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Remedial Activities at Uncontrolled Hazardous Waste Sites in Region V

EPA United States Environmental Protection Agency

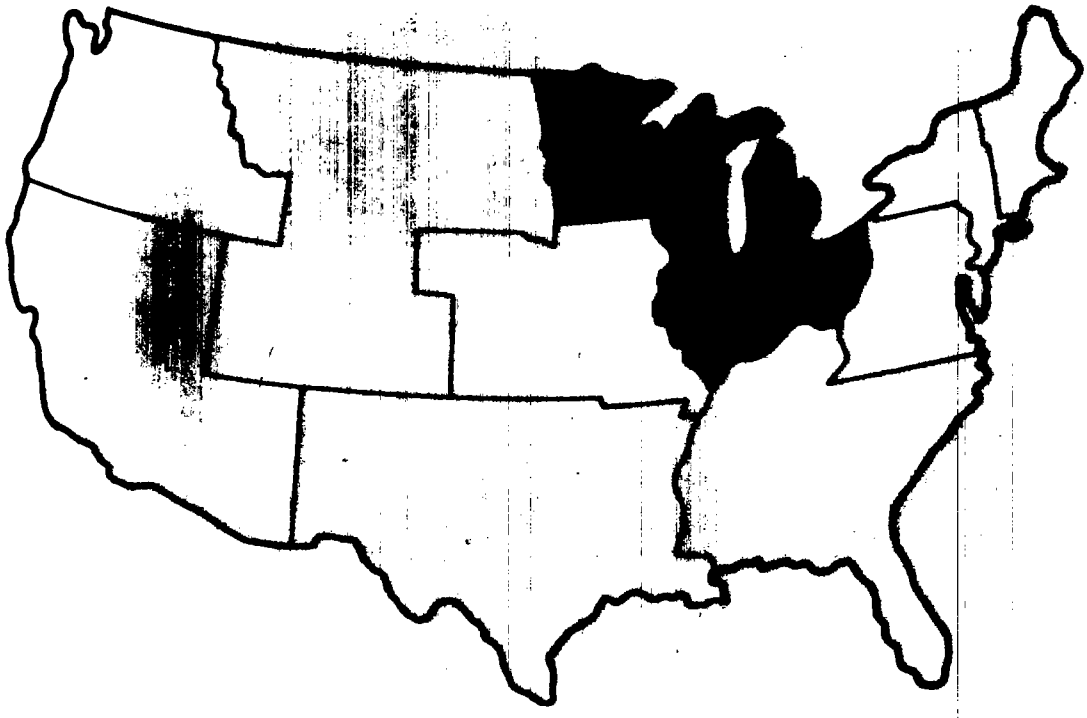
Remedial Investigation Report

Carter-Lee Lumber Company Site
Indianapolis, Indiana

Remedial Investigation

WA 49-5LBD / Contract 68-W8-0040

~~December 30, 1994~~ → May 1995



CH2M HILL

5 of 8
3 Mai 1995

Remedial Investigation Report

Carter-Lee Lumber Company Site
Indianapolis, Indiana

Remedial Investigation

WA 49-5LBD / Contract 68-W8-0040
~~December 20, 1994~~ May 1995

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

June 1, 1995

Mr. David Carter
Carter-Lee Lumber Co.
1621 W. Washington St.
Indianapolis, IN 46222

HSR-6J

Dear Mr. Carter:

As we discussed yesterday, I am enclosing a copy of the Remedial Investigation Report for the Carter-Lee Lumber Company Superfund Site. This report outlines the results of the field work that occurred in 1992 and 1993. By copy letter, I am also providing a copy of this report to the public repository at the Hawthorn Community Center. In addition, at your instructions, I shipped a copy of this report via overnight mail to S. Andrew Bowman, yesterday evening. I intend to either visit or correspond with community members in the near future. As you know, the next step in the process is to respond to the conditions we have identified at the site. I will keep you apprised of the schedule.

Thank you for your cooperation with this matter. If you have any questions, I can be reached at (312)886-7576.

Sincerely,

Deborah L. Orr
Remedial Project Manager

cc: Bill Bolen, CFS
Art Garceau, IDEM w/attachment
Dale Cira, CH2M Hill
S. Andrew Bowman, McHale, Cook & Welch
Hawthorn Community Center w/attachment
Record Center w attachment

Contents

Page

Tables

Figures

Acronyms and Initialisms

ARAR	Applicable or Relevant and Appropriate Requirements
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient Water Quality Criteria
bgs	below ground surface
BOD	Biological Oxygen Demand
BRAP	Baseline Risk Assessment Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLL	Carter-Lee Lumber
CLP	Contract Laboratory Program
COD	Chemical Oxygen Demand
CPC	chemicals of potential concern
CRL	Central Regional Laboratory
CSL	Close Support Laboratory
CWA	Clean Water Act
DQO	Data Quality Objective
EDMS	Environmental Database Management System
EPA	Environmental Protection Agency
FS	Feasibility Study
FSP	Field Sampling Plan
ft d	feet/day
gpd ft	gallons/day/foot
Has	Health Advisories
HEAST	Health Effects Summary Tables
HSP	Health and Safety Plan
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resources
IRIS	Integrated Risk Information System
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goals
MEK	Methyl Ethyl Ketone
NAAQS	National Ambient Air Quality Standards
NCP	National Contingency Plan
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NPL	National Priority List
ODW	Office of Drinking Water
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
PARCC	precision, accuracy, representativeness, completeness, and comparability
PCB	polychlorinated biphenyl
PPE	Personal Protective Equipment
PRP	potentially responsible party
QA	quality assurance
QAPP	Quality Assurance Project Plan

QC	quality control
RA	remedial action
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RfD	reference dose
RI	Remedial Investigation
RME	Reasonable maximum exposure
SP	Sampling Plan
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SPCS	Superfund Project Control System
SVOC	semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOC	Total Organic Carbon
USGS	U.S. Geological Survey
VOC	volatile organic compound
WQC	water quality criteria
yd^2	square yard
yd^3	cubic yard

MKE100155A5.WP5

Executive Summary

Purpose

A remedial investigation (RI) was performed by CH2M HILL at the Carter-Lee Lumber (CLL) Company site in Indianapolis, Indiana, for the purpose of determining the nature and extent of the potential contamination and to help focus future efforts at remediation, should it be determined that it is necessary. The work assignment (WA) to perform this RI was received by CH2M HILL on April 9, 1992.

Site Background

The CLL facility is primarily used as a commercial lumber yard and it is located in an industrialized area of Indianapolis, Indiana. CLL has been retailing lumber at this location since 1873. The portion of the site evaluated in this RI is a 4-acre parcel at the southern portion of the property. This portion of the site was previously owned by others, including the Penn Central Corporation, and sold to CLL in 1979 for expansion. During 1971 and 1972, the property was leased by several different commercial waste hauling companies that used it for industrial waste product disposal.

Materials disposed of at this site during this period reportedly included neutralized calcium ferrosulfate (spent sulfuric acid pickling liquor) used in metal plating operations, an oily filter cake, and a red liquid that may have been metal plating sludge or other material. A small batch operation used by CLL to treat wood products using pentachlorophenol was later identified as possibly contributing to the site contaminants.

During earth moving activities for construction at the site, red soil was encountered, excavated, and placed into a trench. During a later activity, the red soil was respread over an area about 220 by 250 feet in the southeast corner of the site, where it is currently located.

Previous Investigations

Preliminary investigations performed by the EPA's field investigation team (FIT) contractor focused on the red soil. Analytical results from samples of the red soil indicated the presence of heavy metals and organic polynuclear aromatic hydrocarbons (PAHs). The metals and PAHs detected are shown in the table below.

Contaminants Detected in Red Soil by EPA/FIT	
Heavy Metals	**Polynuclear Aromatic Hydrocarbons**
Arsenic	Phenanthrene
Cadmium	Di-n-butylphthalate
Chromium	Fluoroanthene
Copper	Pyrene
Lead	Benzo[a]anthracene
Mercury	Chrysene
Nickel	Benzo[b,k]fluoroanthene
Cyanide	Benzo[a]pyrene

Investigation Approach

CH2M HILL developed an investigation approach to evaluate the nature and extent of contaminants in site soil and groundwater media. The RI also considered the highly industrialized nature of the community wherein the CLL site is located, by collecting and analyzing offsite soil samples. The field work was performed in two phases from November 1992 to September 1993. During Phase 1, surface and subsurface onsite soil samples were collected, five monitoring wells were installed, and 18 of 21 offsite soil samples (one of which was a replicate) were collected. During Phase 2, 2 groundwater sample collection rounds were conducted and 3 offsite soil samples (one of which was a replicate) were collected.

Twelve soil borings were drilled onsite and three onsite drainage areas were sampled. From those locations, 35 discrete soil samples were collected. Soil samples were analyzed for the following parameters:

- Volatile organic compounds (VOCs)
- Semivolatile organic compounds (SVOCs)
- Pesticides/herbicides/PCBs
- Metals
- Cyanide

Twenty-one offsite soil samples were collected from the upper 6 inches of soil in areas representing nearby residential lawns, street boulevards, proximate to railroad tracks (which are prevalent in the area); and vacant urban lots. The objective of this sampling was to identify the effect the ubiquitous urban and industrial setting would have in comparison to concentrations of site-related contamination. The offsite soil samples were analyzed for SVOCs and metals at all locations. In some samples, VOCs, pesticides, herbicides, PCBs, and cyanide were also analyzed.

Groundwater was monitored by drilling and installing five monitoring wells onsite. Each well was sampled during three quarterly episodes to gather information on the effects from the source materials on groundwater and to evaluate potential seasonal variability. Samples collected were analyzed for the same list of parameters as onsite soil samples.

Groundwater users were surveyed in July and August 1993 to evaluate the potential effects of production well pumping from within a 1-mile radius of the CLL site. Water well records for the area of concern were obtained from state and local agencies and reviewed. A site reconnaissance was made to supplement and to help verify the accuracy of information obtained during the data review.

To better evaluate the nature and pervasiveness of the industrial influence in the area, a historical data review was performed. This review consisted of obtaining and studying archival aerial photography, historical Sanborn Insurance maps, and searching available databases for information on environmental permits and underground storage tanks in the vicinity of the site.

An ecological investigation of the CLL site and immediate vicinity was performed in October 1993. The purpose of this investigation was to provide a basis to qualitatively evaluate the potential ecological effects of contaminants associated with the historic waste disposal practices.

Site Setting

The CLL site is paved with asphalt except for the southeast corner of the property which is covered with a 6-inch layer of compacted gravel. The setting is urban/industrial and the site is surrounded by industry including the Westinghouse Air Brake Company (now abandoned), General Motors Coach Division manufacturing plant, Ford Motor Company, and Chrysler Motor Company. The area is served by an extensive network of railroad tracks and the site is bordered on the east and south by Conrail railroad tracks. Eagle Creek is approximately 0.5 mile southwest and the White River is about 1 mile east of the site.

The CLL site is relatively flat, with a slight slope to the southeast. There is no active surface water drainage off the property. Railroad berms cut off any surface drainage off the property. Surface water tends to pond at the southeast corner of the property and infiltrate through the sandy soil beneath the site.

The site geology is characterized by a series of fill layers from about 12 inches below ground surface to 15 to 20 feet. The fill material varies across the site, but consists of sandy gravel and clayey silty sand with miscellaneous debris including bricks, concrete and wood. Some areas of the site are filled with black dense sand similar to a foundry sand mixed with what appeared to be fly ash.

The unconfined, shallow water table was encountered at about 20 to 25 feet below ground surface. Typically, groundwater flows toward the southeast. Through the well users

survey, a cone of depression was identified southeast of the site which may influence the groundwater flow direction in the vicinity of the site. Most of the wells within 1 mile of the site are used exclusively for manufacturing processes. Marion County occasionally supplements its municipal water supply with groundwater pumped from the same sandy aquifer that extends beneath at the site. The municipal wellfield is located about 7 miles south of the CLL site. Several residential wells have been identified within the 1-mile radius. However, results of the groundwater users survey indicate these wells have either been abandoned, or are no longer used.

The findings of the October 1993 ecological investigation indicate that the ecological characteristics of the CLL property and the immediate vicinity are consistent with urban abandoned lands. Vegetative cover is restricted to narrow borders and the sparse plant communities are predominantly composed of weedy species typical of disturbed lands. There were no sensitive or high-value ecological habitats identified in the area during the ecological investigation. The ecological investigation is described in more detail in Technical Memorandum No. 3 in Appendix A.

Nature and Extent of Site Contaminants

Findings of the soil investigation indicated the presence of the same contaminants identified previously by the FIT contractor across much of the study area. The contaminants included PAH and other SVOC compounds at depths typically ranging from 4 to 8 feet below the ground surface. Several pesticides were also detected in soil samples. Concentrations of SVOCs and heavy metals were in the range consistent with the FIT contractor's results. The distribution of the SVOC compounds was generally consistent with the presence of the red soil and with the black cinder sand fill material.

Background soil samples were collected to compare the ubiquitous concentrations of SVOCs and metals in the area with those found onsite. A statistical comparative analysis was performed on the full data set. The results of that comparison indicate the SVOCs and metals are widely distributed in the background area, including in residential lawns, along street boulevards, near railroad tracks (which are prevalent in the area), and on vacant urban lots. The results of the analysis indicate that statistically there is no significant difference between the SVOC and heavy metal concentrations found onsite compared with those found offsite.

Groundwater below the site was monitored for three-quarters: November 1992, June 1993, and September 1993. The results of analyses from these sampling events indicate there may be low concentrations of some SVOC compounds, including phenol, phenanthrene, di-n-butylphthalate, pyrene, and bis(2-ethylhexyl)phthalate. The compounds were detected in one of the three sampling events and at low concentrations. Low concentrations of arsenic and cyanide were detected in several site monitoring wells during one event. Beryllium was detected at low concentrations in two events. Several pesticides were detected at varying concentrations and with little consistency across the sampling events.

Fate and Transport

Volatilization of some contaminants to the air is possible if present at the soil surface; however, most contaminants were detected well below ground surface. Volatilization is not considered a transport mechanism because there is a well-maintained asphalt cover or at least 6 inches of compacted gravel over the entire site.

Fugitive dust emissions are not considered a transport mechanism at this site because there is a well-maintained asphalt and gravel cover over much of the site. The portion of the site that is not covered in asphalt has very low concentrations of contaminants and as such, is not a significant source of contaminant emissions.

Infiltration of rainwater to groundwater is a potential transport mechanism that could leach contaminants from deeper soil layers to the water table. The deeper soil layers consisting of silty sand or clayey sand layers 4 to 8 feet below ground surface are less likely to release contaminants because the contaminants are more tightly sorbed to the soil. In addition, the gravel cover reduces rainwater infiltration.

Currently, the contaminants detected at the CLL site have not migrated beyond the source areas identified in the preliminary investigations, i.e., the trench area and respread red soil area. Based on the analytical results of the sample intervals, soil appears to be potentially contaminated at depths of 4 to 8 feet below ground surface and occasionally near the surface. Because fill material exists at the 4- to 8-foot-depth interval, contamination may have originated in the fill material brought to the site either before or after the spraying of pickle liquor occurred. It is also possible the pickling liquor was moved to deeper locations through more recent earth moving activities. Review of the RI findings does not indicate there has been significant contaminant migration to the water table or offsite. Surface run-off enters the drainage swales along the southern and eastern site boundaries and drains to a low area in the southeast corner of the site. The railroad beds to the south and east of the site are elevated about 6 to 8 feet above the surrounding ground surface and act as a barrier to surface runoff offsite. The surface waters tend to pond at this point and infiltrate to the subsurface.

Offsite concentrations of SVOC and metals, primarily because of the industrial nature of the area, are often higher than those detected onsite. The sources of contaminants detected offsite are ubiquitous and cannot be traced solely to site activity, based on the information obtained during this investigation.

Risk Assessment

The risk assessment was performed to evaluate current occupational, future occupational, and future residential health risks. Because the typical depth of excavation during construction is 10 feet, soil samples collect at depths of 10 feet or less were used in the risk assessment.

Using EPA risk assessment guidances and procedures, many of the chemicals of potential concern (CPCs) previously identified for the site have been eliminated from further consideration in this risk assessment (RA) primarily because their concentrations did not differ significantly between offsite and onsite samples. This does not imply the CPCs previously identified do not pose some risk. However, the concentrations of most CPCs onsite represent the same or lower potential risk than concentrations of these same CPCs found offsite in background samples. The CPCs evaluated quantitatively in this RA include:

- Heptachlor in site soil
- Arochlor-1254 (PCB) in site soil
- Alpha BHC in groundwater
- 4,4'-DDT in groundwater

There are no known exposures to contaminants for a current occupational receptor, primarily because the site is covered either in asphalt or 6 inches of compacted gravel and top soil. The noncarcinogenic cumulative hazard index estimated for soil exposure or groundwater exposure in a future occupational receptor setting is less than one, indicating negligible potential for adverse health effects. The excess lifetime cancer risk for future occupational soil exposures is 2×10^{-7}, which is outside the lower end of the target range of 10^{-4} to 10^{-6} for acceptable cancer risk, according to EPA guidance.

For future residential receptors, the noncarcinogenic cumulative hazard index estimated for soil and groundwater exposure is less than 1, indicating negligible potential adverse health effects. The estimate of cumulative excess lifetime cancer risk for future residential soil exposures is 1×10^{-6}, which is at the lower limit of the EPA acceptable cancer risk range. The cumulative excess lifetime cancer risk for residential groundwater exposures is 3×10^{-7}, which is outside the lower end of the EPA target range for acceptable cancer risk.

Conclusions

The distribution of site-related contaminants has been defined adequately for soil and groundwater to develop a feasibility study (FS) of appropriate remedial or removal alternatives. The quality control criteria for laboratory samples have been met, according to the requirements of the EPA's evaluation criteria and guidelines.

The decision to pursue delisting, based on the nature and extent of contamination identified and on results of the risk assessment must be made consistent with EPA policy. Should remedial measures be further considered, preliminary remediation goals (PRGs) will be developed as the first task of the FS.

Potential remedial or control measures that may be considered for this site include:

- Using institutional controls, such as deed restrictions on the future use of the site should it be sold

- Placing an asphalt cap over the remaining portion of the site not currently capped, including drainage swales

- Initiating source control measures such as excavation and removal of soils contaminated with PAHs and heavy metals with transport and disposal to a special waste or hazardous waste landfill

- Initiating source control measures using in situ stabilization method

Groundwater does not appear to be affected to a point where active treatment would be reasonable. Source control of the contaminated soils above the water table would likely achieve significant reductions in long-term risk to potential receptors from groundwater.

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Section 1.0
Introduction

1.1 Purpose of Report

The U.S. Environmental Protection Agency (EPA) contracted CH2M HILL to perform a remedial investigation (RI) as part of WA No. 49-5LBD to CH2M HILL on April 9, 1992, for the Carter-Lee Lumber (CLL) Company site. This RI report satisfies Task 5.2 of the Statement of Work included in the WA. The purpose of this report is to summarize the results of Phases 1 and 2 of the investigation. This information will be used to develop relevant and appropriate recommendations for site action, including a feasibility study (FS) to evaluate potential remedial actions.

