern side of pit.

Dust appears to be metal debris dust

Northern pit also very dusty - will move to small western arm of pit

(35) 6/9/93 Lehigh TP 54279.04.03

9:35 Main piles had to be secured due to dust at ~5'. They were recovered & excavation continued on small Western area of TPM21

Photo #10: Picture of larger pile at TPM-21, looking East

~9:30 Steve Scharf returned on Site.

Sm. West Pile -
Material exhumed:
metal cuttings, scrap metal - Tire rims, propane tank (crushed) corrugated siding, Chrome, plastic
PID 0.0 4Gas - Normal

Samples: LIP TPM21W
LIP TPM21S
9:50 am - Grab - ea

(36) Lehigh TP 6/9/93 54279.04.03

Photo 11 - TPM21 Looking S

Strat: Metals to ground
Surface - 6" silt to
Metals - RR fill - Cinders
natural silt to Brown Med Sand, silt Sm Gravel - till

Dimensions: 12'L x 6'W x 8'D

Note: all Dimensions are approximate

10:00 Steam Clean

10:15 Begin excavating on TPM22

Material exhumed:
Metal cuttings, scrap metal, small pieces of plastic, metal ribbon, jack, metal pipe (exhaust?), brick,

PID 0.0 4-gas all normal

(35) (37)

6/9/93 Lehigh TP

10:30 LIP TPM22 PCB
LIP TPM92 PCB Dup
Grab - ice

photo # 12 Looking West
Stat: Metal Debris to Surface (5'D) Δ to Black stained metal debris (slightly oily
10'L x 5'D x 5'W

10:45 LIP PCB FB 1

- After discussions it was decided that an EP Tox on the metals piles would not be taken - all materials found were similar to materials sampled during earlier leachability investigation An EP Tox sample would be collected from the fluff material

SV279.04.03

(38) (39)

6/9/93 Lehigh

11:35 Begin excavation at TPF 23

Small Tilt from W side of pile: Scrap metal, large metal sheets, grates
Brown foamy - stringy material pieces of plastic, wire,

PID @ Hgas - 0.0 @ normal

12:00 Complete digging on West Side - move to East Side

Stat: Bk Fluff - fabric, foam wires, etc to ~~1' below~~ ground surface Δ to ground surface
Black fluff - oily to ~2' below ground surface Δ to Bk Sand @ TPF 23

Photo 13 + 14 - West Side looking East

6/9/93

SY 9.79.04.03 Lehigh

East Side - Similar strat except Black oily layer unable pronounced ~3" thick

Approximate Dimensions:

West: 25'L × 5'W × 18'D

East: 15'L × 5'W × 15'D

Samples Collected

Time	label	anal.	
12:05	LIPTPF23W	TCd,Cr,Pb	
"	LIPTPF23W-Dup	"	
"	LIPTPF23W-MS	"	
"	LIPTPF23W-MSD	"	
12:10	LIPTPF23 EPT	EPTox-metals	
"	LIPTPF23 EPT MS	"	
"	LIPTPF23 EPT MSD	"	
12:15	LIPTPF23 PCB-1	PCB's	West
"	LIPTPF23PCB-1 Dup	"	"
12:30	LIPTPF23PCB-2	"	East
12:20	LIPTPF23S	TCd,Cr,Pb	
"	LIPTPF23S Dup	"	

6/9/93 Lehigh TP (con't)

12:20	LIPTPF23S PCB	PCB's
"	LIPTPF23S PCB Dup	"
"	LIPTPF23S PCB MS	"
"	LIPTPF23S PCB MSD	"

Photo 15

Looking West TPF23

Fill / Black layer / Br Sand

12:40 - Steve Sahaj left for lunch

1:20 - Dale Dolph left for lunch

1:45 - Az left for lunch

2:30 Ant K. began cleaning path at S. end of site to Buffalo Break Beam Property

2:55 Begin excavating TPF-24

Excavated Material:

Sand, silt, clay, sm gravel, much metal - Shafts, springs, various car parts, tires

(44)(45) 6/10/93 SY279.04.03
Lehigh TP

TPF08 (Cont)

Material exhumed:
BR/BL Topsoil - Sand + Silt, some gravel - also trash: Wood planks & paste tires, bricks
Glass object is present in the base of the pit at approximately ground surface
PID 0.0

8:10 L/PTPF28 PCB-1
grab sample from S. end of Test Pit.

Some very large pieces of Concrete were brought out of the hole PID 0.0
4 gas - Normal

Strat: BR/BL Soil - Sandy Silt, various trash to ~2' above ground surface - Dto Concrete slabs & bricks, underlain by Brown F. to Med Sand, clean, well sorted, damp

6/10/93 SY279.04.03
Lehigh TP (46)

Photo #18 - TPF28 looking South at south end of test pit

Soil sample location L/PTPF45 was wiped out by the backhoe

9:15 Backhoe stalled - will have to jump start

9:30 resume excavation at North section of TPF08

Material exhumed:
Fluff: shredded foam & material, sand plastic, wire

9:46 L/PTPF28 PCB-2
Taken from W-W section of TP area

Strata: Fluff to Ground surface to Sand, Br + Till - Sand & Silt, some gravel - rounded, no discoloration

(40)(41) 6/9/93 SY279.04.03
Lehigh TP

underlying soil
Bc F to Med Sand,
damp, clean - well
sorted

3:10 LIP TPF 24 PCB-1
LIP TPF 24 PCB-2
Grab - ice
#1 taken approx 5' into
Pile
#2 taken at waste/soil
interface

3:10 begin returning material
to Pit

Photo #16 - TPF 24
15'L x 10'W x 8'DP

3:25 PCB Wash Blank #2

3:30 Decon

LIP PCB FB2

6/9/93 SY279.04.03
Lehigh TP
(42)

3:45 begin TPF 25, to the left
of where previously marked
due to concrete slabs & long
metal bin

3:50 LIP TPF 25 PCB-1
collected approx 3 ft below
surface of Pile
Bl/Br fn to Cs Sand, some small
plastic pieces - loose,
slightly moist

4:00 LIP TPF 25 PCB-2
LIP TPF 25 W - Metals
LIP TPF 25 S - Metals
LIP TPF 25 PCB-3
grab - ice from Soil/
Waste interface

Stat:
Fluff/Soil Brown to 1' above
Fluff ground surface to
approx Black fn to Cs Sand to
appears to have ~5' below surface to
slumped Bc F to Med Sand, dense,
dry to moist

Photo #17 - looking North

(44) (43) 6/9/93 SX079.04.03
Lehigh TP

* Discussions w/ Steve led to the Decision that TPF26 would be moved to the Northern-Most row of the Fluff area - ~~this after~~ was decided after TPF25 revealed ~~no~~ little fluff, mostly dirt.
Steve approved

4:20 Decon

4:35 Pack up for day

equipment used:
2 wh Tyvek — 3 Level C
3 PE Tyvek
3 pr. Cartridges
4 Booties
~15 gloves
1 - 4 gas meter

4:40 leave Site

AZ

6/10/93 SX079.04.03
Lehigh TP (44)

7:45 Arrive on Site - A. Zielinski *
Dale Dolph
~~N. K. Wohlabaugh~~ — ES
& Art Koske - SJB
are already on site

Weather: Sunny - mid 60's - breezy

Work Plan: Complete test pits in fluff piles & collect appropriate samples - begin soil covered waste piles if time permits

7:50 Calibrate PID, Check 4-gas

8:10 NKW leaves site
8:30 begin excavation at TPF28

(45) (73) 6/10/93 Lehigh TP

Photo #19 TPF03 - Northern area - Looking West.

10:05 - LIP Met FB-1

- Field Blank for Total Cr, Cd, Pb

10:15 begin Decon

10:30 Begin excavation on TPF27

PID 0.0 4-Gas - Normal

10:35 LIP TPF27 PCB1 approx 5' below surface - grab sample

Material exhumed:
Br/Bl sand & Gravel, tr Silt, wood, brick, metal.
Dry, loose
large chunks of cement approx 3' below ground surface, -
slag, glass,
moist at Depth

Photo #20 TPF27 looking S

6/10/93 5Y279.04.03 (74) (46)
Lehigh TP

Dimensions:
15'L x 5'W x 15'D

10:50 LIP TPF27 PCB 2 } 3 PCB's
LIP TPF27 PCB 5
LIP TPF27 PCB W } 3 metals
LIP TPF27 PCB 27-5

Grab samples

PID 0.0 4-gas Normal

underlying soil - Br F to med Sand, clean, Moist at Depth of ~ 4-5

Strat: Fill, as described prev. to approx 3' bels ground surf
- Δ to 1/2 chunks of concrete
- Δ to Br. Sand

11:15 Decon

11:30 break for lunch

(49) (49)

6/10/93 SY279.04.03
Lehigh TP

12:30 Begin excavation at TPF26 - which has been relocated with the permission of Steve Schaub to the northern most extension of the fluff pile.

Excavated Material:
Fluff - shredded foam, Material, Carpeting, plastic wires, tires, misc metal scrap

PID 0.0 4 Gas - Normal

12:40 LIP TPF26 PCB-1 grab samples approx 3.5' below top surface of pile - Dry fluff to moist

Dale checked out another drum partially buried on top of the fluff pile PID - 0.0, he believes it is empty.

6/10/93 SY279.04.03 Lehigh (48) (50)

Fluff material is becoming Darker w/ Depth.

12:45 LIP TPF26 PCB-2 @ Dark layer at ground level Black, oily, saturated approx 1' thick at ground surface
PID - 0.0 4 gas - Normal

Photo #21 TPF26 - facing South

a layers of crushed scrap metal is present below the black oily layer, underlain by a layer of gravel/slag - similar to a RR Berm.

Strat Fluff to -6.5' to B1 fluff
2 to scrap metal & fluff @ 1-2' below GS & to Gravel & Sand & to Till at 4.3' below GS.

Dim 20'L x 10'W x 20' Dp

6/10/93 Lehigh SY279.04.03

1:15 Steam clean

1:15 LIPMETFB2 second field blank for Metals

1:30 Walked over Soil covered waste piles to determine best method of excavation

1:45 Began clearing path at TPS33 & began excavation

Exhumed Material

Bl/Br Soils - Sand & Silt, some gravel, damp, loose, Brick, wood, rubble, Plastic, Marble PID 0.0 4gas Normal

Underlying Soil - thin Veneer of Br. F to Med Sand & to Br/Gr Till - Sand, Silt & Gr., & clay Stiff, damp

PID 0.0 4gas - Normal

6/10/93 Lehigh TP

Samples:
PCB-1 - ~4" bebw Surface PCB2-GS

1:55 LIPTPS33 PCB1
LIPTPS33 PCB1 DUP
LIPTPS33 PCB1 MS
LIPTPS33 PCB1 MSD
2:00 LIPTPS33 PCB2
LIPTPS33 PCB3
LIPTPS33 PCB3 MS
LIPTPS33 PCB3 MSD
} PCB
1:55 LIPTPS33 W
2:00 LIPTPS33 S
2:00 LIPTPS33 S Dup
} Met

all grab Samples.

PID 0.0

Photo # 21 - TPS33 facing West

Dim 15'L x 8'D x 5'W

2:30 begin Decon

2:45 begin clearing path at TPS32

(53) 6/10/93 Lehigh TP
SY279.04.03

2:50 LIPPCBFB-3

3 00 begin excavation

Photo #22 or 23?
backhoe at TP532

Material exhumed:
BR/BI Soils - Sand & Silt, Sm Gr
wood, metal scraps, plastic

PID 0.0 4-gas Normal

Backhoe is excavating at
east of pile & working
backwards towards the SW

Halfway through the pit
along Piece of concrete
was encountered

Fluff like material was
also encountered
as well as a white
granular substance

6/10/93
Lehigh TP (54)

3:25 Sampled for
LIPTP532 PCB1

3:35 LIPTP532 PCB2
LIPTP532 W
LIPTP532 W Dup
LIPTP532 S

Photo #24 Excavated Material
trash in S matrix w/
granular white material

Photo #1 looking West
in TP

Dim 30' x 4' W x ~15' D

- Concrete feature appears
to be some type of old
foundation w/ pipe
& conduit

Strat: Fill - trash, metal & Dirt
to ~1' below GS Δ to BI Sand,
fine to med, Damp to ~2.5' Below
GS Δ to BR Sand

(55) 6/10/93 Lehigh TP
SY279.0403

LIPTP532 PCB1- Taken
~ 3' b/ow Surface

PCB2 taken at waste/SI
interface

4:05 Decon
4:15 Clear path to TP531

4:10 LIPMET FB-3

4:20 Completed cleaning
- mistaked locations for soil
Sampling which were run over
by the backhoe.
5:05 Leave Site
Mat. Used
3 Wh. Tyvek 2- Level C
1- PE Tyvek
2 prs Cartridges
4 prs Boots
~ 15 prs Gloves
4-gas Meter
1- Camera

6/11/93 Lehigh TP
SY279.0403 (56)

7:00 arrive on Site
Anne Zielinski
Dale Dolph } ES

Weather: Sunny - mid 60's
Slight breeze

Work plan: complete soil
covered waste pile test
pits if time allows

7:15 Calibrate PID

7:05 Began excavation at
TP5-31

Material exhumed:
Surface scrap metal
car parts, mufflers, Tires
bumpers, crushed sheets of
metal (hoods, fenders)
Material Similar to TP532
7:15 LIPTP531 PCB-1
grab from West end of pit
PID 0.0 4-gas - Normal

(57) Lehigh TP
6/11/93 SY279.04.03

8:30 Collected Waste & Soil samples from approx 8' Depth below GS – 15' from West end.