1.2 Site Background

1.2.1 Site Description

The CLL site is located at 1621 West Washington Street in Indianapolis, Indiana (Marion County, Center Township; see Figure 1-1). The site is directly south of the parcel of land that contains the original main plant and offices of the CLL company. The site investigated is about 4 acres in size. It is bordered on the west by Reichwein Avenue, to the south and east by Conrail railroad tracks, and to the north by CLL's original property (Figure 1-2). Eagle Creek is about 0.5 mile southwest of the site and the White River is about 1 mile to the east. The regional topography is relatively flat and ranges in topographic relief from about 745 feet above mean sea level 2.75 miles west of the site to about 705 feet at the White River about 1 mile east of the site. The site is also relatively flat.

Lumber and materials are stored on the site in three sheds (Building Nos. 1, 3, and 4). The site is paved with asphalt except for the southeast corner, which is covered with compacted gravel. Drainage swales run parallel to the eastern and southern site boundaries to collect runoff from the southern portion of the site (Figure 1-2). Conrail railroad tracks are elevated along the eastern and southern boundaries as much as 6 to 8 feet above the site elevation. Surface runoff from the tracks possibly contributes drainage to the swales along the site boundaries. The southeast corner of the property is the lowest elevation point on the site, and is believed to be a surface runoff collection area for the site and portions of the Conrail tracks.

1.2.2 Site History

The site was previously owned by the Penn Central Corporation and sold to Carter-Lee Lumber Company in 1979 to expand operations. Beginning in 1969, Penn Central Company, a predecessor to Penn Central Corporation, leased the site to Unver Trucking

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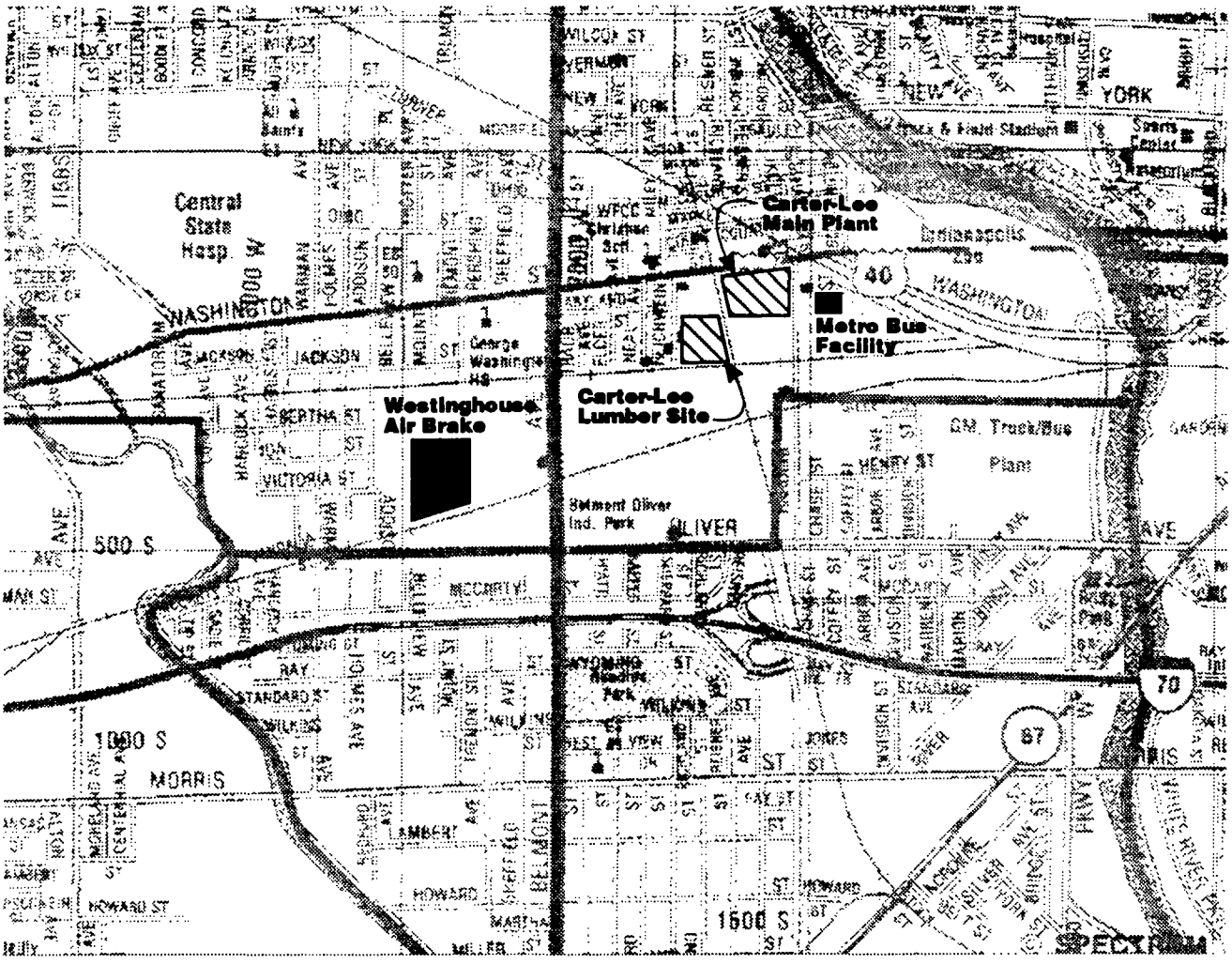

North

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Scale In Feet

FIGURE 1-1
Vicinity Map
Carter-Lee Lumber RI

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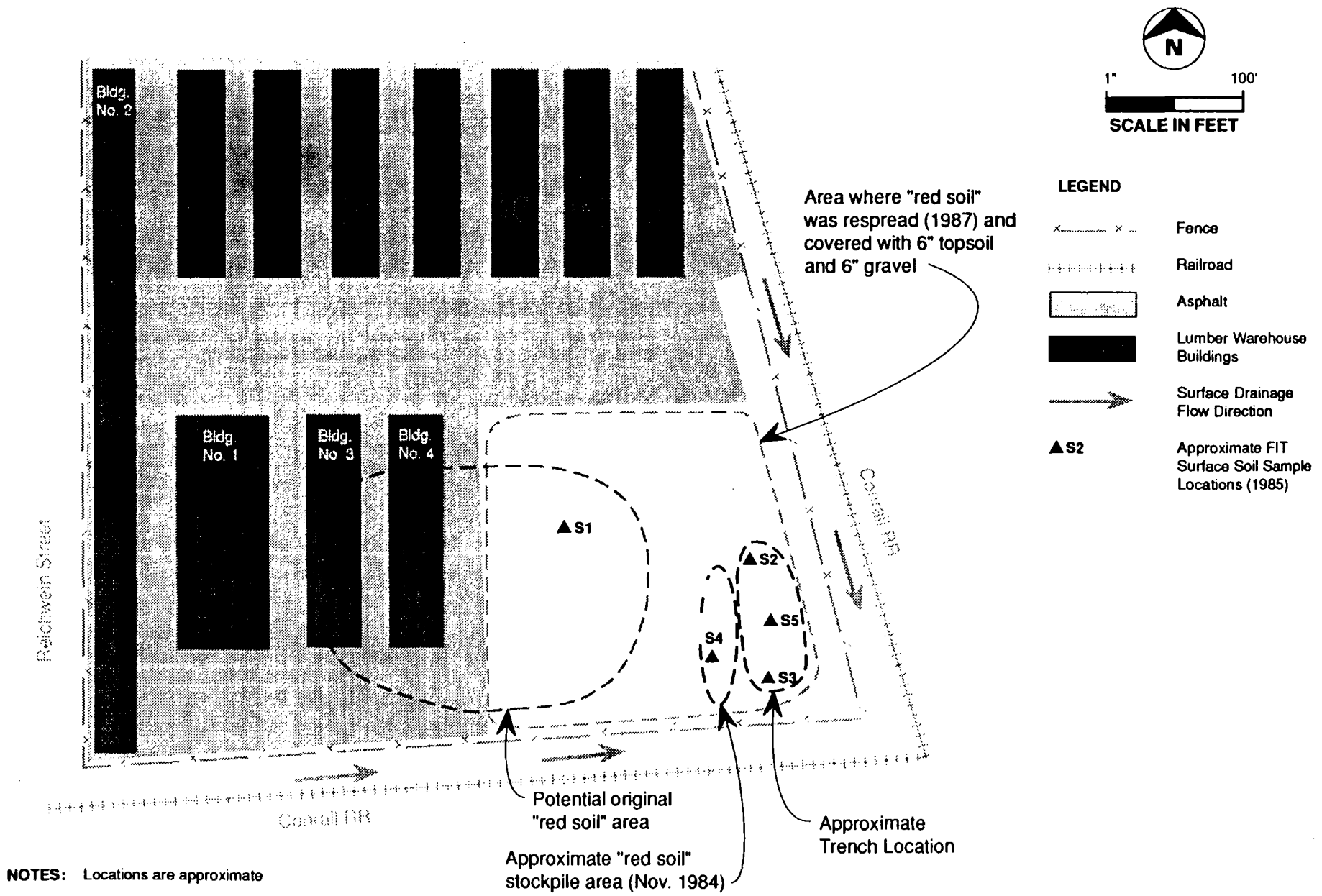

NOTES: Locations are approximate

The railroad tracks are elevated about 6-8 ft. above the relative ground surface

FIGURE 1-2
Site Map
Carter-Lee Lumber RI

Company, and Unver and its lessees later entered into various lease agreements with Central Lime Corporation, R&V Trucking, and R&V Services. The lessees used the area to land apply neutralized calcium ferrosulfate (spent sulfuric acid pickling liquor) from various reported manufacturers in the area including Ford Motor Company, Chrysler Corporation, General Motors (Delco Electronics and Detroit Diesel Allison), and LTV Steel (Jones and Laughlin Steel). Reports from interviews conducted by the EPA with representatives of these parties confirmed that neutralized metal plating sludge and pickling liquor had been hauled to the site by Central Lime and others.

During the period from 1971 to 1972, tankers from Central Lime, et al., sprayed a red liquid onto the property immediately south of the original CLL property. A neighbor, [redacted], reported observing the red liquid being sprayed during this time period. She also reported that she had collected some "red soil" from the spray area, believing it to be beneficial as a soil amendment for her vegetable garden.

Other as yet unsubstantiated claims of dumping at the site were also reported by witnesses. Those witnesses mention railroad cars draining liquid into ditches immediately adjacent to the tracks on the south side of the site and disposal of oily filter cakes.

From the middle 1940s until 1985, CLL operated a small quantity, batch-load wood preserving operation immediately offsite, north of the northeast corner of the site. The small, single-batch operation used consumer-grade pentachlorophenol (Woodlife).

In 1981, CLL began developing the site to expand its lumber storage capacity. At that time, the site was cleared and a trench was excavated at the southeast corner to place debris and brush. This was done to enable paving and construction of the site. The excavation contractor reported the trench to be 10-feet-deep by 30-feet-wide by 70-feet-long (Figure 1-2).

In 1983, a 1- to 6-inch-thick layer of red soil was encountered during clearing for the construction of Building No. 3. In 1984, during construction of Building No. 4, more red soil was encountered. The red soil encountered in 1983 and 1984 was collected and stockpiled near the trench dug in 1981 (Figure 1-2).

In 1987, CLL respread the stockpiled red soil over an area covering about 220 by 250 feet at the southeast corner of the property (Figure 1-2). The volume of red soil has been estimated to be 80 cubic yards. The material was covered with 6 inches of top soil and 6 inches of gravel, and represents the current condition of the site.

1.2.3 Previous Investigations

In 1985, the FIT contractor collected soil samples from areas representative of the former trench, stockpiled red soils, and the reported original red sludge application area (Figure 1-2). The analytical results from those samples indicated the presence of heavy metals and SVOC compounds. The compounds and maximum concentrations reported are listed in the table below:

Table 1-1
Soil Analytical Results of Samples
Collected by EPA/FIT
1985

Compound	Maximum Concentration
SVOCs (μg/kg)	
Phenanthrene	2,400
Di-n-butylphthalate	4,100
Fluoranthene	3,000
Pyrene	3,100
Benzo[a]anthracene	2,100
Chrysene	1,300
Benzo[b&k]fluoranthene	2,100–2,600
Benzo[a]pyrene	1,600
Metals (mg/kg)	
Arsenic	40
Cadmium	8.2
Chromium	319
Copper	93
Lead	137
Mercury	0.17–0.24
Nickel	121
Cyanide	0.95–1.2

Following the FIT investigations, the site was scored using the Hazard Ranking System (HRS). The HRS report indicated that the potential exists for the groundwater to be affected by the materials present at the site. The aquifer is used as a supplemental water supply from a location about 7 miles downgradient from CLL for the City of Indianapolis. A preliminary health assessment conducted by the Agency for Toxic Substances and Disease Registry (ATSDR) in February 1989 indicated that the site is a concern because of potential effects on the groundwater and concern for potential dermal contact should the soil be disturbed.

1.3 Report Organization

This RI report summarizes the results of the subsurface investigations conducted at the CLL site in November 1992 and June, August, and September 1993. An overview of the sampling and analyses performed is presented in Section 2.0. A description of the site physical characteristics is presented in Section 3.0. The analytical results are summarized in Section 4.0. A discussion of contaminant fate and transport is presented in

Section 5.0. The findings and a description of the assumptions used in performing a risk assessment for the site is presented in Section 6.0. Section 7.0 presents the conclusions reached based on the data collected in this RI.

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Section 2.0
Site Investigation Approach

2.1 Phase 1 Investigation

A detailed description of work performed during the Phase 1 site investigation is presented in Appendix A, Technical Memorandum No. 1. A brief summary of the work performed is presented below.

2.1.1 Soil Borings and Sampling

Soil samples were collected from onsite and offsite locations to evaluate concentrations of potential contaminants. Samples were collected from the surface and at various depth intervals, depending on specific locations. Shallow soil samples were collected using stainless steel hand augers. Deeper soil samples were collected from split-spoon samplers advanced with hollow-stem augers.

2.1.1.1 Offsite Soil Sampling

In November 1992, 15 offsite soil samples (CLBK01, CLBK02, CLBK04, CLBK05, and CLBK07 to CLBK17; refer to Figure 2-1) were collected to compare the concentrations of potential site contaminants with site conditions. Samples were collected from locations within 1/2 mile of the CLL site from locations representing nearby residential settings, city streets and intersections, railroad lines, and vacant urban properties (Table 2-1). Although CLBK04, CLBK05, and CLBK07 are on the CLL property, the borings were located upgradient of the red soil area and site-related potential source areas. Therefore, those borings were considered "offsite."

The samples were collected from the upper 0- to 0.5-foot depth interval with a stainless steel soil auger. The samples collected were submitted to an EPA contract laboratory program (CLP) laboratory. The offsite samples were analyzed for SVOCs and metals. Since the primary focus of offsite analysis was for metals and PAHs only, selected samples were analyzed for VOCs, pesticides, PCBs, and cyanide (Table 2-1). The CLP laboratories used during Phases 1 and 2 of the remedial investigation are listed in Table TM1-1 in Technical Memorandum No. 1 (Appendix A).

2.1.1.2 Onsite Soil Sampling

Drainage Swale Soil Samples. Soil samples numbers CLSS01 to CLSS03 (Table 2-1) were collected from three locations in the drainage swales bordering the site on the east and south (Figure 2-2). Two soil samples were collected at each location: one from the 0- to 0.5-foot depth interval and one from the 0.5- to 1-foot depth interval. The samples were collected using a stainless steel hand auger and were submitted to a CLP laboratory for analysis of VOCs, SVOCs, metals, cyanide, pesticides, and PCBs (Table 2-1).

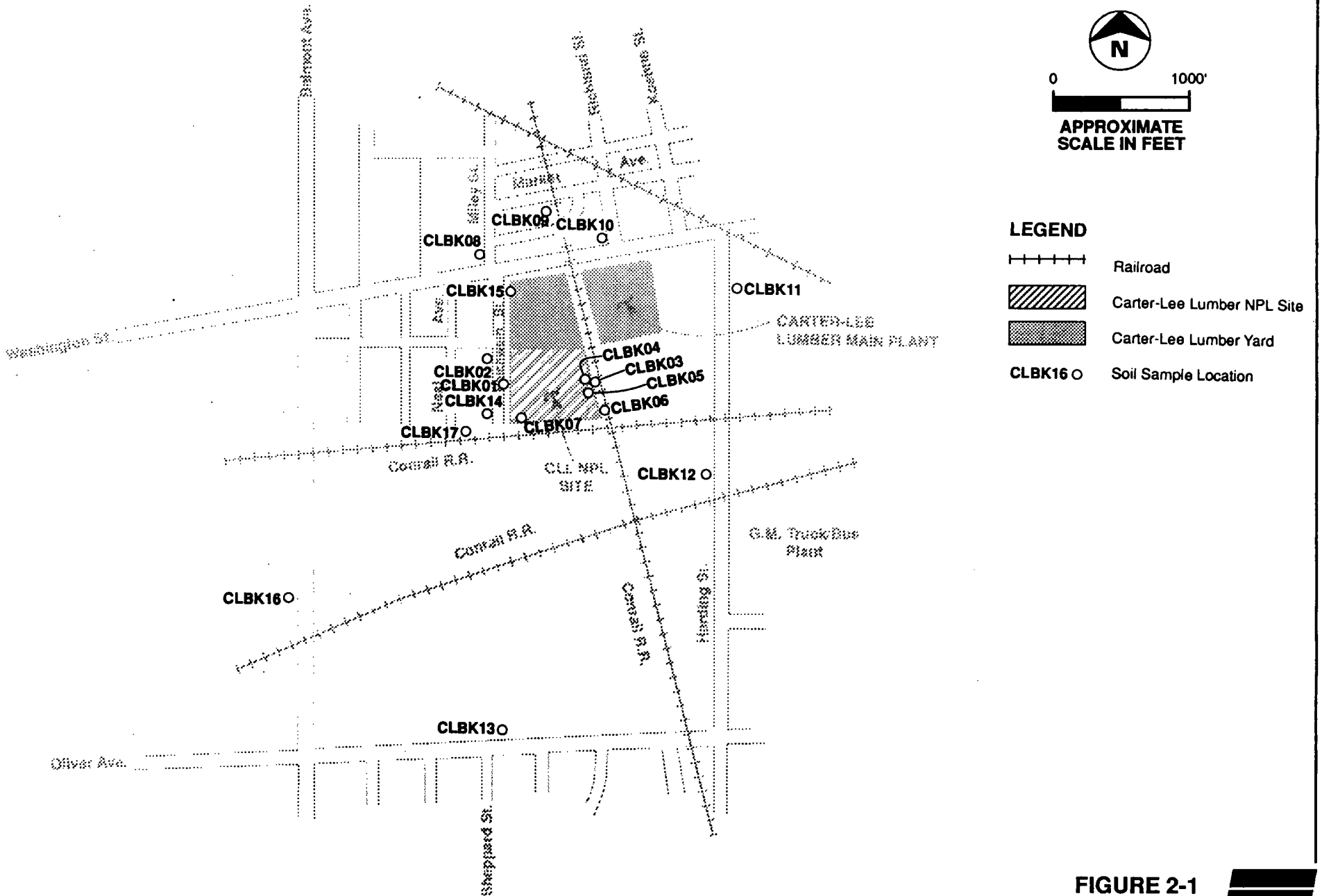


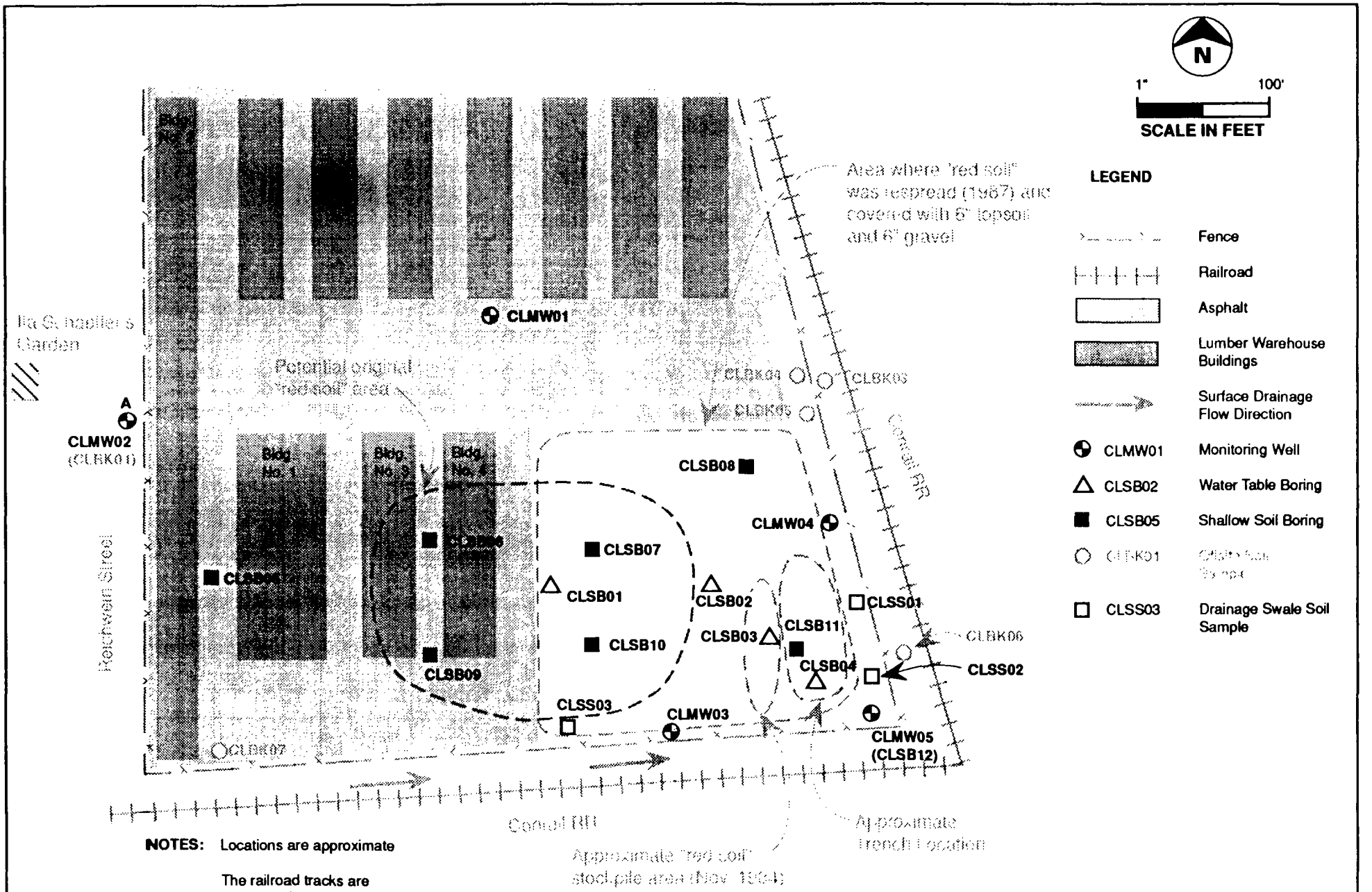
FIGURE 2-1
Phase 1 Offsite Soil Sample Locations
Carter-Lee Lumber RI

CH2M HILL

Table 2-1
Soil Samples Collected for Chemical Analyses
Carter-Lee Lumber

Boring Location	Sample Depth Interval (ft)	Date	Parameters	Description/Location
Onsite:				
CLSB01	0-2 6-8 18-20	11/6/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Water table boring
CLSB02	0-2 4-6 18-20	11/6/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Water table boring
CLSB03	0-2 8-10 16-18	11/5/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Water table boring
CLSB04	4-6 8-10 14-16	11/4/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Water table boring
CLSB05	0-2 2-4	11/6/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Shallow onsite boring
CLSB06	0-2 2-4	11/6/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Shallow onsite boring
CLSB07	0-2	11/6/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Shallow onsite boring
CLSB08	0-2	11/6/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Shallow onsite boring
CLSB09	0-2 2-4	11/6/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Shallow onsite boring
CLSB10	2-4 4-6	11/6/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Shallow onsite boring
CLSB11	3-5	11/5/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Shallow onsite boring
CLSB12	0-1.5 8-10	11/4/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Deep onsite boring in Drainage swale
CLSS01	0-0.5 0.5-1	11/3/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Drainage swale
CLSS02	0-0.5 0.5-1	11/3/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Drainage swale
CLSS03	0-0.5 0.5-1 16-18	11/3/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Drainage swale
Offsite:				
CLBK01	0-2 6-8 14-16	11/5/92	VOCs, SVOCs, Pesticides/PCBs, metals, cyanide	Deep offsite boring along Reichwein Street west of site
CLBK02	0-0.5	11/3/92		Residential lawn west of site across Reichwein Street
CLBK03	0-1	9/22/93	VOCs, SVOCs, Pesticides/PCBs, metals	Near railroad tracks NE of site
CLBK04	0-0.5	11/3/92	VOCs, SVOCs, Pesticides/PCBs, metals	Upgradient of CLL drainage swale NE of site
CLBK05	0-0.5	11/3/92	VOCs, SVOCs, Pesticides/PCBs, metals	CLL drainage swale upgradient of red soil area NE of site
CLBK06	0-1	9/22/93	VOCs, SVOCs, Pesticides/PCBs, metals	Near railroad tracks E-SE of site
CLBK07	0-0.5	11/3/92	VOCs, SVOCs, Pesticides/PCBs, metals	CLL drainage swale upgradient of red soil area to the west
CLBK08	0-0.5	11/3/92	SVOCs, metals	Grassy right-of-way near Miley Street
CLBK09	0-0.5	11/3/92	SVOCs, metals	Near railroad tracks north of site
CLBK10	0-0.5	11/3/92	SVOCs, metals	Grassy area near Washington Street
CLBK11	0-0.5	11/3/92	SVOCs, metals	Adjacent to Harding Street east of site
CLBK12	0-0.5	11/3/92	SVOCs, metals	Grassy right-of-way near Harding Street
CLBK13	0-0.5	11/3/92	SVOCs, metals	Grassy right-of-way near Oliver Avenue
CLBK14	0-0.5	11/3/92	SVOCs, metals	Grassy right-of-way near Reichwein Street
CLBK15	0-0.5	11/3/92	SVOCs, metals	Grassy right-of-way near Reichwein Street
CLBK16	0-0.5	11/3/92	SVOCs, metals	Grassy right-of-way near Belmont Avenue
CLBK17	0-0.5	11/3/92	SVOCs, metals	Near railroad tracks west of site

Note: Field replicates are not included in the table.



NOTES: Locations are approximate

The railroad tracks are elevated about 6-8 ft. above the relative ground surface

FIGURE 2-2
Monitoring Well and Onsite Soil Sample Locations
Carter-Lee Lumber RI

CLE65616.RI.RI Fig. 2-2 Mon. Well Onsite 12-21-94 LML

Shallow Soil Borings. Seven soil borings (CLSB05 to CLSB11) were completed and sampled to evaluate the distribution of potential contamination across the site (Figure 2-2). The borings were advanced to their target depths (Table 2-1) using 4.25-inch, hollow-stem augers. The samples were submitted to a CLP laboratory and analyzed for VOCs, SVOCs, metals, cyanide, pesticides, and PCBs.

Deep Soil Borings. Five soil borings (CLSB01 to CLSB04 and CLSB12) were advanced to the water table to evaluate the vertical extent of soil contamination in each area of concern (i.e., the original red soil area, the stockpile area, the trench, and the surface runoff seepage area). The soil boring locations are shown in Figure 2-2). The borings were advanced to their target depth (Table 2-1) using 4.25-inch, O.D. hollow-stem augers and were continuously sampled using 3-inch, O.D. split-spoons.

Three soil samples from each boring were submitted for analysis. One sample was collected from just below ground surface, one midway between ground surface and the water table, and one just above the water table. The samples were submitted to a CLP laboratory and analyzed for VOCs, SVOCs, metals, cyanide, pesticides, and PCBs.

2.1.2 Groundwater Grab Sampling

To obtain information to help characterize groundwater quality in the area in which the red soil had been spread, screening level groundwater grab samples were collected from four borings: CLSB01, CLSB02, CLSB03, and CLSB04 (Figure 2-2).

The borings were completed to their target depths. Grab samples were collected from within the augers using a stainless steel bailer. A minimum of three volumes of standing water was purged before sampling. Purge water was collected in 55-gallon drums and stored onsite pending disposal.

Grab samples were submitted to a CLP laboratory and analyzed for VOCs, SVOCs, metals, cyanide, pesticides, and PCBs. Metals samples were field filtered. Specific sampling details are presented in Technical Memorandum No. 1 in Appendix A.

2.1.3 Monitoring Well Installation

Five monitoring wells were installed at the locations shown in Figure 2-2. Wells CLMW01 and CLMW02 were installed to provide water quality data from an upgradient location. Wells CLMW03, CLMW04, and CLMW05 were installed to represent downgradient conditions.

The wells were constructed with 2-inch Schedule 40 PVC riser with a 10-foot length of 0.010-inch, factory-slotted PVC screens. Specific monitoring well construction details are presented in Technical Memorandum No. 1 in Appendix A.

2.1.4 Monitoring Well Sampling

After monitoring wells were installed, groundwater samples were collected from the five wells using a stainless steel bailer. Before sampling began, a minimum of five well volumes were purged from each well. The purge water was contained in 55-gallon drums and stored onsite pending disposal. The groundwater samples were submitted for analysis of the same parameters as the grab samples (Table 2-1).

2.1.5 Water Level Measurements

Groundwater levels were measured before groundwater sampling began. Water level measurements were taken with an electric water level indicator.

2.1.6 Surveying

The soil borings and monitoring wells were located by United Surveying, Inc., of Indianapolis, Indiana. Horizontal locations were surveyed to the nearest foot. Ground elevations for the borings and the top of well casings were surveyed to the nearest 0.01 foot. Indiana Flood Control and Water Resources Commission bench marks were used for vertical control. The property fenceline was used for horizontal control.

2.2 Phase 2 Investigation

2.2.1 Groundwater Users Survey

In summer 1993, a groundwater users survey was conducted to evaluate whether wells pumping within a 1-mile radius of the CLL site may affect groundwater flow in the vicinity of the site.

Water well records for the area of concern were obtained from the Indiana Department of Natural Resources (IDNR). The completeness of such records is questionable because they are submitted to the state from private well drilling companies. The records were reviewed to identify industrial, public, and private water supplies. The Indianapolis Water Works Company was contacted for any additional information on industrial and public water supplies within the area of concern.

Well owners were contacted and questioned by a CH2M HILL representative regarding well use, pumping schedules, pumping rates, and well abandonment. A site visit to supplement and verify the well information search data was conducted on Monday, August 16, 1993, by two CH2M HILL representatives. The site visit helped to identify current well owners within the 1-mile radius who were not previously surveyed. The current owner or status of each property was noted. Some property owners were spoken with directly and asked questions about the status of the well(s) on their property.

The groundwater users survey questions are detailed in Technical Memorandum No. 2 in Appendix A.

2.2.2 Groundwater Sampling

Two additional rounds of groundwater sampling were conducted in 1993 (June and September). Samples collected in June were submitted to a CLP laboratory for analysis of VOCs, SVOCs, metals, cyanide, pesticides, and PCBs. The September samples were submitted to the CLP laboratory for analysis of the same parameters as well as the following treatment parameters:

- Total organic carbon
- Chemical oxygen demand
- Alkalinity
- Chloride
- Total dissolved solids
- Total suspended solids
- Hardness

The analytical results for the treatment parameters would be important should groundwater remediation be necessary. Those parameters help in evaluating the transport mechanisms and treatment potential of groundwater.

2.2.3 Offsite Soil Sampling

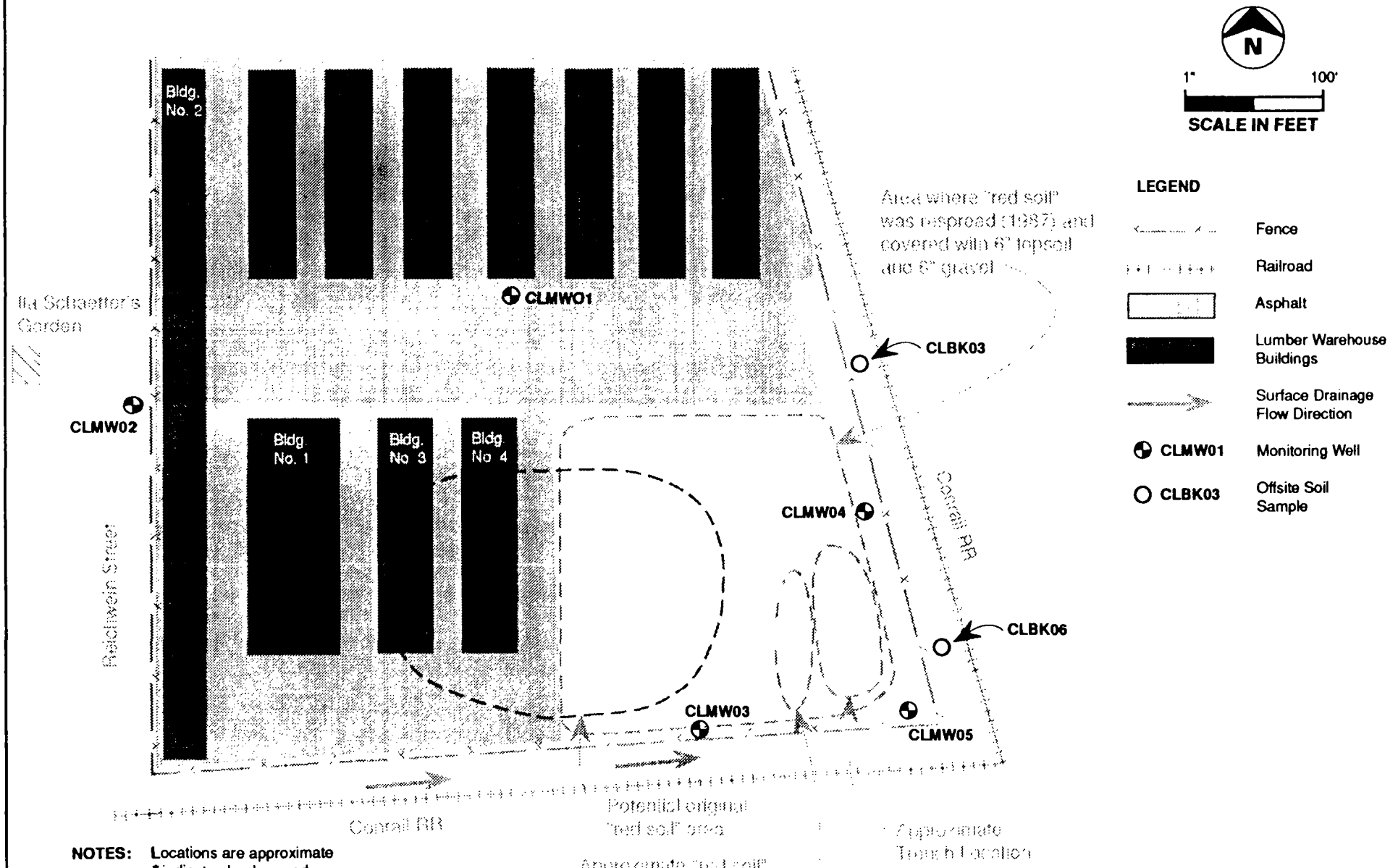
Two offsite soil samples (CLBK03 and CLBK06 from Conrail property) were originally planned to be collected in Phase 1 to help evaluate effects the adjacent Conrail railroad tracks may have had on the site. Because access could not be obtained in Phase 1, those samples were collected in Phase 2 in September 1993 at the approximate locations shown in Figure 2-3. The samples were collected from the upper 12-inches using a stainless steel hand auger. The samples were submitted to a CLP laboratory for analysis of VOCs, SVOCs, metals, cyanide, pesticides, and PCBs.

2.2.4 Water Level Measurements

Three rounds of groundwater level measurements were taken in 1993. Groundwater levels were measured in June, August, and September. The data was used to assess groundwater flow directions.

2.2.5 Historical Data Review

A historical data review was conducted to evaluate the nature and pervasiveness of the industrial influence on the area surrounding the site. The review also served to support consideration of an industrial setting scenario in evaluating risks posed by site-related contaminants.



NOTES: Locations are approximate
* indicates background monitoring well

The railroad tracks are elevated about 6-8 ft. above the relative ground surface

FIGURE 2-3
Phase 2 Offsite
Soil Sample and Monitoring Well Locations
Carter-Lee Lumber RI

CH2MHILL

The industrial nature of the area was documented by reviewing Sanborn insurance maps, historic aerial photography, and a search of applicable government databases obtained through Environmental Data Resources, Inc. (EDR). Aerial photos were subcontracted by EDR through National Aerial Resources.

2.2.5.1 Aerial Photography

Aerial photographs for the years 1941, 1950, 1957, 1962, 1978, 1986, and 1993 were obtained. Each photograph depicts the CLL site and surrounding areas at various scales and degrees of resolution. A comparison was made between each subsequent year's photograph to document industrial, construction, and demolition activity over time.

2.2.5.2 Sanborn Insurance Maps

Sanborn insurance maps are used to depict commercial and industrial structures, as well as residential areas. To aid in tracking the industrial development surrounding the site, maps were obtained and reviewed for the years of 1898, 1915, 1950, and 1956. The 1898 map was compared with that for 1915 and 1915 was compared with 1950, and so on, to document the area's development over time. This review supplemented the aerial photography review by providing data for the years before air photograph coverage was used.