LIPTPS31PCB2 – PCB
LIPTPS31W – met
LIPTPS31S – met
LIPTPS31SMS – met
LIPTPS31SMSD – met
LIPTPS31PCB-S – PCB's

all Grab Samples
PID 0.0 H-gas - Normal
Stat: Br Fill With Metal, plastic, white granular material - Sim to TPS32 - Moist, loose, to approx 3' below GS 2 to Br/Bl Sand at ± 9' 2 to Br S - fm to med - well sorted.

Photo #3 - Roll 2
TPS31 - Looking East during excavation

Lehigh T
SY279.04.03 6/11/93 (58)

The Loam Sand was encountered at a higher elevation than the Previous TP, but exact elevations are unknown. It appears to be approx 4' higher.

Photo #4 Roll 2 TPS31 looking West
Approx Dim: 25' x 5'W x 10'D approx

8:45 Complete TP - proceed w/ filling.

8:30 Dan Rigsby on Site from STB to Deliver Water

9:10 Dan left Site

9:20 Begin Decon
photo #5 Picture of Decon

9:45 Begin excavation at TPST30

(59)

4/11/93 Lehigh TP
5Y279.07.03

Material exhumed:
Scrap metal, plastic
Bl/Br Sand & Silt w/ white granular material, wire, pieces of corroded metal, cables.
PID 0.0 4-gas Normal

9:55 LIP TPS30 PCB: 1 - PCB

10:03 LIP TPS30 PCB-2 - PCB
LIP TPS30W
LIP TPS30S } 3 metals
Grab Samples on ice

PID 0.0 4gas - Normal

Stat: Fill & metal to ~6S, 2 to Bl stained fill and sand to (.5' below 6S 2 to Br Till (Sand, Silt + G, t C1) Damp
Photo #4 - TPS30 Looking West

(60)

Approx Dim: 15'L x 7'W x 10'D

10:10 - Begin filling trench

10:20 Decon

10:45 Begin excavating at TPS-29 - Cleaning tins

10:50 Begin excavating Fill

10:55 LIP TPS29 PCB-1
Taken approx 4' below surface
PID 0.0
Material exhumed: Soils w/ wire, metal, plastic, white granular Material, Scrap metal - same as TPS 30-32

PID 0.0 4-Gas Normal

White material is also in large Chunks - soft & friable and often has a green-ish shading

(60) 6/11/93 Lehigh TP
SY279.04.03

11:05 LIPTP529 PCB:2 PCB
LIPTP529 W met
LIPTP529 S met
LIPTP529 PCBS PCB
LIPTP529 EPT not
LIPTP529 EPT MS met
LIPTP529 EPT MSD org
grab samples

Photo # 7 LIPTP529 looking west:

Appror Dim. 15'L x 6'W x 2'Dp

11:25 Begin Decon

11:15 Jim Fernon on site he stated he would be on site for the Test Trench Excavation at 9:00 Monday Morning

11:35 Dale left Site to speak w/ Norm

Spent 2 strokes, 12 gauge 2 Buckshot, 1 per Cartridge

(61)

11:50 LIPFB4 - PCB
LIPFB4 - met

12:15 Left Site to deliver Samples

1300 DRD returned to site from lunch after speaking with Norm W (EC). Norm stated that Steve S. (NYSDEC) said that we could removed pile of shingles from behind Catholic Hall. DRD and ART (SBL) installed a Cable across access lane locate East of front gate to prevent vehicle access to site. Also moved pile of shingles onto site

1945 DRD and Art (SBL) depart site. DRD to Syracuse.

(63) 6/14/93 SY079.04.03

Lehigh T. Trench

9:00 am Arrive on site
Dale Dolph
Anne Zielinski } ES

Art Rocke - SJB - has been here since 7:30

weather - Sunny - low 70's

will walk over area where trenching will occur

9:15 Calibrate PID

9:30 Collected Wash blanks

LIPTTFB-PCB
LIPTTFB-Vol-1
LIPTTFB Vol-2
LIPTTFBSVol-1
LIPTTFBSVol-2
LIPTTFBMET - HNO_3

Grab samples - packed on ice

6/14/93 SY079.04.03 (64)

Lehigh Test Trench

9:20 Jim Ferran on site to observe Test Trenching

10:10 begin excavating Test trench west of MW-5

A "Hard pan" is present approx 4" below surface

Photo #7 - Depth to hardpan

Metal scraps - rust colored & black - coated - dry

Photo #8 - Rust Mat 6", Black Mat 4-4½" - Hard pan - Gray Color than under black for ~2" Δ to brown Material

PID 0.0 ± gas Normal

High Winds blowing dust

a clay lens is present approx 2½' below surface - about 6" - 1/2 thick underlain by Brown Sand - fn to med - well sorted, damp

(65) 6/14/93 SY279.04.03
Lehigh TT

Photo # 9 at ~~Approx~~ 7' Depth

10:40 Fill first trench will
Dig a second trench East
of MW-5.

11:00 begin Test Pit on East side

:10 Sample black Material
approx 6" below Surface
- Metals Shavings, pieces
of metal - black oily
residue - Similar to
Machine Shop cuttings
Photo 10 of Mat Sampled
* Daleq & both smelled
awful from the test pit
at approx 4' Depth -
is not safe to Sample
Sand excavated from
that Depth. We immediately
moved up wind and
the Test pit was filled
PID was 0.0, & 4 gas
was Normal

6/14/93 Lehigh TT (66)
SY279.04.03

photo 11 - TP at ~ 4 to 5'
6" - Rust & metal
~ 6" Black Metal & Material
underlain by ~ 6" Clay
~~underlain by Greenish/Br~~
fn to Med Sand

11:10 LIPTT Vols
LIPTT VO1 DUP
LIPTT VO1 MS
LIPTT VO1 MSD
LIPTT SVO1
LIPTT SVO1 DUP } SVOC
LIPTT SVO1 MS } Pest/PCB
LIPTT SVO1 MSD } TAL Met

all grab - on ice

11:30 Jim Fenton left Site

Tol Dolph left Site to
Contact Norm

(67) 6/14/93 Lehigh - TT
SY2.79.04.03

Herm stated that no more Test trenches would be dug

11:50 - Lunch

1:00 - The last Trench was staked for datum reference

→ proceed with Backhoe Decon

2:10 Complete Decon - finish cleanup

2:20 Leave Site

equipment -
3 Tyvek - Plastic
3 Boots
3 Gloves
3 Air Cartridges

(68) 6/15/93 SY279.04.08
Lehigh - Groundwater

8:20 Arrive on site
Anne Zielinski
Ron Lipp
8:30 - Gentleman from John Deere here to pick up backhoe
STB can't have unit
Weather - P. Cloudy - high 80's - humid
Work Plan: Develope the five monitoring wells
9:20 Mark Gandy on site - STB to help unload backhoe
9:40 Check water levels

		3 Vol
	MW-4 14.55'	.2x gal
3d	MW-2 13.30'	1.05 gal
7d 5d 3d	MW-3 5.27'	3.18 gal
	MW-5 10.22	3.0 gal
	MW-1 9.7'	2.79

(69) Lehigh Groundwater Dev + Samp
6/15/93 SY379.04.05

Removed

MW-1 10gal - murk - first 5
next 5 - Br
+5gal - clear to Brown
33.0 NTU

MW-5 Dry after 2.5gal - Bl sed
+1.5gal - Brown
47.4 NTU

MW-4 Dry after 4 bailers -
murk colored
+3 bailers (1.5gal tot) -
slightly murky
60.4 NTU +5gal - dry

MW-2 Dry after 3 - putty clear
pm Baled 3 more gal. - pretty clear
10.56 NTU

MW-3 Dry after 1 - sandy & silt
Dried up after 3 still very silty
and sandy

2:30 Leave Site

Equip - gloves, Tyvek, marker, water level ind.