2.2.5.3 Government Records Database Search

An EDR-Radius Search^{TM} Report was obtained for the area surrounding the CLL site. The report is the result of a radius search identifying sites within a 1-mile radius from the target property. The report is a screening tool that locates sites with potential or existing environmental liabilities. The EDR report included:

- Three maps—One displaying sites reported in high-liability government databases (i.e., NPL, RCRIS-TSDF, CERCLIS, SHWS, AND SWF/LS); one displaying sites reported in low liability government databases (i.e., LUST, RCRIS-Generator, UST, ERNS, TRIS, TSCA, HMIRS, FINDS, and PADS (Figure 2); and one working map of smaller scale to use as a base map

- A map review summary listing the database searched and the corresponding number of sites found in each database for areas consisting of search radii less than 1/8 mile, 1/8 to 1/4 mile, 1/4 to 1/2 mile, and 1/2 to 1 mile

- A map review table listing information specific to each site having some form of environmental liability found within each search radius

- A summary list of "orphan" properties having some type of environmental liability, but with insufficient address information

2.2.6 Ecological Investigation

An ecological investigation of the site was conducted as part of Phase 2. The objective of the investigation was to provide a basis for qualitative evaluation of potential ecological effects of contaminants associated with the abandoned disposal area. The scope of the investigation was limited to a general characterization of existing ecological conditions of the site and surrounding area, and an identification of overt signs of adverse effects on terrestrial and aquatic communities. This level of investigation was considered appropriate for the current phase of the RI/FS investigation, based on existing knowledge of site conditions.

Ecological characterization of the site consisted of a 1-day visit on October 5, 1993, to document the current biological communities in the project area.

The perimeter of the previous disposal area on the CLL site was walked and visible species recorded. The area south of the property was also examined because this area represented potential wildlife habitat in the immediate vicinity of the site. Information on rare, threatened, and endangered species inhabiting the site was obtained through an information request to the IDNR Division of Nature Preserves. The ecological investigation is described in more detail in Technical Memorandum No. 3 in Appendix A.

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Section 3.0

Physical Characteristics and Site Setting

3.1 Site Topography

The CLL site is within the commercial and industrial center of Indianapolis. The region is relatively flat and ranges in topographic relief from about 750 feet msl above mean sea level 2.75 miles west of the site to about 705 feet msl at the White River (about 1 mile east of the site). The CLL site is paved with asphalt except for the southeast corner, which is covered with compacted gravel. Drainage swales run parallel to the eastern and southern site boundaries (Figure 1-2) and collect surface runoff from the site. The southeast corner is the lowest elevation point on the site at an elevation of 691 feet.

3.2 Land Use

A map of the CLL site and surrounding area is presented in Figure 1-1. Immediately south of the site is the Westinghouse Air Brake Company (WABCO), currently under investigation by the Indiana Department of Environmental Management (IDEM) as a possible state-lead hazardous waste site. Land use west of the site is a mixture of abandoned, former industrial, and residential properties. The area east of the site is the former location of Indiana Battery Recycling, also previously investigated by IDEM as a potential hazardous waste site. This property has been redeveloped as a metropolitan bus terminal. Other manufacturing properties in the immediate vicinity include General Motors Coach Division, Ford Motor Company, and Chrysler Corporation. The site is also bordered on the south and east by the Conrail Company (a successor to Penn Central Transportation Company) railroad tracks.

3.2.1 Historical Land Use

Surrounding land use has historically been associated with heavy industry and can be classified as urban industrial. The historical data review of aerial photos, government record databases, and Sanborn Insurance maps substantiated both historically and currently that the area surrounding the site is primarily industrial and that construction and demolition have also been a large part of the history of the area. The EDR-Radius Map Report described 38 or more properties within a 1-mile radius of the site having some form of environmental liability.

3.3 Geology

3.3.1 Regional Geology

An extensive sand and gravel outwash deposit lies beneath the region. The coarse-grained outwash extends along the White River and is about 6.5 miles wide from east to west. Discontinuous silt and clay deposits are numerous. At the outer edges of the outwash, the deposits intergrade with deposits of glacial till (Smith 1983).

Thickness of the outwash deposits in Marion County ranges from less than 15 to more than 300 feet (DNR 1980). Within the vicinity of the CLL site, depth to bedrock is about 120 feet and consists of Silurian and Devonian age limestones and dolomites. The bedrock surface slopes gently to the west.

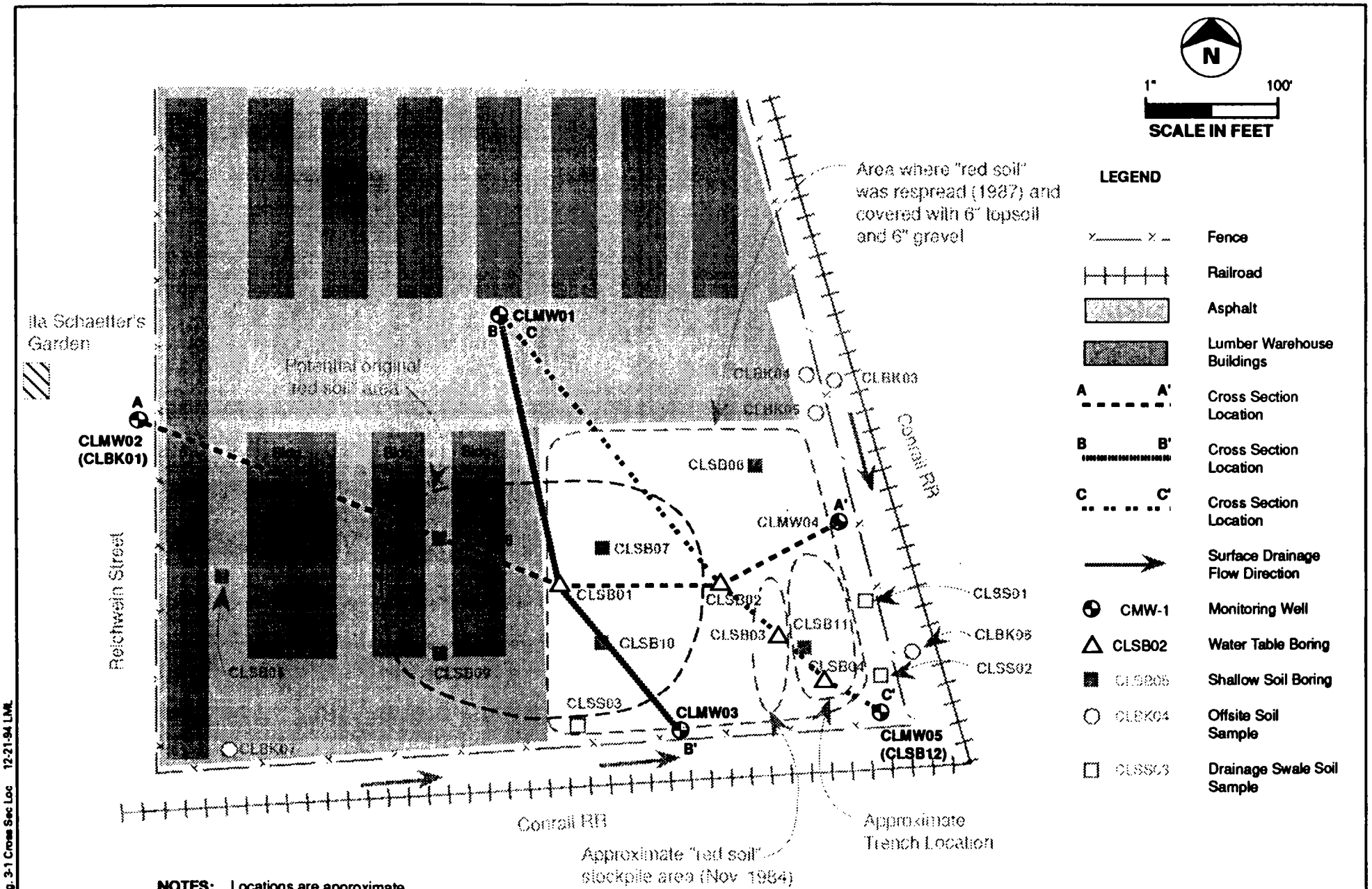
3.3.2 Site Geology

Geologic information obtained from soil borings drilled during Phase 1 of the investigation was used to prepare several cross sections of the geology beneath the site. The locations of the cross sections are shown in Figure 3-1. The cross sections are presented in Figures 3-2, 3-3, and 3-4.

The cross sections indicate that much of the area in which the red soil was respread in 1987 is underlain by 12 to 16 feet of fill. The fill consists of sandy gravel; clayey, silty sand; and miscellaneous debris such as wood, concrete, and bricks. A black, dense, compact silty sand (similar in appearance to foundry sand or cinders) was encountered at borings CLSB01, CLSB02, CLSB03, and CLSB10 (see cross sections). The sand was mixed with what appeared to be fly ash. This black sand was encountered at depths of 7 to 16 feet CLSB01 and 2 to 11 feet at CLSB02. At borings, CLSB02, some wood fragments were encountered within the black sand interval. The thickness of the unit was pinched out at borings CLSB03 and CLSB10 to the west. Traces of ash were found within the upper 10 feet of soil at most borings across the site. A mothball-like odor was detected at CLSB02 when the black ash/sand unit was reached.

A thin lens of red soil (3 to 6 inches) was encountered at CLSB01 about 6 inches below ground surface and extended east to monitoring well CLMW04. The thickness of the red soil increased to about 2.5 feet at CLMW04 (Figure 3-2).

A clayey, silty, sand unit was encountered beneath the sand and gravel fill at monitoring well CLMW01 (Figures 3-2 and 3-3). This clayey sand and other fill material was also encountered within the fill area at borings CLSB02, CLSB03, CLSB04, and CLSB11. The clayey sand and fill is underlain by coarse-grained sand and gravel at depths from about 7 to 16 feet. Discontinuous silt and clay deposits above the sand and gravel unit were encountered in borings across much of the site and are consistent with the regional geology described above.



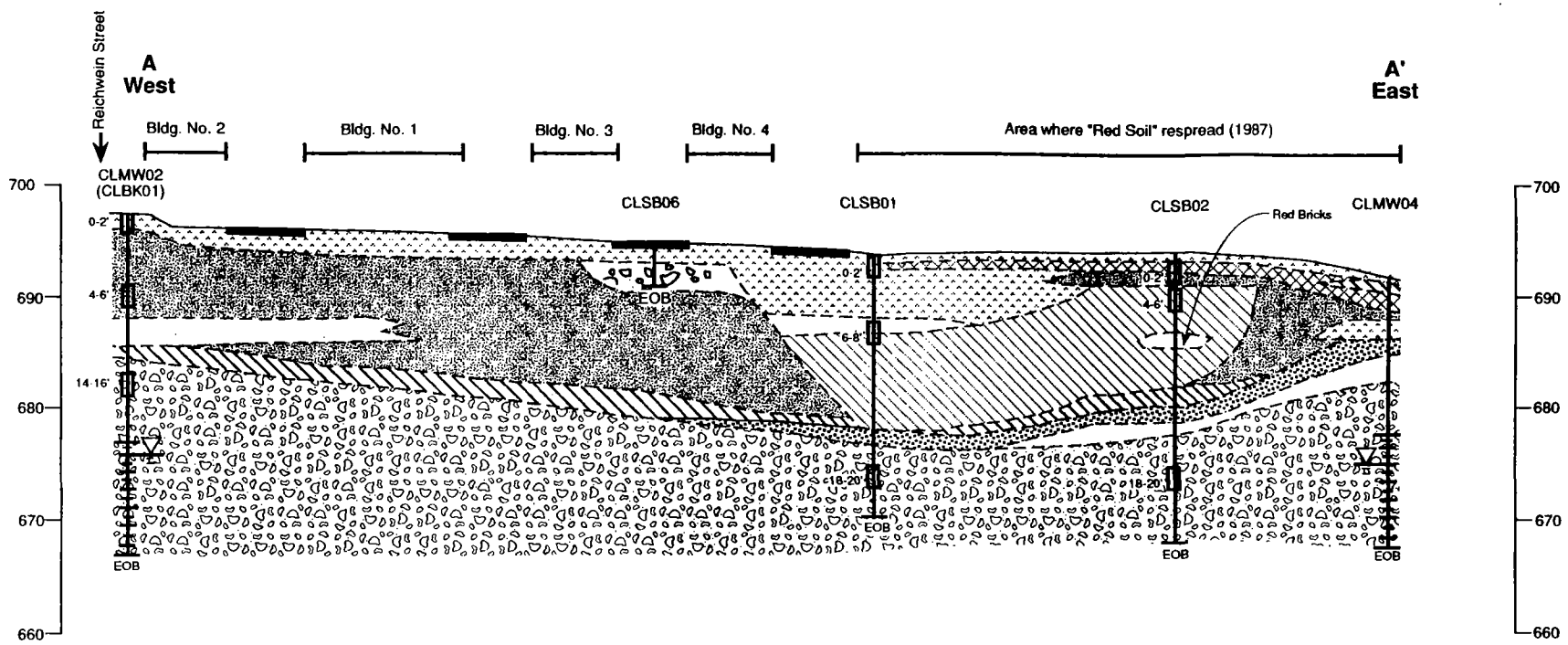
NOTES: Locations are approximate

The railroad tracks are elevated about 6-8 ft. above the relative ground surface

FIGURE 3-1
Cross Section Locations
Carter-Lee Lumber RI

CH2M HILL

GLE85616.RI.RI Fig. 3-1 Cross Sec Loc 12-21-94 LML



LEGEND

- Asphalt
- Well-Graded Sand and Gravel
- Sandy Gravel Fill
- Poorly-Graded Sand
- Silt
- Silty Clay
- Clayey Sand and Gravel Fill
- "Red Soil"
- Black Silty Sand
- Clayey Sand Fill with some Gravel
- EOB — End of Boring
- Well Screen
- November 1992 Water Level
- 6-8' — Soil Sample Interval

NOTE: The depths and thicknesses of the subsurface strata indicated on these sections were generalized from and interpolated between borings. Information on actual subsurface conditions exists only at the specific locations indicated. Soil conditions and water levels at other locations may differ from conditions occurring at the boring locations. Also, the passage of time may result in a change in conditions at these boring locations.

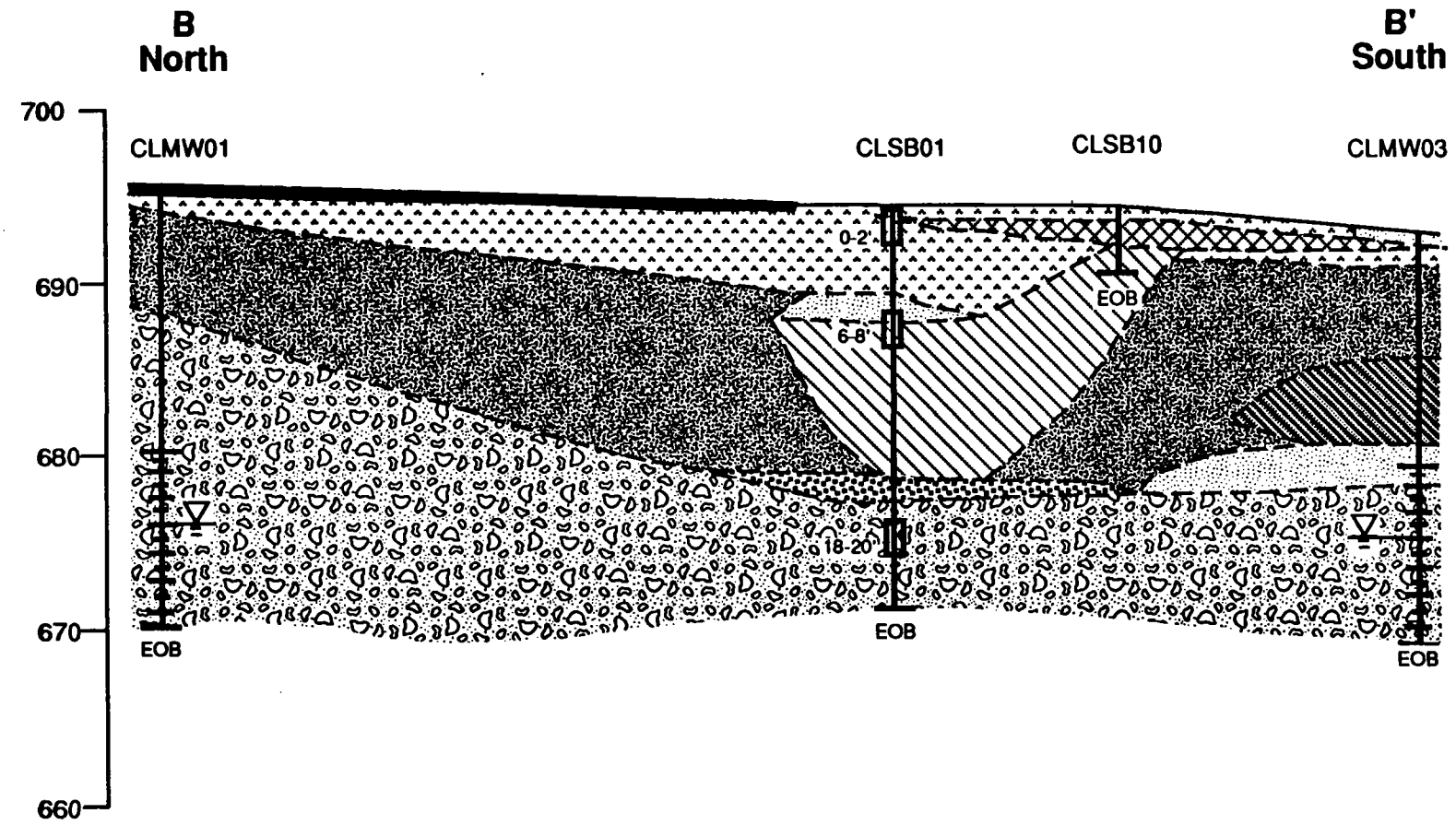
N

0 50

SCALE IN FEET

FIGURE 3-2
Geologic Cross Section A to A'
Carter-Lee Lumber RI

CLE55416 RI RI Fig 4-X-Sec A-A' 12-21-94 LML



LEGEND

- Asphalt
- Well-Graded Sand and Gravel
- Sandy Gravel Fill
- Poorly-Graded Sand
- Silt
- Silty Clay
- "Red Soil"
- Black Silty Sand
- Clayey Sand Fill with some Gravel
- EOB — End of Boring
- Well Screen
- November 1992 Water Level
- 6-8' — Soil Sample Interval

NOTE: The depths and thicknesses of the subsurface strata indicated on these sections were generalized from and interpolated between borings. Information on actual subsurface conditions exists only at the specific locations indicated. Soil conditions and water levels at other locations may differ from conditions occurring at the boring locations. Also, the passage of time may result in a change in conditions at these boring locations.