(70) Lehigh GW
6/16/93 SY379.04.05

8:30 Arrive on site
Anne Zulinski } E.S
Dale Dolph }

Weather Sunny low 70's

9:00 MW-1 VOCs Method 524.2
L/P MW1 V
L/P MW1 V ~~DUP~~ MS
L/P MW1 V MSD

T. 54.4°F Cond 933 u Ohms
pH - 6.57

9:15 MW-5 VOCs Method 524.2
L/P MW5 V

T - 53.1°F C - 6.36 u Ohms
pH - 6.49

(71) Lehigh GW SY279.04.05
6/15/93

9:25 MW-4 LIPMW4V method 524.2
T-53°F Cond 1314 ohms
Turb - 15.9 NTU
pH - 6.33

9:35 MW-2 Volo - # 524.2

LIPMW2V
LIPMW2V Dup

T-50°F Cond 985 mohms
pH 6.32

9:40 MW-3 Volo # 524.2

LIPMW3V

T-55°F Cond 2080 mohms
pH - 6.47
~~Co~~ Turb 37.8 NTU

Lehigh GW (72)
6/16/93 SY279.04.05

9:50 LIPGWFBV
Wash Blank - Volatiles

Date is taking Samples to Lab

10:00 Leave Site

Equipment used

11 Pre stoves
pH-cond meter
Turb meter

6/16

(73)

Lehigh Hot Spot Sampling
4/21/93 SY279.04.06

10:15 Arrive on site:
Anne Zielinski - ES
Tim Darrigan - ES - already on site.

11:10 Jeff Paulsen - ES on site w/ Minuteman Drill Rig

Norm. Wohlabaugh on site - ES

11:30 NKI left site
⇨ JP + JD left site to get water

11:40 Site Walkover

12:10 Get Kerosene for steam Cleaner
- Lunch

1:30 prepare for Sampling

1:40 Calibrate PID
SN# NA9101102

SY279.04.06
Lehigh 4/21/93 (74)

1:45 Set up on H551

2:05 begin drilling
Spring stuck in 1st spoon. 2nd HNP ⇨
B1 C0 - 50-60-30-41 Rec - 45%
P/D - 0.0
Des: Br Sand, Silt, metal + slag (charcoal?), Dry, hard
Analyze for T. Pb, Cd, Cr

2:40 LIP H551 @ 2' comp packed on ice
finally got a sample from 3rd spoon (2nd spoon - NP)

2:17 Set up on H552
B1 C0 to 10-50-37 P/D: 0.0 Rec: 95%
Des: Br/Rd Sand + Silt to 5', Concrete to 7' ∆ to Wood to 9' ∆ to Black Sand + Silt, Moist, Slight gruw coloration at base

2:55 : LIP H552 T. Pb,
LIP H552 Dup Cr/Cd - on ice

'Comp 0-2'

(75) Lehigh HS Samp
6/21/93 S1279.04.06

3:00 HSS3 2'S. of steabed loc
BC 31/39/28/27 PID: 0.0 Rec: 99%
Des. Br. Sand + Silt to 1' Δ to
Bl/Br f. Sand + Silt, stained
Black, Damp, Stiff
1g Chunks of Slag, Brick

3:15 L/P HSS3 0-2' Comp
for T. Pb, Cr, Cd
on ice

3:20 L/P HSS4 - dug by hand -
inside fenced area next
to building.
PID 0.0
Des: Gravel Slag and orc Sand,
some Br. Sand + Silt, loose,
dry

3:30 L/P HSS4 0-2' Comp
T Pb, Cr, Cd - on ice

Lehigh HS Samp (76)
6/21/93 S1279.04.06

3:35 Decon Spoons, Bowls

3:55 L/P HSFB & Met
Metals Field Blank HSS

4:10 L/P H6S1 0-2
Composite Sample dug
by hand at base of Telephone
pole behind Scale House -
could not access w/
Minuteman Anal - T Pb, Cr, Cd
on ice

4:15 began at H652
- had to move spoon -
impermiable.
appox 2' east of Sample Steak
BC 17-21-34-57 PID: 0.0 Rec. 96%
Des Gray/Br Granular Slag (& Gravel),
and Sand, Sm Silt, loose, Dry
to 1'Δ to Br. Sand + Gravel
(Slag, rock fragments, White
Ceramic Material), Damp,
Stiff.

4:20 L/P H652 0-2
T. Pb, Cd, Cr - on ice

(27)

Lehigh HS

6/21/93 SY279.04.06

4:25 Set up on HG53
Begin Drilling
BC 51-55-10-11 PID 0.0 Rec 85%
Des Bl Cr Sand & gravel, wood, white Powdery Mat to 1.2 Δ to Br/Bl Cr Sand & Silt - Black staining in layers

4:35 L-1 P/HG53 0-2'
T. Pb., Cr, Cd on ice

equipment used: Level D
3 prs Cotton gloves
7 pr N-Dex
ear plugs

4:40 - Steam clean & pack up
5:10 Brian Suprenant - NYSDEC on site
5:30 Brian left Site
5:40 Leave Site

6/22/93 Lehigh HS

(28)

SY279.04.06

8:00 Arrive on site
Anne Zielinski
Jeff Poulon } ES
Jim Derrigan

Weather - Sunny, breezy, low 90's

Work plan Complete HS-6, Begin on area that spoke

8:10 Set up minuteman

8:40 Calibrate PID

8:50 Set up on HG54

9:05 Begin Drilling at HG54
BC 19-25, 20, 16 Rec 100% PID 2.2ppm
Des: RR Berm - Cs Slag & gravel to 2' Δ to BR/Bl Sand and Silt, concrete, Black Mottling, Damp, Stiff

9:15 L1 P/HG54 0-2' Comp
T. Pb., Cr, Cd on ice

(79) Lehigh SY279.04.06

6/22/93 Hot Spot Samp

9:20 Set up on H6.55

BC 32-24-18-5 PID 1.6ppm Rec 100%

Des: Bl+Rust Colored iron cuttings - Moist - Coated black, hand to 1.2' Δ to Black/Green Med to fine Sand, well sorted damp to wet

9:30 LIP H655 0-2 comp

T. Pb, Cr, Cd - on ice

9:35 Set up on H656

BC 14-17-11-9 PID 2.6ppm Rec 100%

Des: Metal Cuttings - Rusty, dry, 0-2' and Black, oily to .9' Δ to Bl/Gr Med to fine Sand, some Silt, Stiff, damp

9:45 LIP H656 0-2' Comp

T. Pb, Cr, Cd on ice

9:50 Set up on H657

BC 5-6-15-16 PID 2.1ppm Rec 70%

Des Br Fill: Metal, concrete, brick & gravel to 1.2' Δ to Br. Till - Sand, Silt, Sm Gravel, Sm Clay - stiff. damp

Lehigh HS

SY279.04.06 6/22/93 (80)

10:00 LIP H657 0-2' Comp

T. Pb, Cr, Cd on ice

10:04 Set up on H658

BC 10-11-10-20 PID 2ppm Rec 95%

Des BR Sand & fill, Concrete, slag, loose, dry to .6' Δ to Br. Med Sand, & Silt, stiff, damp to 1.6' Δ to Black oily sand & slag.

10:10 LIP H658 0-2' comp

LIP H657 Dup

LIP H658 MS

LIP H658 MSD

T. Pb, Cr, Cd

Photos 12, 13, 14, 15 Minuteman at H658 location, Various Direction

10:15 Decon

10:00 LIP H6 FB Met

Metals field Blank

(81) Lehigh HS

6/22/93 SY279.04.06

10:45 Begin at HA59
Near TP 17
BC 10-10-26-31 PID .4ppm Rec 100%
Des: Metal Cuttings to 1' Δ to
Slag - concrete + gravel to 1.5' Δ to
BI/BR slag + oil coated sand, Damp,
Stiff - med to fn grained.

10:50 UP HA59 0-2 Comp
T. Pb, Cr, Cd

11:00 Begin at HA510
BC 21- NP
1st Spoon - Refusal at 8'
Second Spoon
BC 21-56-13 PID 2.7 Rec 100%
Des Rusty mat to .2' Δ to Black,
oily coated metal - hard, smelly
to 1.4' Δ to BR/Or Sand + Slag,
hard, dry
11:15 UP HA510 0-2' Comp
T. Pb, Cr, Cd

11:25 Decon - Prepare for HS4

SY279.04.02 6/22/93 Lehigh HS (82)

Lunch

1:30 Set up on HA45e in Secured area - Modified Level D w/ Tyvek, Boot covers + glove

picture HA17 + 17-
Minute Man at HA56
Various directions

BC 17-19-12 PID 1.4ppm Rec 100%
Des: Fill: Brown Sand, Gravel, Slag, Cement - granular, dry to 1' Δ to Black Sand + Slag, Stiff, dry to 1.3' Δ to Br/Gr Sand Mid to fn, Lots of Black Mottling - damp: Stiff

1:45 UP HA56 0-2' Comp
TCL PCB - acid wash
on ice
- Move to HA55
will take S Dup, MS + MSD

(83) Lehigh #5
6/22/93 SY279.04.06

1:49 H455
BC 8-5-4-6 PID 10.6 Rec 100%
Des Br/Bl Fill - Sand, slag, concrete, orly, tar coated, damp, stiff

2:00 LIP H455 0-2' Comp
LIP H455 D.U.P
LIP H455 MS
LIP H455 MSD

Anal. for TCL PCB - acid wash on ice

2:11 begin at H451
BC - 36-10-6-2 PID 0.0 Rec 92%
Des Fill: BR/Bl Sand, Silt, wood, cement, slag, coal, gravel, slorly to 2.8' Δ to BR Sand med to fine damp, stiff
2:15 LIP H451 0-2' comp
TCL PCB's acid wash
H4D1
BC 14-5-5-7 PID 0.0 Rec 37%
Des Br Sand med to fine - increasing silt downward, wet, stiff

(84)

2:20 LIP H4D1 2-4' Comp
TCL PCB Acid wash
on ice

1:55 - Brian Supernant - NYSDEC on site w/ flannel shirt, overboots, hard hats & glasses. He was warned not to touch anything w/out gloves

2:30 H457 Begin Drilling
BC 4-3-4-6 PID 0.0 Rec 100%
Des DBR/Bl Fill, slag, sand, wood to -2' Δ to BR med to fine Sand, damp to 1-7' Δ to Sand + Silt, some clay → almost all (+ gravel)
2:35 LIP H457 0-2'
TCL PCB's Acid Wash
on ice
2:47 Set up on H457
BC 5-3-4-7 PID 0.0 Rec 100%

(85) 6/22/93 Lehigh HS SY279.04.06

H457 (Con't)
Dev BR Fill Sand, Gravel, cement, Wood, to 4'Δ to Brown Med to fine Sand trace Silt, ~~loose~~ stiff, damp

2:55 L/P H457 0-2' Comp TCL PCB Acid Wash on ice

3:05 Brian left Site Begin Decon

3:10 L/P H4FB PCB PCB Field Blank

3:55 Set up on H459
BC 5-5-11-24 PID Rec
Dev BR Sand, Glass, slag, concrete, throughout stiff, damp
4:05 L/P H459 0-2' Comp TCL PCBs Acid Wash on ice
Location approx 2.5' North of Steak - Due to access

(86) 6/22/93 Lehigh HS 4 SY279.04.06

4:10 Begin at H451C
BC 3-3-5-7 PID 0.0 Rec ~~8~~ 7%
Dev BR Soil - Roots, Buss, Sand, Silt + Organic, to 1.0'Δ to Br Med Sand, Sm Silt, Moist, loose
4:15 L/P H451C 0-2' Comp TCL PCBs acid wash on ice
H451C 4' W of St due to fence
4:20 Begin at H451I
BC 6-5-8-8 PID 0.0 Rec 90%
Dev Topsoil - Sand, Silt + Organic to 1'Δ to Br Med to fn Sand, Sm Silt, damp, loose
4:25 L/P H451I 0-2' Comp TCL PCB, acid wash on ice

4:30 Set up on H454
BC 6-12-14-12 PID 0.0 Rec 100
Dev Bl/BR Fill, Sand, Gr, Slag, Tarry Residue at 1' ~~at~~ 8 Stiff, damp at base

(63)

9/22/93 Lehigh
SY 279.04.06

4:40 LIP H454 0-2' Comp
TCL PCBs, Acid Wash
on ice

4:45 LIP H452 0-2' Comp
TCL PCBs Acid Wash
on ice

Sample was collected by hand, Sample area inaccessible by Minuteman
Des - BR Sand, Sm Silt, trash (plastic, metal) for full 2'

4:49 H453
OK4-6-8-9 PID Rec
Des 5R/BY Fill: Sand, glass, Slag, Concrete, to 1.2' Q to BR M Sdn Sand, tr Silt, Stiff, damp

4:53 LIP H453 0-2' Comp
TCL PCBs Acid Wash
on ice

4:55 - Decon

9/22/93 Lehigh

(68)

5:30 AR left Sample w/ Jeff P. for delivery at RCA - left Sta

16:00 JD, JP Left Sta

Equipment used (Buffalo)
4 white Tyvek
4 dis. overboots
Duct Tape
Cotton gloves
N-Dex gloves

(89) 6/23/93 SY379.04.06 Lehigh

7:30 Arrive on Site
Jeff Poulsen
Anne Zielinski } ES
Jim Donegan

> Set up maintenance

9:00 Leave site to get water - JP, JD

Weather: Sunny, Mid 70's, breezy

Work Plan - Sample H53, and H52 if time allows.