N

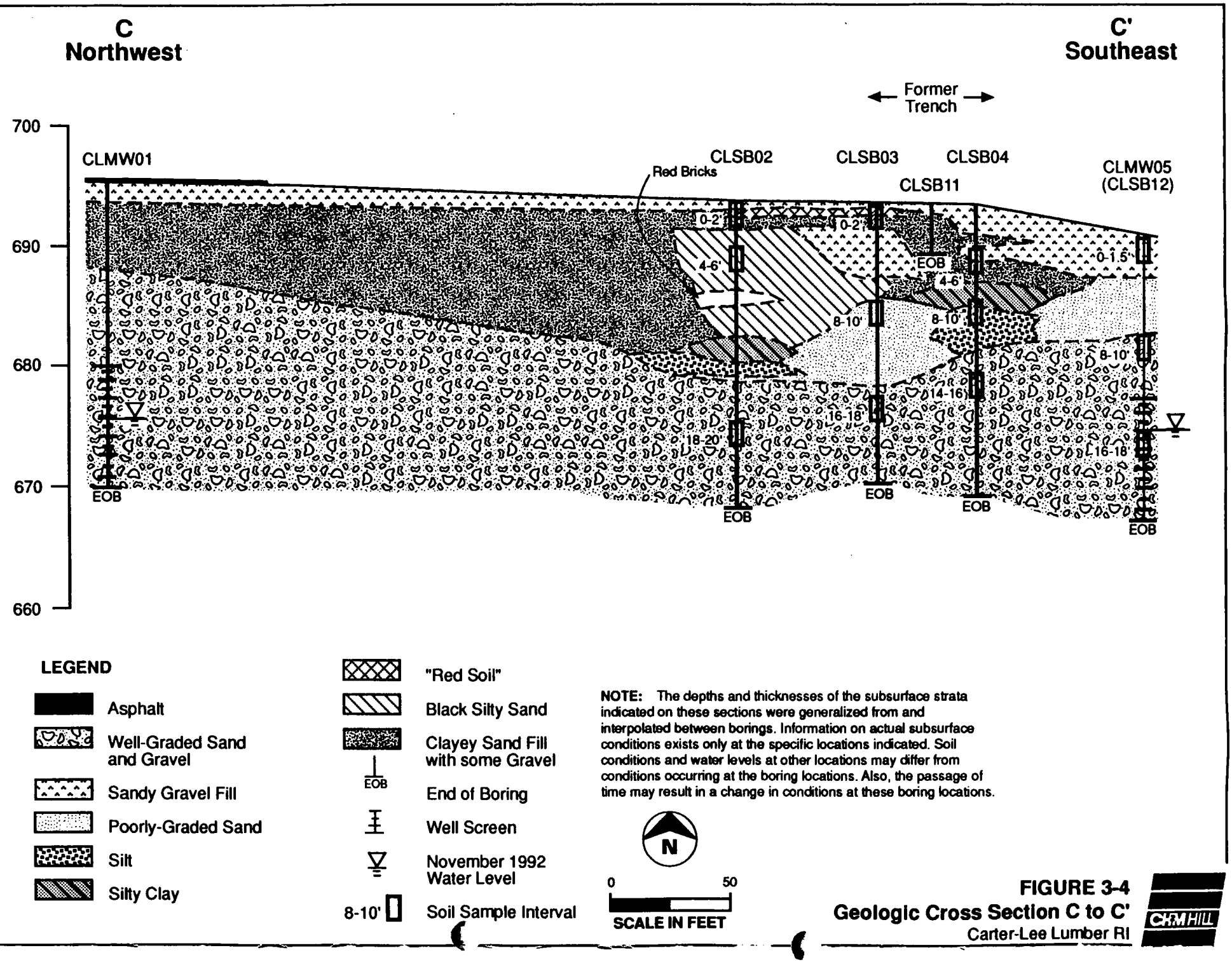
0 50

SCALE IN FEET

FIGURE 3-3
Geologic Cross Section B to B'
Carter-Lee Lumber RI

CH2MHILL

GLER5616.RI.RI Fig. 3-3 X-Sec B-B' 12-21-94LML



GLE65816.RI.RI Fig. 3-4 X-Sec C-C' 3/30/94kmw

FIGURE 3-4
Geologic Cross Section C to C'
Carter-Lee Lumber RI

CH2MHILL

3.4 Hydrogeology

3.4.1 Regional Hydrogeology

The outwash deposits along the White River comprise the upper, unconfined aquifer. Aquifer thickness ranges from 30 to more than 80 feet. The average horizontal hydraulic conductivity is about 300 feet per day for the outwash aquifer. Wells in the outwash aquifer may produce as much as 3,000 gpm.

Groundwater elevations in Marion County in the upper sand and gravel aquifer range from about 830 feet in the northwestern portion of the county to less than 680 feet near the White River in the central portion of the county. A map depicting the general water table surface for Marion County is shown in Figure 3-5. The source of the map is IDNR Geological Survey Special Report 19. The map indicates regional groundwater flow in the western half of Marion County is generally to the east-southeast toward Eagle Creek and the White River. The map also indicates a depression in the water table surface occurs about 0.5 mile southeast of the site as described in Section 3.5 and shown in Figure 3-5.

3.4.2 Site Hydrogeology

Groundwater level data obtained from the five monitoring wells were used to produce water table surface maps for the site. Maps were produced for the months of November 1992, and June, August, and September 1993 (Figure 3-6).

The general direction of groundwater flow is to the southeast toward the cone of depression identified in Figure 3-5. However, in June 1993, groundwater level data indicated the presence of a groundwater divide beneath the site. During this month, the water table surface in the northern part of the site flows northeast to the White River. Groundwater beneath the southern part of the site flows toward the cone of depression southeast of the site.

3.5 Groundwater Uses

In Indianapolis, the upper sand and gravel aquifer is used for approximately 8 percent of the municipal water supply. (The communities of Lawrence and Speedway in Marion County rely almost exclusively on groundwater.) Surface water reservoirs supply the bulk of the municipal water. One wellfield is located about 7 miles south of the CLL site at Harding Street and Southport Road. The wellfield pumps a total of 6 million gallons per day (Bruns 1994). A second wellfield is located in northeastern Marion County and supplies area suburbs. By the year 2000, it is projected that 18 to 19 percent of the municipal water supply will be from groundwater (Wise-Ewing 1994).

GIT 83616 RI RI Fig 3 5 W1SM Marion Co 3/30/94kmw

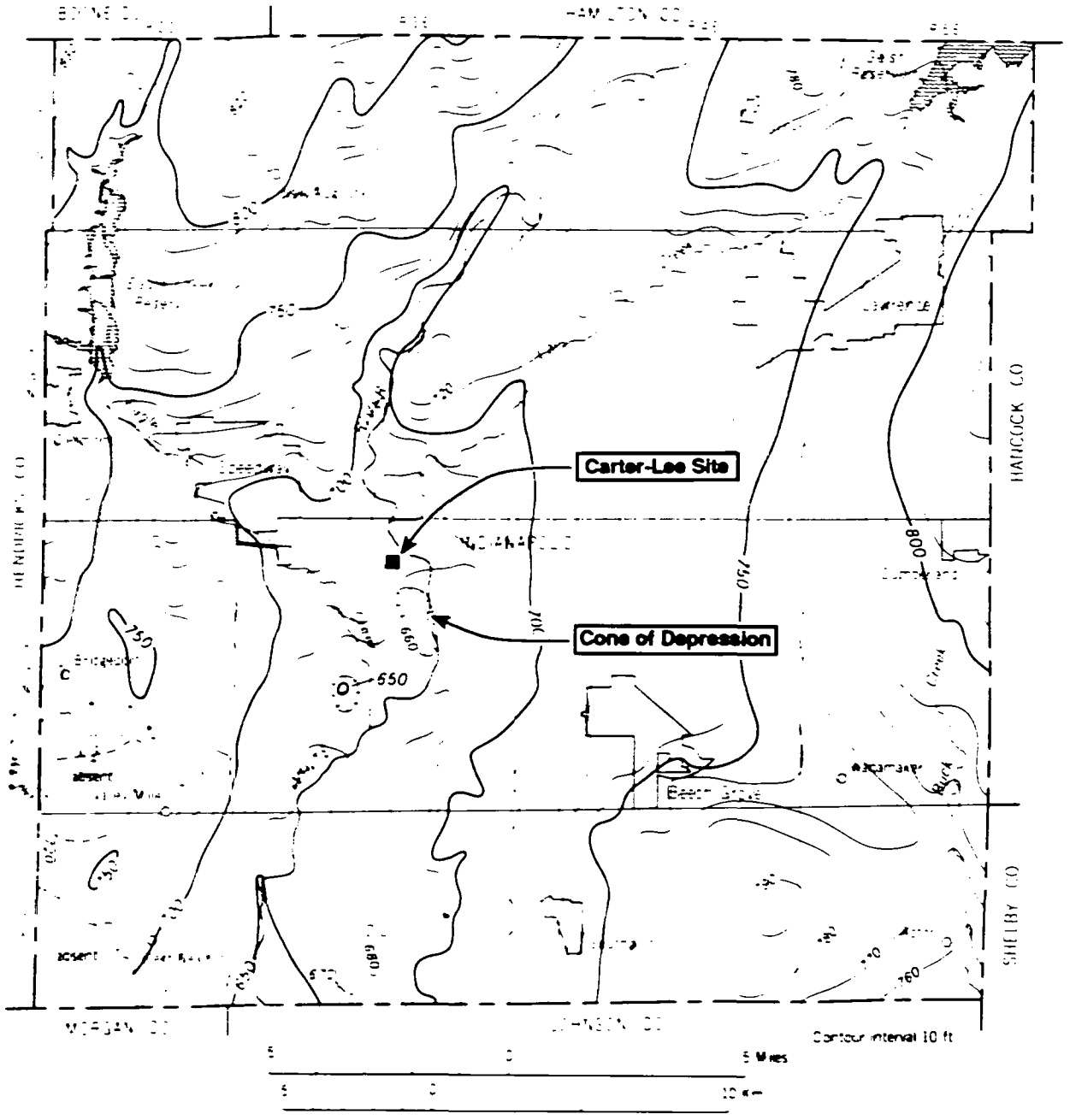
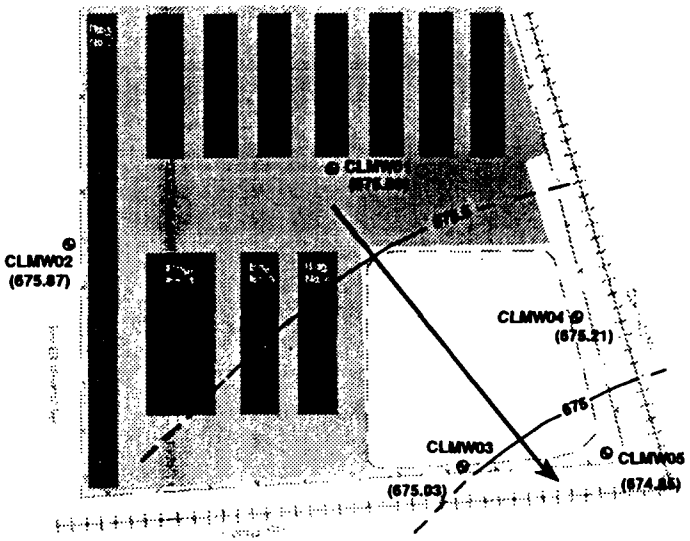
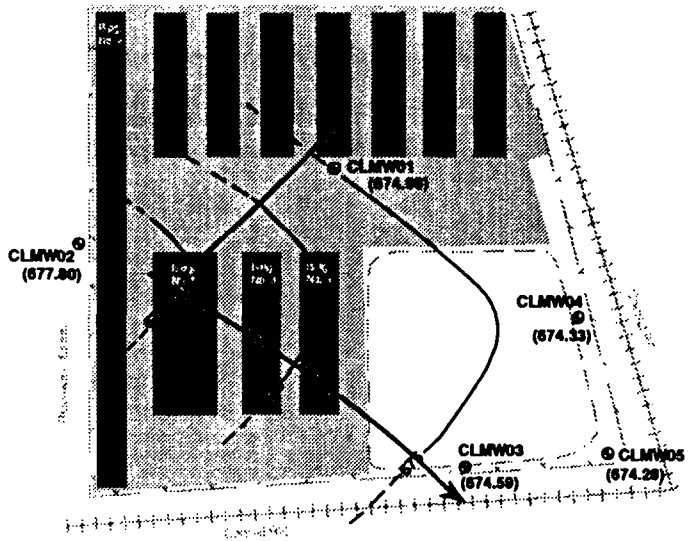


FIGURE 3-5
Water Table Surface Map
for Marion County
Carter-Lee Lumber RI

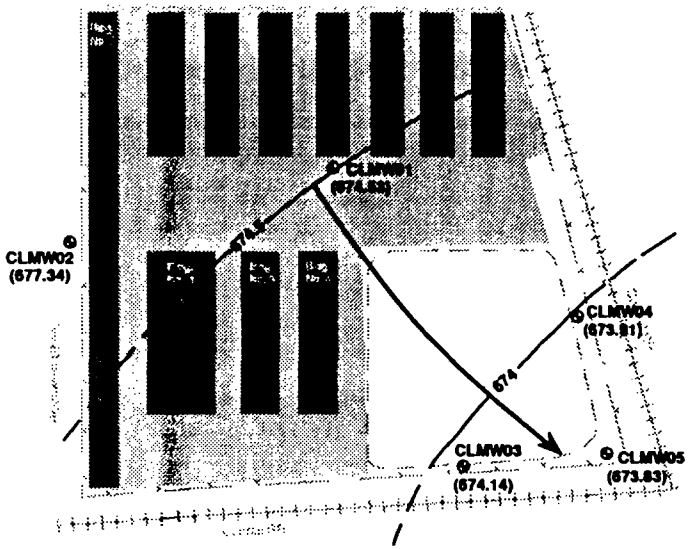
Source: "Geology for Environmental Planning in Marion County, Indiana"
IDNR Geological Survey Special Report 19, 1980.



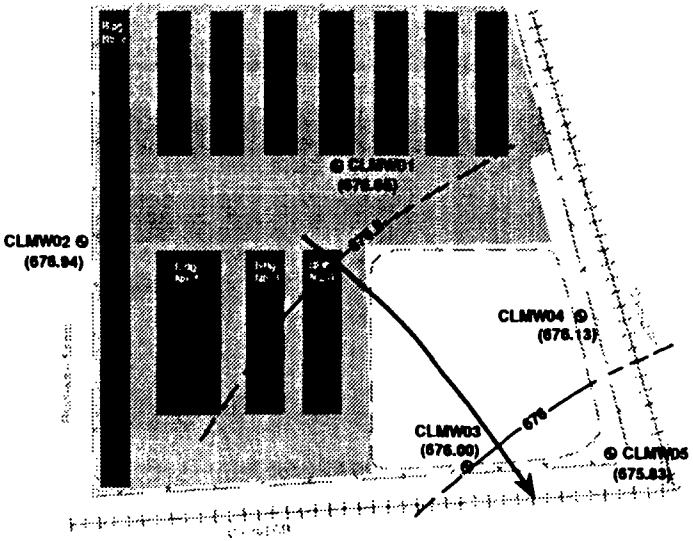
November 1992



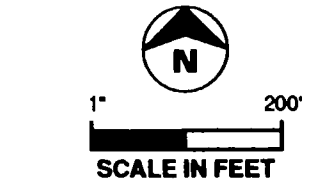
June 1993



August 1993



September 1993



LEGEND

- Fence
- Railroad
- Asphalt
- Lumber Warehouse Buildings
- CLMW01 Monitoring Well
- Groundwater Flow Direction
- 676 Groundwater Contour

NOTES: Locations are approximate

The railroad tracks are elevated about 6-8 ft. above the relative ground surface

FIGURE 3-6
Water Table Surface Map
Carter-Lee Lumber RI

CH2M HILL

groundwater in the vicinity of the cone of depression southeast of the site (Figure 3-5). Survey responses indicated that there are no extended periods of well shutdowns at the facilities. Therefore, it is probable that these wells are contributing to the cone of depression and affecting the direction of groundwater flow beneath the site. Groundwater level data collected at the site indicated that groundwater flow direction beneath the site is generally to the southeast throughout the year. The groundwater users survey is described in detail in Technical Memorandum No. 2 in Appendix A.

3.6 Ecology

Results of the ecological characterization of the site indicated a limited number of wildlife species are present on and adjacent to the site. Current site conditions, including the presence of a paved surface and surrounding chain-link fence, significantly limit habitat quality. Plant communities within the property boundary consist of common species typical of disturbed areas.

Vegetative cover at the site is restricted to narrow borders or bands of primarily herbaceous plant species along the eastern and western perimeters. The sparse plant communities are composed of predominantly weedy species typical of waste places or disturbed lands such as road sides and old fields. Dominant species observed during the October 1993 site visit included goldenrod, evening primrose, and Queen Anne's lace. A more complete list of plant species observed in and around the site is presented in Technical Memorandum No. 3 in Appendix A. Sensitive or high-value communities such as wetlands, mature forested cover, or remnant prairie are not present within the site boundary. Gross evidence of potential contaminant effects on vegetation was not noted at the site, but physical factors, such as asphalt paving and gravel surfaces, may mask signs of contaminant effects.

Birds were the only group of wildlife species observed during the visit. In total, only three bird species (the house sparrow, house finch, and mourning dove) were seen on or in the immediate vicinity of the site. The birds may be considered common for the habitat types present and are typical species of urban or suburban landscapes. Other bird species may use the site, but habitat condition is considered to be a limiting factor. No species of mammals, reptiles, or amphibians were seen while conducting the survey. The potential exists for some common species to be present, but, as with avian species, habitat condition is expected to limit their occurrence.

Adjacent to the CLL site, narrow strips of vegetation occur in the area between the railroad tracks and the chain-link fence surrounding the site. Plant community composition is similar to the herbaceous communities present at the site. Along the east perimeter, however, small trees and shrubs such as mulberry and poplar were also present.

South of the CLL site lies a small area that represents the most significant area of potential wildlife habitat in the immediate vicinity of the site. Trees and shrubs

South of the CLL site lies a small area that represents the most significant area of potential wildlife habitat in the immediate vicinity of the site. Trees and shrubs intermixed with herbaceous plant growth are scattered about. Some areas of bare ground were also noted. Dominant tree and shrub species consisted of eastern cottonwood, tree-of-heaven, staghorn sumac, and silver maple. Those species are unevenly distributed throughout the area into clumps or irregular rows. Nonwood species in the area include goldenrods, small white aster, and honeysuckle as well as various grasses and sedges. The presence of a small area of open water and wetlands potentially increases habitat quality and the occurrence of additional wildlife species.

Gross evidence of adverse effects on the site's plant and animal communities was not apparent during the October visit. A more detailed discussion of the approach used and results of the ecological site investigation are presented in Technical Memorandum No. 3 in Appendix A.

MKE10013CA0.WP5

Section 4.0
Nature and Extent of Contamination

4.1 Soil Analytical Results

The soil analytical results are summarized in tables presented in Appendix B. Also included in Appendix B are the data validation technical memorandums. The results are summarized below.

4.1.1 Organic Compounds

4.1.1.1 Offsite

Surface soil samples were collected outside of the area of contamination investigated at the CLL site so that offsite conditions could be evaluated. Some offsite samples were collected within the CLL Company property boundary, but outside of the red soil area. All offsite sample locations are shown in Figure 2-1. Soil samples collected from CLBK01 to CLBK07 were submitted for VOC analysis. VOCs detected included methylene chloride, acetone, 2-butanone (MEK), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), toluene, and xylene. Several compounds were detected once (MEK, TCE, and xylene). In general, VOC concentrations were near the method detection limit.