9:20 Calibrate PID, Suit up in Tyvek

9:40 Set up on H357
BC 32-55 - Refusal
: Changed spoons, Moved a few inches
BC-11 - Refusal
Moved Rig approx. 3.5' East
Slightly South of Steak

(90) 6/23/93 SY379.04.06 Lehigh 115

H357 (Con't)
BC: - Refusal
Will move rig closer to Bunker (Log Steak) - 1' North, 2' East
Try again
BC - 13-100 - Refusal
Moved - 3" - try again
BC - Refusal
Moved again - 2' N 3' East
- Refusal at 8' P.I.D. 0.0
Will take sample from top 8'
Des: Bk Sand, Silt, Gravel & Slag, some "fluff" also Blue stained gravel & slag pieces. White granular Mat.
10:30 K1 P H357 C-1 Comp
TCL PCB's Acid wash

H356 -
BC: 14-24-200 (Refusal)
P.I.D. 0.0 Rec: 52%
Des: Bk Sand, silt, Gravel & concrete to 1.2' D to Black Slag - shiny metal. Sand & rock - U. Hard, Dry
10:45 K1 P H356 C-2 Comp
TCL PCB's

(91) 6/23/93 SX279.04.06 Lehigh LS

11355 Was moved directly S. to edge of cement pad. ~29'
BC 7-9-15-31 PID 0.0 Rec 90%
Des BR Fill - Sand, glass, plastic, loose, dry, to .8' & to Black fill - Sand, metal, glass, slag, slightly oily residue

10:55 LIPH355 0-2' Comp TCL PCB's acid wash

4:35 - attempted to dig out soil in crack in cement foundation -- Cannot get sample from this location

11:10 Set up on H3511
BC 27 - Refusal - Moved spoon a few inches to the North
BC Refusal
Moved ~3' East
BC 36-39-33-27 PID 0.0 Rec 95%
Des. Br. Fill - Sand, slag, wood, loose, to 1.0' & to Blk/gray Oil - metal slag "Charcoal" Sand Silt gravel, dry, hard

(92) 6/23/93

10:30 LIPH3511 0-2' Comp TCL PCB - Acid Wash
11:40 Decon
11:43 LIPH353 TB PCB
PCB Field blank at Hot spot 3
11:50 Brian S - NYSDEC on site
11:55 finish Decon
12:10 - leave Site for Lunch w/ Brian
1:30 ~~Set spot~~ Set up to resume Sampling
1:55 Set up on H354 - Refusal 2 times
BC Refusal PID Rec
Moved again - 3rd try
BC - 27-58-24-19 PID 0.3 Rec 100%
Des BRF: Sand, gravel, glass, concrete, ballast to 1.1' & to Crushed concrete on ballast - stained blue, to Br Med to fine sand, St bb, damp, at 1-4' to 2'

(93) 6/23/93 SX279 06 04
Lehigh HS

2:15 LIP H354 0-2' Comp
TCL PCB's - Acid Wash
Weather Sunny - mid 80's sl. breeze
2:25 Set up on H353 - on RR bed
BC 11-16-21 - 50Rec) PID 0.0 Rec 40%
Dec Br Sand, Rock, Ballast, glass + slag to 1.5' - Ballast & gravel is stained blue, at 1.5' very oily - ballast & slag.

2:35 LIP H353 0-2' Comp
TCL PCBs Acid wash

2:40 Set up on H352 - 2.5' Soft steel on grained surface next to Wash pile
BC 25-18-26-31 PID 0.0 Rec 95%
Dec Br Fill - Sand, metal, glass, crushed limestone - Stained Blue at 1.3' - at 1.5' Δ to Till - Hard Br sand, silt, clay & gravel

2:45 LIP H352 0-2'
TCL PCBs - acid was

6/23/93 (93)

2:45 Between 5th & 6th
3:00 Set up on H351
Refusal - RR Tie
+ Moved 4' West of Steak
Comp (between 2 RR Beds)
Sp1 BC to 8-14-12 PID 0.0 Rec 80%
Dec Br fill to 1' - Sand, slag, Ballast, coal, dry to Δ to Blue Stained ballast & wet sand to 1.3' Δ to Br till, stained blue on outside.
3:20 LIP H351 0-1.6'
TCL PCB, Acid Wash
Sp2 1.5-3.5' H350'
BC 12-15-19-21 PID 3ppm Rec 80%
Dec Br Sand & till, damp, stiff to 2.2' Δ to Gray till, Sand, silt, Sm gravel & clay - v. stiff, damp.
3:30 LIP H350 1.5-3.5'
TCL PCB's Acid wash
~~3:35 - Decon~~
3:40 Set up at H358

(95) 6/23/93 SY279.04.06

#358 (Con't)
BIC Refusal PID Rec
- Have to move North
#359 Collected by hand from Sump - 1' N of 2' E of steaked location - Bl Soils - metals & trash - saturated.

3:45 LIP #359 0-2' comp
TCL PCBs - Acid Wash
- Sump is greater than 3.5' dp - Much debris - Scrap metal, wood, crushed cans, hoses, etc leaves, soil, stream water flowing into hole
- Sump - 2' East of Steak
3:55 Resume w/ #358:
BC 2-17-21-18 Rec 60% PID 0.0
Des - Fill - Crushed cement, Ballast, rock, some sand & metal - dry
4:00 LIP #358 0-2', comp
TCL PCBs, Acid Wash

4:10 Decon.

6/23/93 SY279.04.06 (96)
Lehigh

equipment used
6 - Tyvek
6 - outer boot covers
Duct tape
Cotton gloves
N-Dex gloves
Ear plugs
4:50 leave site

(97) SY279.04.06

6/23/93 Lehigh HS

7:00 am Arrive on site
Staff, Paulsen
Anne, Zielinski } ES
Jim Flannigan }

Weather: Sunny, mid 60's

Work plan
Complete Sampling at HS3, HS2, & HS1 if time allows

7:45 Calibrate PID
- Relocate 2 locations which are on cement foundations HS512 was moved 25' N and HS510 was also moved 25' N.

9:05 Start at HS510
BC H-E-12-13 PID 7ppm Rec 75%
Des Br. Fill: Sand, wet at, gravel to 1.0' Δ to Br Sand+Silt, to Clay, smgravel - St (6), wet

9:10 LIPHS510 } 0-2' comp
LIPHS510 DUP }

(98) SY279.04.06

6/24/93 Lehigh HS

TCL PCB's + acid wash

9:20 begin at HS513
BC 40-51 - Refusal

9:25 - Clip brake holding hammer & ~~rod~~ began to fray - both were replaced.

955 - Resume PID: 0.4 ppm Rec 68%
Des Br. Fill: Sand, Gravel, concrete very granular to 1.6' Δ to Br. Till: Sand, Silt, Sm gravel & clay

10:03 - LIPHS513 0-2' Comp TCL PCBs on ice

10:10 Start at HS512
BC - Had to move Sample location due to buried concrete - 25' N had to be moved again - approx 3' S

10:25 Resume
BC 31-17-20-39 PID 0.0
Rec 75%

H3512 (Con't)

Des BR fill Sand, gravel, granular loose, damp to 1.1'Δ to Br Sand + Silt, Sm gravel, Stiff, limestone chips.

10:35 LIP H3512 0-2' Comp
TCL PCB's - acid wash

10:40 Begin at H252
BC 7-9-6-11 PID 0.0 Rec 100%
Des Br Fill, Sand gravel, metal + plaster, loose, granular to .5'Δ to Br. fin to Med Sand, little silt, Stiff, dry

10:50 LIP H252 0-2' Comp
TCL PCB's - Acid Wash

10:55 Set up on H253
BC 10-10-7-14 PID 0.4 Rec 100%
Des BR fill - Metal Slag, Sand, concrete, granular, to .7'Δ to Black Sand, gravel + slag, Stiff, to 1.4'Δ to Br Med to fin Sand, Stiff, damp.

11:05 LIP H253 0-2' Comp
TCL PCB's - Acid Wash

11:10 Decon

12:20 Decon complete - leave for lunch

1:20 Return from Lunch - Suit up for sampling
↳ Brian S (NYSDEC) on site when we return

1:40 Set up on H258
BC 20-36-12-22 PID 2ppm Rec 60%
Des Br fill: Sand, gravel, metal, white granular material - must stained to 1.2'Δ to Sand, Med + fin to silt, Stained Black in layers.

1:55 LIP H258 0-2' Comp
LIP H258 Dup
TCL PCB's - Acid Wash

2:00 Set upon H251 - will take Shallow, Deep and Dup, MS, MSD of Deep

(101) 6/24/93 SY279.04.06 Lehigh HS

#251 (Con't)

0-2' BC 13-24-11-9 Rec- PID NR

2-4' BC 10-6-11-14 Rec 50% 5+D PID

Moved ~2' East of steak

try again

0-2' BC 21-10-8-7 Rec 30% PID 0.0

2-4' BC 9-5-9-16 Rec 65% PID 2.0

0-2' Des: Br - Rust colored fill: Sand, glass, Plastic, metal to 1.4' ± to Bl. fill: slag, rubble, granular material to 1.7' ± to BC Sand, med to fine, some clay, damp, Stiff.

2-4' Des to 3' - Surface material which fell in hole 3' to 3.5' - Sand & Silt, trace clay, Stiff, damp ± to BR till - Sand & Silt, Sm. Clay, Sm Gravel, rounded, wet IS gravel.

2:35 LIPH251 0-2' Comp

2:55 TCL PCBs : acid wash

2:40 LIPH201 2-4' comp

LIPH201 Dup

LIPH201 MS TCL-PCBs

LIPH201 MSD acid wash

at 2:30 Brian S. left site

6/24/93 SY279.04.06 Lehigh (102)

had to drive ~~Dup~~ Deep spoon - not enough recovery for samples.

3:15 Set upon #257

BC - Refusal

try again - moved ~2' N

3:30 LIPH254 - 0-2' Comp By hand - right to fence in old RR Bed - 0-1.6 - RR Ballast & Brown - Rust colored Sand at 1.6' ± to Br Sand, med to fine, damp

ran for TCL PCBs - acid wash

3:30 Resume on #257 after 4 tries

BC - 7-4 - Ref. Rec - 50% PID 0.0

Des Br/Bl fill Sand & Silt, Metal, glass, rock - granular loose & Dry

3:40 LIPH257 0-1.3' Comp TCL PCBs Acid Wash and

(103)

SY279.04.06

6/24/93 Lehigh HS

3:45 Take down & Decon

4:10 Field Blanks

LIPHS2FB PCB
LIPHS DFB PCB
for TCL PCBs on ice

4:30 Left Site

equipment (Buffalo)
6 Tyvek
6 outer boot covers
Duct tape
cotton gloves
N-Der gloves
ear plugs

SY279.04.06

6/25/93 Lehigh HS

(104)

7:00 Arrive on Site
Jeff Poulsen
Tom Derrigan } ES
Anne Zilinski

Weather: Sunny, Hazy, high 80's
breezy

Work Plan, complete HS2, HS1

7:30 Setup on Buffalo Bread Beam
7:55 H2S5 0-2'
BC-8-15-13-9, PID 0.0 Rec 70%
BR Fill: Sand, glass, gravel, silt, loose & granular, to 1.5' Δ to
Br. Med to fin Sand & Silt, loose, damp - Stained Black

8:05 LIPH2S5 0-2' Comp
TCL PCBs + Acid Wash
on ice

8:05 Set up on H2S6
BC-6-7-4-5 PID 0.0 Rec 35%
BR Fill: Sand, slag, crushed ballast, glass, loose

(105) Lehigh HS
6/25/93 SX279.04.06

8:10 LIPH2SC0 0-2' Comp
TCL PCB's - acid wash

8:15 Set up on H152
BC - Hm-2-3-2 PID 0.2ppm Rec 100%
Des BR med to fine Sand, Sm Silt, loose, damp; Stained Black from 0 to 1.2'

8:20 LIPH2S2 0-2' Comp
TCL PCB - acid wash

8:25 Set up on H151: QA/QC Samples
BC 9-8-5-14 (retracting) PID 0.4ppm Rec 60%
Des: Gravel, sand to 1.0' ± to BR Sand, Med to fine, Sm silt, Stained black, damp, loose
- Drove 2nd spoon 0-2 for QA/QC samples
Same as above

8:35 LIPH151 0-2' Comp
LIPH151 Dup
LIPH151 MS
LIPH151 MSD
TCL PCBs - Acid wash on ice

(106) Lehigh HS
6/25/93 SX279.04.06

8:30 Sewnal Buffalo Break beam workers were standing at side back of the building (checklist)

8:45 Set up on H154 0-2' comp
BC 2-2-2-1 PID 0.0 Rec
Des Br. Fill - Crushed gravel, found Brick & Sand to .4' ± to Br. Med to fine Sand, Sm Silt, loose, damp, stained black in places (~5%).