SVOCs were detected at all 17 offsite locations. Concentrations of individual constituents ranged from 21 μg/kg at CLBK02 (naphthalene from [redacted]'s front yard) to 800,000 μg/kg at CLBK09 (pyrene from near railroad tracks). Refer to Figure 2-1 for locations. The highest concentrations of total SVOCs detected were also detected in the soil sample collected near railroad tracks from CLBK09 at 3,521 mg/kg. Borings CLBK03, CLBK06 (Figure 2-3), and CLBK17 (Figure 2-1) were all located near railroad tracks. SVOC concentrations at those locations ranged from 23 μg/kg fluorene at CLBK06 to 9,100 μg/kg fluoranthene at CLBK17. SVOC concentrations in soil samples not collected near railroad tracks ranged from 21 μg/kg at CLBK02 to 22,000 μg/kg at CLBK05 (asphalt-stained drainage swale on CLL site; refer to Figure 2-2).

Table 4-1 lists the "urban background" range of PAHs in urban soil for those constituents for which values have been established by the Agency for Toxic Substances and Disease Registry (ATSDR). With the exception of chrysene and benzo(a)pyrene, offsite concentrations of individual PAHs were within the urban background range for PAHs in soil. However, the maximum values of PAHs detected in samples collected near railroad tracks exceeded the background ranges in urban soil in most instances.

Soil samples collected from CLBK01 to CLBK07 were submitted for pesticide and PCB analyses. Several pesticides were detected at concentrations ranging from 1.3 μg/kg

Table 4-1
Statistical Summary Table for Organics in Soil
Carter-Lee Lumber

Compound	Median		Maximum Value		Minimum Value		T-test (P (T < t)	Statistical Difference	Background Range in Urban Soil (b)
	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite			
Volatiles (µg/kg)									
Toluene	6.0	10.8	160	130	1.0	3.0	0.23	No	- -
Semi-volatiles (µg/kg)									
Naphthalene	217	214	60000	2200	21	34	0.98	No	- -
2-Methylnaphthalene	227	182	60000	1400	25	28	0.62	No	- -
Acenaphthylene	155	128	19000	1800	24	21	0.62	No	- -
Acenaphthene	206	166	20000	1800	28	32	0.58	No	- -
Dibenzofuran	190	140	9000	1200	30	19	0.40	No	- -
Fluorene	171	143	30000	610	23	23	0.69	No	- -
Phenanthrene	1106	672	370000	6500	28	60	0.37	No	- -
Anthracene	303	270	70000	1200	39	45	0.80	No	- -
Carbazole	232	157	49000	580	42	42	0.35	No	- -
Di-n-butylphthalate	168	115	60000	1800	20	20	0.39	No	- -
Fluoranthene	1196	875	790000	8400	29	74	0.59	No	200 - 166,000
Pyrene	1331	1022	800000	15000	28	74	0.66	No	145 - 147,000
Benzo[a]anthracene	908	575	360000	5300	22	59	0.39	No	169 - 59,000
Chrysene	1170	631	410000	6400	35	70	0.24	No	251 - 640
bis(2-Ethylhexyl)phthalate	379	247	14000	3600	61	39	0.18	No	- -
Di-n-octylphthalate	215	188	60000	3600	29	19	0.76	No	- -
Benzo[b]fluoranthene	1261	848	290000	12000	180	130	0.94	No	15,000 - 62,000
Benzo[k]fluoranthene	880	454	290000	5700	180	170	0.15	No	300 - 26,000
Benzo[a]pyrene	1019	549	360000	7800	180	58	0.22	No	165 - 220
Indeno[1,2,3-cd]pyrene	763	327	90000	3600	140	29	0.051	No	8,000 - 61,000
Dibenz[a,h]anthracene	314	259	60000	3600	23	78	0.65	No	- -
Benzo[g,h,i]perylene	620	388	140000	6200	120	84	0.30	No	900 - 47,000
Pesticides/PCBs (µg/kg)									
Heptachlor (a)	0.98	1.14	1.15	4.2	0.9	0.95	0.23	No	- -
Heptachlor epoxide	1.58	1.19	5.1	5.6	0.9	0.9	0.30	No	- -
4,4'-DDE (a)	1.90	2.22	2.2	46	1.8	1.7	0.47	No	- -
Endrin	5.13	3.09	19	15	1.8	1.7	0.11	No	- -
Endosulfan II	2.19	2.38	6.5	21	1.8	1.7	0.67	No	- -
4,4'-DDD	2.21	1.98	7.6	4.6	1.8	1.7	0.52	No	- -
Endosulfan sulfate (a)	1.90	2.20	2.2	28	1.8	1.7	0.45	No	- -
4,4'-DDT	3.87	4.71	14	140	1.8	1.7	0.62	No	- -
Methoxychlor	15.30	10.76	84	46	9	9	0.09	No	- -
Endrin ketone	4.50	2.41	44	33	1.8	1.7	0.21	No	- -
alpha-Chlordane	1.35	1.57	4.8	24	0.9	0.9	0.69	No	- -
gamma-Chlordane	1.98	1.51	10	25	0.9	0.9	0.50	No	- -
Aroclor-1254 (a)	19.02	20.48	22	35	18	17	0.11	No	- -

Note

a. No background detections for valid statistical background computations. One-half the laboratory detection limit was used.

b. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. Agency for Toxic Substances and Disease Registry. U.S. Department of Health and Human Services. December 1990.

delta-BHC at CLBK06 to 84 μg/kg methoxychlor at CLBK03. No PCBs were detected above the method detection limit.

4.1.1.2 Onsite

Several VOCs were detected in onsite soil samples including MEK, TCE, toluene, chlorobenzene, ethylbenzene, and xylene. The majority of the detects and highest concentrations were found at borings CLSB06, CLSB09, and CLSB10 (Figure 2-2) from a depth interval of 2 to 6 feet (Table B-1, Appendix B).

Several SVOCs were detected onsite (Table 4-1). Concentrations of individual SVOCs ranged from 19 μg/kg dibenzofuran at CLSB01 (depth interval of 0 to 2 feet) to 15,000 μg/kg pyrene at CLSB10 (depth interval of 4 to 6 feet). In general, the greatest number of individual SVOCs detected were within the upper 8 feet of soil and above the water table. With the exception of benzo(a)pyrene, average individual PAH concentrations onsite were within or below the urban background range for PAHs as established by the ATSDR. In general, maximum individual PAH concentrations were also within or below ATSDR urban background range. The exception: chrysene and benzo(a)pyrene exceeded the ATSDR urban background range. However, their onsite concentrations as well as the concentration of other PAHs detected onsite, were below PAH concentrations detected in soil samples surrounding the CLL site.

Several pesticides were detected onsite. Concentrations ranged from below the detection limit to 140 μg/kg at CLSB10 (4 to 6 feet below grade). PCB Arochlor-1254 was detected in three onsite soil samples (CLSS02, CLSB01, and CLSB11) in concentrations ranging from 32 to 35 μg/kg.

4.1.2 Inorganics

4.1.2.1 Offsite

Inorganic offsite concentrations in samples were compared to typically occurring or "background" values for the eastern United States as published in the U.S. Geological Survey (USGS) Paper No. 1270 when USGS values existed (see Table 4-2). Average inorganic concentrations detected in CLL RI offsite samples were within the typical range of urban background values for the eastern United States. However, maximum concentrations for several inorganics exceeded the background values including arsenic (CLBK03), copper (CLBK04), and lead (CLBK06). Borings CLBK03 and CLBK06 were located just east of the site near the Conrail railroad tracks. Boring CLBK04 was located in the drainage swale at the site just north of (upslope from) the red soil area.

4.1.2.2 Onsite

Onsite inorganic concentrations were also compared to USGS urban background values for the eastern United States. Average inorganic concentrations onsite fell within the

Table 4-2
Statistical Summary Table for Inorganics in Soil
Carter-Lee Lumber

Metals (mg/kg)	Median		Maximum Value		Minimum Value		T-test	Statistical	Background Values
	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	P (T < t)	Difference	for Eastern U.S. (a)
Aluminum	6726	4821	16000	14900	2740	1750	0.030	Yes*	700 - >10,000
Antimony	8.5	5.9	32.9	10.0	6.8	3.4	0.002	Yes*	- -
Arsenic	7.0	11.3	257.0	197.0	0.2	2.6	0.290	No	<0.1 - 73
Barium	70.3	43.4	198.0	328.0	14.9	1.2	0.040	Yes*	10 - 1,500
Beryllium	0.7	0.6	2.0	151.0	0.3	0.2	0.520	No	<1 - 7
Cadmium	1.3	0.7	5.6	1.3	0.9	0.1	0.001	Yes*	- -
Calcium	30566	80737	107000	198000	2250	4460	0.001	Yes	100 - 280,000
Chromium	15.5	20.5	48.9	439.0	7.6	5.3	0.210	No	1 - 1,000
Cobalt	7.1	5.9	16.9	15.3	3.3	2.5	0.140	No	<0.3 - 70
Copper	55.4	22.4	6970.0	114.0	12.1	4.1	0.010	Yes*	<1 - 700
Iron	17564	16458	39200	161000	7190	5030	0.730	No	100 - >100,000
Lead	90.5	42.8	2270.0	376.0	14.6	2.9	0.040	Yes*	<10 - 300
Magnesium	10400	17953	39400	59000	1480	605	0.048	Yes	- -
Manganese	489	468	1400	1280	252	220	0.730	No	<2 - 7,000
Mercury	0.1	0.1	0.4	0.5	0.1	0.1	0.650	No	0.01 - 3.4
Nickel	17.4	20.7	39.9	173.0	7.0	6.2	0.360	No	<5 - 700
Potassium	975	634	2130	1250	511	169	0.001	Yes*	50 - 37,000
Selenium	0.5	0.4	4.0	3.5	0.2	0.2	0.290	No	- -
Silver	0.9	0.8	1.0	2.4	0.8	0.4	0.030	Yes*	- -
Sodium	133.0	104.8	1510.0	332.0	28.2	29.3	0.230	No	<500 - 50,000
Thallium	0.3	0.2	0.5	0.5	0.2	0.1	0.005	Yes*	- -
Vanadium	22.1	15.3	45.9	88.6	10.5	5.3	0.010	Yes*	<7 - 300
Zinc	127.0	76.4	424.0	564.0	29.4	11.6	0.034	Yes*	<5 - 2,900
Cyanide	0.4	0.5	0.6	2.1	0.3	0.3	0.630	No	- -

Notes
* indicates offsite concentration is statistically higher than onsite concentration
a H.T. Shacklette and J.G. Boerngen. Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States. USGS, PP No. 1270. 1984.

published background values (Table 4-2). However, the individual sample concentration for beryllium exceeded the USGS background value at CLSB08 at a concentration of 151 mg/kg in the 0- to 2-foot sample. USGS background values for lead were also exceeded at CLSB08 at a concentration of 376 mg/kg and a depth of 0- to 2-feet and at CLSB02 at a concentration of 332 mg/kg and a depth of 4 to 6 feet.

4.1.3 Statistical Comparative Analysis

The geometric average and the maximum and minimum concentrations of each compound analyzed were calculated for each data set (i.e., the onsite soil sample set and the offsite soil sample set). Acetone and methylene chloride were not included in the statistical analysis as these compounds are common laboratory contaminants and there is no record of their historical use onsite. In addition, xylene, TCE, and chlorobenzene were not included in the statistical analyses. TCE and chlorobenzene were only detected in one sample at concentrations below laboratory detection limits. Xylene was detected both onsite and offsite at concentrations well below laboratory detection limits, and there is no record of its historical use onsite.

When a compound was reported as undetected, half of that compound's laboratory detection limit was used in the calculations. The data were then analyzed to determine whether there was a statistical difference between the onsite and offsite analytical results. The student's t-test at the 95-percent confidence level was used in the analysis. A detailed discussion of the statistical approach used as well as the statistical tables generated are presented in Technical Memorandum No. 4 in Appendix A.

4.1.3.1 Organics

Results of the Student's t-test indicated no statistical difference between offsite and onsite results for VOCs, SVOCs, and pesticides at the 95-percent confidence level.

4.1.3.2 Inorganics

The results of the Student's t-test indicates that calcium and magnesium concentrations were statistically greater onsite than offsite (Table 4-2). For the remaining inorganic compounds, the results indicated either no statistical difference between offsite and onsite results or offsite concentrations were statistically greater than onsite concentrations.

4.2 Groundwater Analytical Results

Table 4-3 is a summary table of the analytical results for both groundwater grab and monitoring well samples. The data tables and data validation technical memorandums are presented in Appendix B.

Table 4-3
Groundwater Results Summary Table
Carter-Lee Lumber
(Page 1 of 2)

Station Location:	CLMW01 (upgradient)			CLMW02 (upgradient)			CLMW03 (downgradient)			CLMW04 (down-crossgradient)		
Sample Number:												
Date Sampled:	11/5/92	6/7/93	9/22/93	11/7/92	6/7/93	9/22/93	11/6/92	6/7/93	9/22/93	11/6/92	6/7/93	9/22/93
Volatiles (µg/L)												
Chloroform	< 10	< 10	< 10	1	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Semivolatiles (µg/L)												
Phenol	< 10	< 10	< 10	3	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Diethylphthalate	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Phenanthrene	< 10	< 10	< 10	< 10	< 10	< 10	0.8	< 10	< 10	< 10	< 10	< 10
Di-n-butylphthalate	< 10	< 10	< 10	< 10	< 10	1	0.8	< 10	< 10	< 10	< 10	< 10
Fluoranthene	< 10	< 10	< 10	< 10	< 10	< 10	< 2	< 10	< 10	< 10	< 10	< 10
Pyrene	< 10	< 10	< 10	< 10	< 10	< 10	0.8	< 10	< 10	< 10	< 10	< 10
bis(2-Ethylhexyl)phthalate	< 10	< 10	< 10	0.6	< 10	< 10	1	< 10	< 10	< 10	< 10	< 10
Pesticides/PCBs (µg/L)												
alpha-BHC	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	0.003	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05
delta-BHC	< 0.1	< 0.05	0.0032	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05
gamma-BHC (Lindane)	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	0.01	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05
Heptachlor	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	0.0079	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05
Aldrin	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	0.0063	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05
Dieldrin	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	0.018	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05
Endrin	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	0.017	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05
Endosulfan sulfate	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.22	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDT	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.012	0.22	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Inorganics (µg/L)												
Aluminium	32.3	< 23.5	< 53.8	< 24	< 23.5	< 53.8	26.5	< 25.2	< 53.8	< 24	< 23.5	< 53.8
Arsenic	< 1	< 2.3	< 1.2	1.6	< 2.3	< 1.2	1.3	< 2.3	< 1.2	1.1	< 4.6	< 1.2
Barium	< 112	138	126	67.0	70.3	56.7	67.0	57.1	48.0	44.8	49.8	38.4
Beryllium	< 1	< 8	1.0	< 1	< 8.1	< 1	1.1	< 1.6	< 1	< 1	< 1.2	< 1
Cadmium	< 4	< 1.7	< 2.8	< 4	< 1.7	< 2.8	< 4	< 1.7	< 2.8	< 4	< 1.7	< 2.8
Calcium	131000	126000	116000	117000	108000	101000	183000	194000	173000	164000	179000	139000
Chromium	< 3	< 5.8	< 3.7	< 3	< 5.8	< 3.7	< 3	< 5.8	< 3.7	< 3	< 5.8	< 3.7
Cobalt	< 5	< 3.8	< 4.5	< 5	< 3.8	< 4.5	< 5	< 3.8	< 4.5	< 5	< 3.8	< 4.5
Copper	< 4	< 4.2	5.2	< 4	< 4.2	< 3.6	< 4	< 4.2	4.6	< 4	< 4.2	< 3.6
Iron	27.5	< 21.3	127.0	< 6	< 4.8	51.7	10.6	< 4.8	< 18.8	23.5	< 4.8	< 18.1
Lead	1.4	5.5	< 5	< 1	2.3	< 5	1.2	1.9	< 5	< 1	3.0	< 5
Magnesium	34400	33400	33400	32400	31400	32200	36800	39000	39900	40200	45000	38300
Manganese	46.7	12.2	27.0	7.8	< 1.8	3.0	224	6	10	11.6	< 1.8	< 1.6
Mercury	< 0.2	< 1	< 1	< 0.2	< 1	< 1	< 0.2	< 1	< 1	< 0.2	< 1	< 1
Nickel	11.9	< 6.1	< 13.2	11.4	< 6.1	< 13.2	8.9	< 6.1	< 13.2	< 5	< 6.1	< 13.2
Potassium	3840	4160	< 4390	4400	4680	< 4390	4070	3310	< 4390	4490	4250	< 4390
Selenium	1.4	< 3.3	< 1	3.0	6.1	1.2	1.3	< 3.3	< 1	1.8	9.2	< 1
Sodium	42800	54000	49800	31200	37200	36600	46100	40100	44200	53200	40700	50300
Thallium	< 1	< 1.2	< 7	1.4	< 1.2	< 7	1.0	< 1.2	< 7	< 1	< 1.2	< 7
Vanadium	< 3	< 3.3	< 4.7	< 3	< 3.3	< 4.7	< 3	< 3.3	< 4.7	< 3	< 3.3	< 4.7
Zinc	6.4	< 3.4	11.8	< 3	< 3.4	7.0	4.6	< 3.4	4.2	< 3	< 3.4	6.5
Cyanide	< 10	< 10	2.0	< 10	< 10	5.4	< 10	< 10	2.0	< 10	< 10	3.9
Treatment Parameters (mg/L)												
Alkalinity	--	--	399	--	--	295	--	--	442	--	--	406
Total Organic Carbon	--	--	5.54	--	--	5.65	--	--	15.1	--	--	9.4
Chemical Oxygen Demand	--	--	12.7	--	--	49.2	--	--	144	--	--	93.7
Chloride	--	--	70.9	--	--	55.1	--	--	71.8	--	--	72.3
Hardness, as $CaCO_3$	--	--	651	--	--	532	--	--	827	--	--	569
Total Dissolved Solids	--	--	686	--	--	586	--	--	830	--	--	710
Total Suspended Solids	--	--	2410	--	--	2240	--	--	3810	--	--	3210

Table 4-3
Groundwater Results Summary Table
Carter-Lee Lumber
(Page 2 of 2)