8:50 LIP H154 0-2' comp
TCL PCBs - acid wash

9:00 LIP H153 0-2' Comp
TCL PCBs - acid wash
Dug by hand - at edge of bluff pile - Soil w/organics - Sand & Silt - amongst concrete & crushed rock
9:10 LIPH151 FB PCB
H151 - Field Blank for PCBs
9:15 - Decon
9:20 Workers from Buffalo B.B came over & chatted (weather)

(107) 6/25/93 Lehigh ~~HS~~ SY279.04.07

Recon

9:25 Set up on R-38

BC 8 9-6-6 PID ____ Rec 50%

Des BR/B Fill: Sand, glass, plastic, fluff & metal to .9' Δ to Brick (Rid) to 1.0' Δ to Br Sand - med to fine, tr silt, damp, loose stained black from 1.0 to 1.6'

9:45 LIPR38 0-2 Composite TCL PCBs Acid Wash Photo 20 - taken by Jeff Poulson

9:50 Set up on R-39

BC 3-2-2-9 PID 0.0 Rec 50%

Des Br Fill to .9' comp of Sand, crushed gravel & slag, loose, dry at .9' Δ to Br Sand med to fn, sm silt to 1.5' Δ to cs gravel - 15, Sand & silt

10:00 LIPR39 0-2 TCL PCBs acid wash

~~Set~~ up at R40

BC - 2-1-2-1 PID 0.0 Rec.

Des. BR Fill: Sand, gravel, crushed Galast & glass to 0.6' Δ to BR sand med to fn, tr silt Stained black from 0.6 - 0.9'

(108) 6/25/93 SY279.04.07

Lehigh - Recon Samples

damp, St 46

10:10 LIPR40 0-2' comp

LIPR40 Dup

LIPR40 MS

LIPR40 MSD

TCL PCBs - Acid Wash

10:15 Set up on R-41

BC 4-3-4-3 PID 0.0 Rec 100%

Des. Fill to .4': Brick, Sand, gravel, ballast. at .4' Δ to Br. Sand, med to fine, damp, stiff: stained black from .4' to 1.2'.

10:20 LIPR41 0-2 Comp TCL PCBs - acid Wash

P: 25 - Take Down & Decon

10:45 LIPR FB PCB-1 Recon FB1 for PCBs

(109) 6/25/93 SY279.04.07
Lehigh Recon

10:55 Leave Site to Deliver Samples

Equip. Used (Bulb)
3 Tyvek
3 outer Boots
Duct tape
Cotton gloves
N-Dex gloves
Earplugs

6/28/93 SY279.04.07 (110)
Lehigh - Recon

10:20 Arrive on Site
Anne Bielinski - ES
Cameran O'Connor - DOH
Tim Feran - NYSDEC
Already on Site

weather - Cloudy, windy, some rain - low 70's

Work Plan - Complete Reconnaissance Sampling

10:45 Cameran & Tim left site to talk to Reverend of nearby Church about sampling -

10:50 Jeff Faulkenberry on Site, - ES left to get water

11:10 Tim Berrigan on Sit - DOH

We will take the samples S3 & S7 S-3 first - behind the Church in the garden

(11) 6/28/93

11:30 R-36 Hand Dug at base of pole behind Baptist Church Strat: Fill; Br/Bl sand, metal + Crushed slag, also RR Ballast to .9'Δ to Br Sand; Med to fine, damp

11:35 LIPR36 PCB 0-2' Comp
LIPR36 Met on ice

11:40 R-37 - dn backyard of Baptist Church approx 3' W of Fence

Strat: Fill - Soil, Bl + Br) organic Material, Metal (car emblem), gravel, to 1.1'Δ to Br Sand med to fine, Damp, stiff dup by hand

11:45 LIPR37 PCB 0-2' Comp
LIPR37 Met on ice

12:00 Cameron O'Connor Left Site

(12)

12:10 Brad Brown Left Site
12:15 - Lunch
12:40 - Lain, Can't run Cathead

1:30 Resume Work - Set up Field Blanks Recon Shallow for PCB's + Metals

1:45 LIPRFB PCB 2
LIPRFB Met
Grab Samples - on ice

1:50 Set up on R-35
BC 33-15-10-14 PID — Rec
*Cannot use PID - too wet
Dec BR (Rust) Fill: metal, sand, gravel + silt, loose, to 0.9'Δ to Br Sand med to fine, some silt, - Stained black near base - shale chips
2:05 LIPR35 PCB
LIPR35 Met 0-2' comp on ice

(17)

2:10 Begin at R-32 Shallow:
BC 10-17-6-13 Rec 70%
Des BP Fill: (Lust) Metal, Glass, white granular Material to 1.7'± to BR Sand, med to fine, Sm Silt, Stained Black & Gum (Olive Creek)

2:25 LIPR32 PCB 0-2' Comp
LIPR32 Met
on ice

2-4' BC 10-9-12-7 Rec 60%
Des Br Sand, Stained Black at top, to 3'± to Till: Br Sand & Silt, Sme Clay, Some gravel - wet, Stiff
- had to drive another spoon for lab QA/QC

2:50 LIPR32 Met
LIPRD32 PCB
LIPRD32 PCB Dup
LIPRD32 PCB MS
LIPRD32 PCB MSD

on ice 2-5' Composite

2:55 Set up on R34 S adj
BC 30-40-10-5 Rec
Des Fill: BR Sand, Slag, Ballast, wood to 1.3'± to BR Sand Med to fin, some silt, Stained Black

3:10
LIPR34 PCB
LIPR34 Met
LIPR34 Met-Dup
LIPR34 Met MS
LIPR34 Met MSD

3:25 Begin Decon

3:35 Begin at R-33
- hand pan at location is greater than 6" thick - moved approx 2' North of Steak.
BC 12-15-7-7 Rec 75%
Des Metal Fill, Sand, cuttings, glass, to 1'± to Br Sand & Silt, layered, Stained Black at top & Base

3:40 LIPR33 Met
LIPR33 PCB
LIPR33 PCB DUP
on ice 0-2' comp

3:45 Set up on RS1 + RD31
BC 9-11-12-15 Rec 65%
Des: Fill: Metal Cuttings, Sand, Ballast, gravel, to 1.7' Δ to Br Sand - Med to fine, Sm Silt, damp

3:50 LIPR31 PCB 0-2' Comp
LIPR31 Met on ice

2-4' BC 12-16-14-17 Rec
Des Fill - Met Cuttings - built in hole to 3.3' Δ to Black Stained Br Sand, Mst to Wet to 3.2' Δ to BR Sand & Silt to Clay, wet. Most Metal Cuttings were separated out

4:05 LIPRD31 PCB
LIPRD31 Met 2-4'
LIPRD31 Met Dup comp.
LIPRD31 MS
LIPRD31 MSD on ice

4:10 - Decon & Sample Custody

4:25 Field Blanks
LIPRDFB MET ice
LIPRDFB PCB HNO_3
Grab - on ice

5:00 Relinquished Samples to J.P. Left Site

Equipment used
3 units level D