Station Location:	CLMW05 (downgradient)			CLMW05-FR[a]	Groundwater Grab Samples				Drinking Water MCL[b]
Sample Number:					CLSB01 CLGRB01	CLSB02 CLGRB02	CLSB03 CLGRB03	CLSB04 CLGRB04	
Date Sampled:	11/6/92	6/7/93	9/22/93	9/22/93	11/6/92	11/6/92	11/6/92	11/4/92	
Volatiles (µg/L)									
Chloroform	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	100
Semivolatiles (µg/L)									
Phenol	< 10	< 10	< 10	< 10	< 10	2	1	< 10	NA
Naphthalene	< 10	< 10	< 10	< 10	< 10	2	< 10	< 10	NA
Diethylphthalate	< 10	< 10	< 10	< 10	< 10	0.9	< 10	< 10	NA
Phenanthrene	< 10	< 10	< 10	< 10	< 10	0.6	< 10	< 10	NA
Di-n-butylphthalate	< 10	< 10	< 10	< 10	1	< 2	< 1.8	0.5	NA
Fluoranthene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA
Pyrene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA
bis(2-Ethylhexyl)phthalate	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	6
Pesticides/PCBs (µg/L)									
alpha-BHC	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	NA
delta-BHC	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	NA
gamma-BHC (Lindane)	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Heptachlor	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.4
Aldrin	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	NA
Dieldrin	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	NA
Endrin	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	2
Endosulfan sulfate	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	NA
4,4'-DDT	< 0.1	< 0.1	< 0.1	0.0036	< 0.1	< 0.1	< 0.1	< 0.1	NA
Inorganics (µg/L)									
Aluminium	< 24	< 23.5	< 53.8	< 53.8	< 24	36.3	29.7	11400.0	50-200*
Arsenic	1.5	< 2.3	< 1.2	< 1.2	< 1	< 1	< 1	10.7	50
Barium	68.5	55.6	59.5	57.3	85.6	68.2	88.3	253	2000
Beryllium	< 1	< 1.6	2.3	< 1	< 1	1.1	< 1	1.5	4
Cadmium	< 4	< 1.7	4.0	< 2.8	< 4	< 4	< 4	< 4	5
Calcium	197000	140000	146000	137000	132000	144000	155000	257000	NA
Chromium	< 3	< 5.8	< 3.7	< 3.7	< 3	< 3	< 3	51.9	100[c]
Cobalt	< 5	< 3.8	< 4.5	< 4.5	< 5	12.2	22.9	30.8	NA
Copper	< 4	< 4.2	6.3	< 3.6	< 4	< 4	< 4	99.3	1300
Iron	11.6	< 11.9	112.0	< 18.8	142	138	1790	64100	300*
Lead	1.2	2.2	< 0.5	< 0.5	< 1	< 1	1.0	49.7	15
Magnesium	30800	28200	33100	33800	35100	35500	38300	68300	NA
Manganese	90.6	< 1.8	4.1	1.6	838	328	1010	1790	50*
Mercury	< 0.2	< .1	< .1	< 0.1	< 0.2	< 0.2	< 0.2	0.6	2
Nickel	11.4	< 6.1	< 13.2	< 13.2	7.4	< 5	11.4	65.8	100
Potassium	3940	3170	< 4390	< 4390	4120	4460	4670	6160	NA
Selenium	3.7	5.0	2.0	< 1	1.5	2.7	2.5	2.9	50
Sodium	24800	34000	40400	42100	43500	49400	49300	47800	NA
Thallium	< 1	< 1.2	< 0.7	< 0.7	< 1	< 1	< 1	< 1	2
Vanadium	< 3	< 3.3	4.8	< 4.7	< 3	< 3	< 3	46.6	NA
Zinc	< 3	< 3.4	14.3	5.4	4.6	8.3	24.9	389	5000*
Cyanide	< 10	< 10	4.0	5.2	< 10	< 10	< 10	< 10	200
Treatment Parameters (mg/L)									
Alkalinity	--	--	372	373	--	--	--	--	NA
Total Organic Carbon	--	--	7.24	7.54	--	--	--	--	NA
Chemical Oxygen Demand	--	--	98.4	77.8	--	--	--	--	NA
Chloride	--	--	61.9	67.7	--	--	--	--	NA
Hardness, as $CaCO_3$	--	--	592	636	--	--	--	--	NA
Total Dissolved Solids	--	--	664	774	--	--	--	--	NA
Total Suspended Solids	--	--	5510	3300	--	--	--	--	NA

[a] "FR" designates field replicate.

[b] Maximum contaminant level promulgated under U.S. EPA's Safe Drinking Water; *refers to secondary MCLs.

[c] MCL for total chromium.

NA indicates not available.

4.2.1 Organics

4.2.1.2 Groundwater Grab Samples

No VOCs, pesticides, or PCBs were detected in the groundwater grab samples. Several SVOCs were detected: phenol, naphthalene, diethylphthalate, phenanthrene, and di-n-butylphthalate. The majority of the SVOCs were detected at CLSB02.

4.2.1.3 Monitoring Well Samples

Only one VOC was detected during the three sampling events. Chloroform was detected in CLMW02 at a concentration of 1 μg/L in November 1992. The compound was not detected at any other locations or during subsequent sampling events making its November presence suspect.

Several SVOCs were detected at two wells (CLMW02 and CLMW03) during the November 1992 sampling event. CLMW02 is located upgradient of the site and CLMW03 is located downgradient. The SVOCs included phenol, phenanthrene, di-n-butylphthalate, pyrene, and bis(2-ethylhexyl)phthalate. Concentrations ranged between 0.6 and 3 μg/L (Table 4-3). No SVOCs were detected in June 1993. One SVOC, Di-n-butylphthlate was detected at CLMW02 at a concentration of 1 μg/L in September 1993. Detections of any individual constituents were not confirmed in multiple sampling events, making detections suspect.

No PCBs were detected above method detection limits during the three sampling events. Two pesticides were detected in groundwater during the November 1992 sampling event. Endosulfan sulfate and 4,4'-DDT were detected in CLMW03, each at a concentration of 0.22 μg/L. No pesticides were detected in June 1993. In September 1993, several pesticides were detected at CLMW01, CLMW02, and CLMW05 (refer to Table 4-3). CLMW01 and CLMW05 each had one pesticide detect. Seven pesticides were detected at CLMW02 with concentrations ranging from 0.003 to 0.018 μg/L (Table 4-3).

4.2.2 Inorganics

4.2.2.1 Groundwater Grab Samples

Several inorganics were detected in the grab samples (Table 4-3). The highest concentrations were detected at CLSB04 within the former trench area.

4.2.2.2 Monitoring Well Samples

Table 4-3 lists the inorganics detected and the corresponding concentrations. Also included in the table are the September 1993 results for treatment parameters.

Arsenic was detected at CLMW02, CLMW03, CLMW04, and CLMW05 in November 1992. Concentrations ranged between 1.1 μg/L at CLMW04 to 1.6 μg/L at CLMW02. Arsenic was not detected during subsequent sampling events.

Beryllium was detected at CLMW03 in November 1992 and at CLMW01 and CLMW05 in September 1993. Concentrations ranged from 1 μg/L at CLMW01 to 2.3 μg/L at CLMW05.

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Section 5.0

Contamination and Fate Transport

The purpose of this section of the RI report is to describe the CPCs at the site and discuss their potential for migrating through soil and groundwater. This section is divided into a discussion of how the CPCs were identified, their migration pathways and contaminant transport potential, and the fate of the CPCs are evaluated.

5.1 Data Evaluation and Identification of CPCs

Identifying CPCs is based on evaluation of data generated during site investigations performed by CH2M HILL during November 1992, June 1993, and September 1993. Chemicals were detected in groundwater and subsurface soil. Section 2.0 of the RI report provides descriptions of the site investigation methodologies and Section 4.0 discusses the nature and extent of contamination.

The contaminant sources identified during past investigations included neutralized calcium ferrosulfate (spent sulfuric acid pickling liquor) used in metal plating operations, an oily filter cake, and red liquid that may have been the metal plating sludge or other material. A small batch operation to treat wood products using pentachlorophenol was later identified as possibly contributing to the site contaminants.

5.1.1 Soil CPCs

Soil samples were collected at various depths (0.5 to 20 feet) from onsite and background, or offsite areas proximate to site, during the investigation. Because the typical depth of excavation during construction is 10 feet, only samples collected at 10-foot depths or less are used in the RA. The assumption is made that excavated soil will be redeposited at the surface and, thus, will be available for exposure routes.

A total of 35 onsite soil samples (3 of which are replicates) was collected from 12 subsurface soil locations and 3 swale soil locations. A subtotal of 30 onsite soil samples was taken from 10-foot depths or less and used in the RA. Of the 30 onsite soil samples, 27 samples were analyzed for priority pollutant VOCs and SVOCs. (The 3 replicates were not included in these analyses.) Metal analyses were performed for all 30 of these onsite soil samples (27 soil samples plus 3 replicates). In the case of inorganic analyses, the exception to this analytical protocol is cyanide which was analyzed for in 23 samples.

A total of 21 background soil samples (2 of which are replicates) were collected from 17 subsurface soil locations. A subtotal of 20 background soil samples were taken from 10-foot depths or less and are used in the RA. Of the 20 background soil samples, 9 samples were analyzed for priority pollutant VOCs, pesticides, and PCBs; 19 were

analyzed for priority pollutant SVOCs. Metal analyses were performed for all 20 background soil samples (18 soil samples plus 2 replicates). In the case of inorganic analyses for background soil, the exception to this analytical protocol is cyanide which was analyzed in 5 samples.

Soil data reveal that 24 inorganic chemicals (Table 5-1), 8 VOCs (Table 5-2), 25 SVOCs (Table 5-3), 12 pesticides (Table 5-4), and 1 PCB congener (Table 5-4) were detected in at least one soil sample. The chemicals were evaluated to eliminate a chemical from consideration as a CPC in soil using the following criteria established by EPA:

- Low detection frequency (less than 10 percent)
- No site-specific historical use or significance
- Onsite concentration less than or equal to background concentration (employed two sample t-tests assuming equal variances; refer to Appendix A)
- Common laboratory contaminant, employing 10 × rule that states the sample results should be considered as positive results only if the concentrations in the sample exceed ten times the maximum amount detected in any blank (Risk Assessment Guidance for Superfund, Human Health Evaluation Manual, Volume I, pg. 5-16)
- Considered a micronutrient and toxicologically insignificant

Based on the above criteria, no inorganic chemicals, VOCs, or SVOCs were selected as CPCs. The criteria used to delete inorganic chemical constituents are listed in Table 5-1, VOC constituents in Table 5-2, and SVOC constituents in Table 5-3.

Only 1 pesticide, heptachlor, and 1 PCB congener, Arochlor-1254, were screened as CPCs (Table 5-4). Heptachlor was detected at a 15-percent detection frequency (4 positive detections out of 27 analyses) and all but one of the detections were at concentrations approximating the contract required detection limit. Arochlor-1254 was detected at an 11 percent detection frequency (3 positive detections out of 27 analyses) and all the detections were at concentrations approximating the contract required detection limit. No historical information exists to indicate that heptachlor or PCBs were used at the site.

The criteria used for deleting other detected pesticides are listed in Table 5-4.

The CPCs were identified in the following soil samples (subsurface soil = sb, swale soil = ss):

Table 5-1
Chemicals of Potential Concern
Inorganics in Soil
Carter-Lee Lumber

Chemical Parameter	Selected as CPC?	Criteria Used for Nonselection (b)	Total Positive Detections	Total Analyses	Positive Detection Frequency	Range of Positive Detections	Background Range (a)
Inorganics (mg/kg)							
Aluminum	no	3	30	30	100%	1,090 - 14,900	2,460 - 16,000
Antimony	no	3	11	30	37%	3.4 - 10.0	6.8 - 32.9
Arsenic	no	3	30	30	100%	2.4 - 197	0.2 - 257
Barium	no	3	30	30	100%	1.2 - 328	14.9 - 198
Beryllium	no	3	30	30	100%	0.1 - 151	0.2 - 2.0
Cadmium	no	3	30	30	100%	0.1 - 1.3	0.8 - 5.6
Calcium	no	5	30	30	100%	4,460 - 236,000	2,250 - 128,000
Chromium	no	3	30	30	100%	4.8 - 439	6.7 - 48.9
Cobalt	no	3	30	30	100%	2.2 - 15.3	3.1 - 16.9
Copper	no	3	30	30	100%	3.7 - 114	8.3 - 6,970
Iron	no	3,5	30	30	100%	5,030 - 161,000	6,570 - 39,200
Lead	no	3	30	30	100%	2.9 - 376	10.1 - 2,270
Magnesium	no	5	30	30	100%	605 - 59,000	1,480 - 39,400
Manganese	no	3	30	30	100%	204 - 1,280	252 - 1,400
Mercury	no	3	30	30	100%	0.1 - 0.5	0.1 - 0.4
Nickel	no	3	30	30	100%	2.9 - 173	6.9 - 39.9
Potassium	no	3,5	30	30	100%	169 - 1,250	433 - 2,130
Selenium	no	3	24	30	80%	0.2 - 3.5	0.2 - 4.0
Silver	no	3	30	30	100%	0.4 - 2.4	0.8 - 1.0
Sodium	no	3,5	30	30	100%	29.3 - 332	28.2 - 1,510
Thallium	no	3	23	30	77%	0.1 - 0.5	0.2 - 0.5
Vanadium	no	3	30	30	100%	5.3 - 88.6	8.3 - 45.9
Zinc	no	3	30	30	100%	11.6 - 564	23.1 - 424
Cyanide	no	3	23	23	100%	0.3 - 2.1	0.3 - 0.6

Footnotes:

(a) Background represents analytical results of soil samples taken from soil sample locations CLBK01 through CLBK17.

(b) Criteria used for deletion of a chemical from consideration as a chemical of potential concern (CPC):

1. Low detection frequency (less than 10%).
2. No historical use or significance.
3. Detected onsite concentrations statistically equivalent to or less than background concentrations.
4. Common laboratory contaminant.
5. Considered a micronutrient and toxicologically insignificant.

Table 5-2
Chemicals of Potential Concern
Volatile Organics in Soil
Carter-Lee Lumber

Chemical Parameter	Selected as CPC?	Criteria Used for Nonselection (c)	Total Positive Detection	Total Analyses	Positive Detection Frequency	Range of Positive Detections	Background Range (a)	Background Range (b)
Volatile Organics (µg/kg)								
Acetone	no	2,4	14	27	52%	14 - 170	nondetect - 25*	not available
2-Butanone (MEK)	no	2,4	3	27	11%	13 - 31	nondetect - 11*	not available
Chlorobenzene	no	1,2	1	27	4%	5	nondetect	not available
Ethylbenzene	no	2,3	3	27	11%	2	nondetect	1,000 - 5,000
Methylene chloride	no	2,4	23	27	85%	2 - 55	nondetect - 42*	not available
Trichloroethene	no	1,2,3	1	27	4%	2	nondetect - 6	not available
Toluene	no	2,3,4	18	27	67%	2 - 130	nondetect - 160*	1,000 - 5,000
Xylene	no	2,3	6	27	22%	2 - 65	nondetect - 2	1,000 - 5,000

Footnotes

(a) Background represents analytical results of soil samples taken from soil sample locations CLBK01 through CLBK07.
* indicates upper end of range is possibly representative of common laboratory contamination

(b) Background reference - "The Soil Chemistry of Hazardous Materials," James Dragun, Hazardous Materials Control Research Institute, 1988.

(c) Criteria used for deletion of a chemical from consideration as a chemical of potential concern (CPC)

1 Low detection frequency (less than 10%)

2 No historical use or significance

3 Detected onsite concentrations statistically equivalent to or less than background concentrations

4 Common laboratory contaminant

5 Considered a micronutrient and toxicologically insignificant

Table 5-3
Chemicals of Potential Concern
Semivolatile Organics in Soil
Carter-Lee Lumber

Chemical Parameter	Selected as CPC?	Criteria Used for Nonselection (C)	Total Positive Detection	Total Analyses	Positive Detection Frequency	Range of Positive Detections	Background Range (a)	Background Range (b)
Semivolatile Organics (µg/kg)								
Acenaphthene	no	3	15	27	56%	32 - 1,800	28 - 20,000	not available
Acenaphthylene	no	3	15	27	56%	21 - 1,800	24 - 19,000	not available
Anthracene	no	3	20	27	74%	45 - 1,200	39 - 70,000	not available
Benzo(a)anthracene	no	3	23	27	85%	59 - 5,300	22 - 360,000	169 - 59,000
Benzo(a)pyrene	no	3	18	27	67%	58 - 7,800	180 - 360,000	165 - 220
Benzo(b)fluoranthene	no	3	21	27	78%	130 - 12,000	180 - 290,000	15,000 - 62,000
Benzo(g,h,i) perylene	no	3	16	27	59%	84 - 6,200	120 - 140,000	900 - 47,000
Benzo(k)fluoranthene	no	3	10	27	37%	170 - 5,700	180 - 290,000	300 - 26,00
Bis(2-ethylhexyl)phthalate	no	3,4	3	27	11%	39 - 3,600	61 - 14,000	not available
Butylbenzylphthalate	no	1,4	1	27	4%	3600.0	380	not available
Carbazole	no	3	20	27	74%	42 - 580	42 - 49,000	not available
Chrysene	no	3	23	27	85%	70 - 6,400	35 - 410,000	251 - 640
Dibenz(a,h)anthracene	no	3	5	27	19%	78 - 3,600	23 - 60,000	not available
Dibenzofuran	no	3	18	27	67%	19 - 1,200	30 - 9,000	not available
3-3' dichlorobenzidine	no	1	1	27	4%	3,600	380	not available
Diethylphthlate	no	1,4	1	27	4%	64	nondetect	not available
Di-n-butylphthlate	no	3,4	17	27	63%	20 - 1,800	20 - 60,000	not available
Di-n-octylphthlate	no	3,4	6	27	22%	19 - 3,600	29 - 60,000	not available
Fluoranthene	no	3	17	27	63%	74 - 8,400	29 - 790,000	200 - 166,000
Fluorene	no	3	18	27	67%	23 - 610	23 - 30,000	not available
Indeno(1,2,3-cd)pyrene	no	3	12	27	44%	29 - 3,600	140 - 90,000	8,000 - 61,000
2-methylnaphthalene	no	3	16	27	59%	28 - 1,400	25 - 60,000	not available
Naphthalene	no	3	13	27	48%	34 - 2,200	21 - 60,000	not available
Phenanthrene	no	3	23	27	85%	60 - 6,500	28 - 370,000	not available
Pyrene	no	3	21	27	78%	74 - 15,000	28 - 800,000	145 - 147,000

Footnotes:

(a) Background represents analytical results of soil samples taken from soil sample locations CLBK01 through CLBK17.

(b) Background reference - "Toxicological Profile for Polycyclic Aromatic Hydrocarbons," Agency for Toxic Substances and Disease Registry, December, 1990.

(c) Criteria used for deletion of a chemical from consideration as a chemical of potential concern (CPC):

1. Low detection frequency (less than 10%).
2. No historical use or significance.
3. Detected onsite concentrations statistically equivalent to or less than background concentrations.
4. Common laboratory contaminant.
5. Considered a micronutrient and toxicologically insignificant.

Table 5-4
Chemicals of Potential Concern
Pesticides and PCBs in Soil
Carter-Lee Lumber

Chemical Parameter	Selected as CPC ?	Criteria Used for Nonselection (b)	Total Positive Detections	Total Analyses	Positive Detection Frequency	Range of Positive Detections	Background Range (a)
Pesticides (µg/kg)							
Alpha chlordane	no	3	5	27	19%	4.5 - 24	nondetect - 4.8
Gamma chlordane	no	3	4	27	15%	7.4 - 25	nondetect - 10
4,4'-DDD	no	1,2,3	1	27	4%	4.6	nondetect - 7.6
4,4'-DDE	no	1,2	2	27	7%	4.3 - 46	nondetect
4,4'-DDT	no	2,3	14	27	52%	5.1 - 140	nondetect - 14
Endosulfan II	no	2,3	5	27	19%	3.9 - 21	nondetect - 6.5
Endosulfan sulfate	no	1	2	27	7%	5.2 - 28	nondetect
Endrin	no	2,3	9	27	33%	5.2 - 15	nondetect - 19
Endrin ketone	no	2,3	3	27	11%	6.4 - 33	nondetect - 44
Heptachlor	**yes**		**4**	**27**	**15%**	**1.9 - 4.2**	**nondetect**
Heptachlor epoxide	no	3	5	27	19%	2 - 5.6	nondetect - 5.1
Methoxychlor	no	1,2,3	2	27	7%	18 - 46	nondetect - 84
PCBs (µg/kg)							
Arochlor 1254	**yes**		**3**	**27**	**11%**	**32 - 35**	**nondetect**

Footnotes
(a) Background represents analytical results of soil samples taken from soil sample locations CLBK01 through CLBK07
(b) Criteria used for deletion of a chemical from consideration as a chemical of potential concern (CPC)
1 Low detection frequency (less than 10%)
2 No historical use or significance
3 Detected onsite concentrations statistically equivalent to or less than background concentrations
4 Common laboratory contaminant
5 Considered a micronutrient and toxicologically insignificant

Heptachlor

- SS01-B (2.6 μg/kg, "J" qualified)
- SB03-1 (1.9 μg/kg, "J" qualified)
- SB11 (4.2 μg/kg)
- SB12-1 (2.2 μg/kg, "J" qualified)

Arochlor-1254 (PCB)

- SS02-A (34 μg/kg, "J" qualified)
- SB01-1 (35 μg/kg, "J" qualified)
- SB11 (32 μg/kg, "J" qualified)

5.1.2 Groundwater

Groundwater data for 5 onsite monitoring wells (17 samples) were evaluated; no background groundwater samples were obtained during the site investigation. Groundwater grab sampling (4 onsite samples) was performed at the site to provide screening-level data on potential groundwater contamination. In accordance with *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA 1988), the grab data will not be used in the RA because field screening data are inappropriate for groundwater analysis, other than to better define chemical analysis parameters.

Groundwater data reveal that 19 inorganic chemicals (Table 5-5) and 15 organic chemicals (Table 5-6) were detected in at least one groundwater sample. Chemicals were evaluated to eliminate a chemical from consideration as a CPC in groundwater using the following criteria:

- Low detection frequency (less than 10 percent)
- No historical use or significance
- Onsite concentration less than or equal to background concentration (maximum detected onsite concentration less than or within background range cited in research literature)
- Onsite concentration less than or equal to the Drinking Water Act maximum contaminant level (MCL)
- Common laboratory contaminant, employing 10 × rule that states the sample results should be considered as positive results only if the concentrations in the sample exceed ten times the maximum amount

Table 5.5
Chemicals of Potential Concern
Inorganics in Groundwater
Carter Lee Lumber

Chemical Parameter	Selected as CPC?	Criteria Used for Nonselection (c)	Total Positive Detection	Total Analyses	Positive Detection Frequency	Range of Positive Detections	Background Range (a)	Drinking Water MCL (b)
Inorganics (µg/L)								
Aluminum	no	3,4	2	17	12%	26.5 - 32.3	5 - 1000	50 - 200*
Arsenic	no	3,4	4	17	24%	1.1 - 1.6	1 - 30	50
Barium	no	3,4	15	17	88%	38.4 - 138	10 - 500	2,000
Beryllium	no	3,4	3	17	18%	1 - 2.3	< 10	4
Cadmium	no	1,3,4	1	17	6%	4.0	< 1	5
Calcium	no	6	17	17	100%	108,000 - 197,000	1,000 - 150,000	not available
Copper	no	3,4	3	17	18%	4.6 - 6.3	1 - 30	1,300
Iron	no	3,4,6	8	17	47%	10.6 - 127	10 - 10,000	300*
Lead	no	3,4	9	17	53%	1.2 - 5.5	< 15	15
Magnesium	no	3,6	17	17	100%	28200 - 45,000	1,000 - 50,000	not available
Manganese	no	3	13	17	76%	1.6 - 90	1 - 1000	50*
Nickel	no	3,4	5	17	29%	8.9 - 11.9	10 - 50	100
Potassium	no	3,6	11	17	65%	3310 - 4,680	1,000 - 10,000	not available
Selenium	no	3,4	11	17	65%	1.2 - 9.2	1 - 10	50
Sodium	no	3,6	17	17	100%	24800 - 54,000	500 - 120,000	not available
Thallium	no	3,4	2	17	12%	1 - 1.4	1 - 150	2
Vanadium	no	1,3	1	17	6%	4.8	1 - 10	not available
Zinc	no	3,4	9	17	53%	4.2 - 14.3	10 - 2,000	5,000*
Cyanide	no	4	6	17	35%	2 - 5.4	not available	200

Footnotes
(a) Background reference - "The Soil Chemistry of Hazardous Materials," James Dragun, Hazardous Materials Control Research Institute, 1988
(b) Maximum contaminant level promulgated under U.S. EPA's Safe Drinking Water, * refers to secondary MCLs
(c) Criteria used for deletion of a chemical from consideration as a chemical of potential concern (CPC)
1 Low detection frequency (less than 10%)
2 No historical use or significance
3 Detected onsite concentration less than background concentration
4 Detected onsite concentrations less than MCL.
5 Common laboratory contaminant
6 Considered a micronutrient and toxicologically insignificant

Table 5-6
Chemicals of Potential Concern
Organics in Groundwater
Carter-Lee Lumber

Chemical Parameter	Selected as CPC?	Criteria Used for Nonselection (c)	Total Positive Detection	Total Analyses	Positive Detection Frequency	Range of Positive Detections	Background Range (a)	Drinking Water MCL (b)
Volatile Organics (µg/L)								
Chloroform	no	1,2,4	1	17	6%	1.0	not available	100
Semivolatile Organics (µg/L)								
bis(2-ethylhexyl)phthalate	no	2,4,5	2	17	12%	0.6 - 1.0	not available	6
Di-n-butylphthalate	no	2,5	2	17	12%	0.8 - 1.0	not available	not available
Fluoranthene	no	1	1	17	6%	1.0	not available	not available
Phenanthrene	no	1	1	17	6%	0.8	not available	not available
Phenol	no	1,2	1	17	6%	3	not available	not available
Pesticides (µg/L)								
Aldrin	no	1.2.	1	17	6%	0.006	not available	not available
alpha BHC	**yes**		**2**	**17**	**12%**	**0.001 - 0.003**	**not available**	**not available**
delta BHC	no	1,2	1	17	6%	0.003	not available	not available
gamma BHC (Lindane)	no	1,2,4	1	17	6%	0.01	not available	0.2
4,4-DDT	**yes**		**2**	**17**	**12%**	**0.004 - 0.012**	**not available**	**not available**
Dieldrin	no	1,2	1	17	6%	0.018	not available	not available
Endosulfan sulfate	no	1,2	1	17	6%	0.22	not available	not available
Endrin	no	1,2,4	1	17	6%	0.017	not available	2
Heptachlor	no	1,2,4	1	17	6%	0.008	not available	0.4

Footnotes:

(a) *Maximum contaminant level promulgated under U.S. EPA's Safe Drinking Water.*

(b) Criteria used for deletion of a chemical from consideration as a chemical of potential concern (CPC):

1. Low detection frequency (less than 10%).
2. No historical use or significance.
3. Detected onsite concentration less than background concentration.
4. Detected onsite concentrations less than MCL.
5. Common laboratory contaminant.
6. Considered a micronutrient and toxicologically insignificant.

detected in any blank (Risk Assessment Guidance for Superfund, Human Health Evaluation Manual, Volume I, pg. 5-16)

- Considered a micronutrient and toxicologically insignificant

Based on the above criteria, no inorganic chemicals were selected as CPCs; the criteria used for the deletion of each inorganic chemical are listed in Table 5-5.

Only 2 organic chemicals, Alpha-BHC and 4,4'-DDT, were selected as CPCs. Both were detected at a 12 percent detection frequency (2 positive detections out of 17 analyses) and all the detections were at concentrations below the contract required detection limit. The site historical use and significance of those organic chemicals is uncertain. The only detection of Alpha-BHC is from an upgradient groundwater monitoring well. No background range or Drinking Water Act MCLs are available for comparisons. The criteria used for screening the other detected organic chemicals are listed in Table 5-6.

The identified CPCs were present in groundwater (September 1993) from 2 monitoring wells:

Alpha-BHC

- MW-2 (0.003 μg/L, "J" qualified)
- MW-5 (0.001 μg/L, "J" qualified)

4,4'-DDT

- MW-2 (0.012 μg/L, "J" qualified)
- MW-5 (0.0036 μg/L, "J" qualified)

5.2 Potential Routes of Migration

A migration pathway defines how a contaminant moves through the environment from its source to a potential receptor. A description of the potential migration pathways that may exist at the CLL site follows. This discussion of migration routes and transport potential is primarily qualitative.

5.2.1 Soils

The possible contaminant migration routes in relation to soil are:

- Migration in water along the surface
- Migration in air subsequent to volatilization

- Migration on dust particles transported by air
- Migration in water down into the unsaturated and, potentially, saturated zone

Most of the CLL site is currently covered with asphalt, as indicated in Figure 2-2. The area of the site that was the focus of this investigation is, however, covered with a compacted gravel layer about 6 inches deep that covers another 6 inches of top soil. Below this, the stratigraphy is variable because of extensive use of various fill material used and soil moved during construction activities.

Low levels of pesticides and PCB Arochlor-1254 were detected in shallow soils. The pesticides may be present as a result of termite and other pest control measures. Generally, contaminants were found in the intervals between 4 and above 8 feet below the ground in silty or clayey sand material. Contaminants may have reached this depth through migration from the surface through the upper 4 feet of soil, but were more likely deposited when fill was placed. Also, contaminants were not typically detected in soil at deeper intervals near the water table interface. The deep intervals sampled at this site are characterized by a highly permeable, well-graded sand and gravel.

Should the asphalt or compacted gravel cover present above the fill degrade through lack of maintenance, erosion could occur and contaminated surface soils could be exposed. This scenario would result in contaminant residues being released to surface drainage or to the air by wind. The contaminants detected at the deeper 4- to 8-foot intervals could begin to move with increased infiltration.

5.2.2 Groundwater

If contamination reaches the saturated zone, it may migrate further downgradient through the aquifer in the dissolved stage. The potential for site contaminant migration through groundwater is of concern because the City of Indianapolis relies in part on this aquifer for supplementing its drinking water supply. The unconfined aquifer is also hydraulically connected to the White River, about 4,200 feet east of the site. Groundwater at the CLL site is encountered at about 15 to 20 feet below ground surface and flows east southeast.

There is no direct evidence of migration having occurred between the contaminated soil and the groundwater. Typically, the soil at the water table interface did not have detectable or significant concentrations of CPCs (pesticides). Two of the monitoring wells (upgradient at CLMW02 and furthest downgradient at CLMW05) had detectable concentrations of pesticides. It is likely the pesticides will move onto the site's subsurface and then offsite through the groundwater.

5.2.3 Surface Water

Based on the site reconnaissance, there was no existing surface water migration route from the CLL site offsite to a water body. The area investigated sloped toward the southeast and surface water drained along the south and east boundaries. Water pooled at the southeast corner of the property before it either evaporated or slowly infiltrated to the subsurface. Railroad berms prevented overland flow from leaving the site.

5.3 Migration Routes Considered

Volatilization is not considered a transport mechanism for this site because there is a well-maintained asphalt cover or at least 6 inches of compacted gravel cover. VOCs were not detected at levels of concern in site soil.

Fugitive dust emissions are not considered a transport mechanism at this site because there is a well-maintained asphalt cover over much of the site. The portion of the site that is not covered in asphalt is covered with 6 inches of uncontaminated, compacted gravel.

Rainwater to groundwater infiltration through the soil is a potential transport mechanism that could leach contaminants from deeper soil layers (4 to 8 feet below ground surface) to the water table. However, the deeper silty sand or clayey sand layers have a low potential for contaminant release from the site. Pesticides and PAH compounds are known to have properties that preferentially bind them to soil (especially fine-grained clay/silt) as opposed to mobilizing in groundwater systems. With the exception of the pesticides Alpha-BHC and 4,4'-DDT, contaminants have not been generally detected at intervals immediately above the water table, indicating the contaminants may be tightly sorbed to fill soil particles well above the water table and a suitable transport mechanism does not likely exist. Pesticides have been detected in upgradient groundwater and may have migrated beneath the site from that location and because of their existence in subsurface soils, could potentially contribute contaminant load to groundwater.

5.4 Extent of Migration

Currently, the contaminants detected at the CLL site have not migrated beyond the source areas identified in the preliminary and remedial investigations (the trench area and respread red soil area). Contaminants were detected at depths of 4 to 8 feet below ground surface and occasionally in near-surface soils. However, review of the RI findings does not indicate there has been significant migration of contaminants to the water table or offsite.

Offsite concentrations, primarily because of the industrial nature of the area, are often higher than those detected onsite. As a result, it is difficult to attribute detection of site-

related contaminants in offsite wells to migration from the site. The sources of contaminants detected offsite are ubiquitous and cannot be traced solely to site activity, based on the information obtained during this investigation.

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Section 6.0

Baseline Risk Assessment

6.1 Introduction

This section presents the results of the Risk Assessment (RA) performed for the CLL site in Indianapolis, Indiana. The purpose of the baseline RA is to characterize the potential threat to public health from the site if no remedial actions occur (i.e., the no-action alternative). This RA estimates the potential noncarcinogenic hazards and carcinogenic risks under current land use and future land use scenarios.

To assess the risks associated with the compounds detected during the site investigation, CH2M HILL conducted this RA to estimate potential human health risks that could result from exposure to contaminants identified in the groundwater and soil. Conservative standardized regulatory exposure assumptions are used to assess reasonable maximum exposure (RME) scenarios.

The RA was performed under an occupational scenario to evaluate current and future land use because of the industrial nature of the area, industrial history of the site, and high likelihood of continued industrial use. The RA also evaluates a future residential land use scenario because of the potential for residential property development. The RA was performed according to current EPA guidelines (full citations are found in the references) including:

- Guidelines for the Health Risk Assessment of Chemical Mixtures
- Guidelines for Carcinogenic Risk Assessment
- Guidelines for Exposure Assessment
- *Risk Assessment Guidance for Superfund—Human Health Evaluation Manual*, Part A, Interim Final
- *Standard Default Exposure Factors*, Interim Guidance
- *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions*
- *Risk Assessment Guidance for Superfund—Human Health Evaluation Manual*, Part B, Interim Final

Specific tasks performed and discussed in this report include:

- Toxicity assessment
- Exposure assessment
- Human health risk characterization
- Uncertainty analysis

6.2 Human Health Risk Assessment

The RA consists of four major components:

- Data evaluation and CPC identification
- Toxicity assessment
- Exposure assessment
- Health risk characterization

The first step in an RA is to identify CPCs. The identification of CPCs is the end-product of the data evaluation process (Section 5.0). To focus remaining RA efforts, the data quality is evaluated with respect to analytical methods used, sample quantitation limits, validation qualifiers, and blank analytical results. Estimated results (i.e., data with a "J" qualifier) that met data validation requirements are used in this assessment. Data were also reviewed and eliminated on the basis of site historical information, background concentrations, essential nutrient information (i.e., micronutrients), detection frequency, and applicable or relevant and appropriate requirements (ARARs). The outcome of this evaluation identifies a set of chemicals that may be site-related.

Those chemicals from this set that have a toxicity value available through EPA are identified as CPCs to public health.

Two primary sources of toxicity values are used. The first source is the EPA Integrated Risk Information System (IRIS) database (EPA, 1993). If a toxicity value is not available through IRIS, the latest available Update of Health Effects Assessment Summary Table ([HEAST] EPA, March 1993) is used. The toxicity values used in this RA are presented as part of the health risk estimation tables contained in Appendix C.

The toxicity assessment identifies the type of hazards or health effects associated with exposure to the CPCs and describes the dose-response relationships of those chemicals.

The exposure assessment identifies potential pathways by which exposures can occur and characterizes the potentially exposed populations and the frequency and duration of exposures.

The risk characterization addresses the potential for adverse effects for each exposure setting derived from the exposure assessment. It integrates the information developed

during the toxicity and exposure assessments to estimate the potential risks to public health from exposure to site contaminants.

6.2.1 Toxicity Assessment

The toxicity assessment consists of two steps. The first, hazard identification, is the process of determining the adverse health effects that could result from exposure to the CPCs. The second, dose-response evaluation, quantitatively examines the relationship between the level of exposure and the incidence of adverse health effects in an exposed population.

6.2.1.1 Hazard Identification and Contaminant Classification

For the purpose of the RA, human health effects are divided into two broad groups: carcinogenic and noncarcinogenic; human health risks were evaluated in those terms. Chemicals were designated categorically as carcinogens, noncarcinogens, or both, based on their associated effects.

Carcinogens. Carcinogens are chemicals that cause or induce cancer. Carcinogenic effects demonstrate a nonthreshold response mechanism. This hypothesized mechanism for carcinogenesis is referred to as "nonthreshold." Nonthreshold is defined as any level of exposure that does not pose a finite probability, however small, of generating a carcinogenic response. The EPA has developed a carcinogen classification system that uses a weight-of-evidence approach to classify the likelihood of a chemical being a human carcinogen. Information considered in developing the classification includes human studies of the association between cancer incidence and exposure and long-term animal studies under controlled laboratory conditions. Other supporting evidence considered includes short-term tests for geotoxicity, metabolic and pharmacokinetic properties, toxicological effects other than cancer, structure activity relationships, and a potential carcinogen's physical and chemical properties. Chemicals are classified by the EPA as:

- A—Human carcinogen
- B1—Probable human carcinogen; limited human data are available
- B2—Probable human carcinogen; sufficient evidence in animals and inadequate or no evidence in humans
- C—Possible human carcinogen
- D—Not classifiable as to human carcinogenicity
- E—Evidence of noncarcinogenicity for humans

All four identified CPCs (two in soil and two in groundwater) are classified by the EPA as Class B2 carcinogens.

Noncarcinogens. Chemicals causing noncarcinogenic effects such as systemic toxins exhibit a level of exposure above 0 that can be tolerated by an organism without causing an observed health effect. It is believed that organisms have adaptive mechanisms that must be overcome before a toxic effect is manifested, that is, before there is a threshold effect. Noncarcinogenic health effects include a variety of toxic effects on body systems ranging from renal toxicity (toxicity to the kidney) to central nervous system disorders. Noncarcinogenic health effects fall into two basic toxicity categories: acute and chronic. Acute toxicity occurs after a single, typically high dose exposure and the effect is seen immediately. Chronic toxicity occurs after repeated, typically low dose exposure and the effect is seen weeks, months, or years after the initial exposure.

Heptachlor, which was detected in groundwater, and 4,4'-DDT, which was detected in soil, are both associated with noncarcinogenic health effects.

6.2.1.2 Dose-Response Relationships

Toxicity is directly related to the dose or concentration of the substance. This is called the dose-response relationship, and toxicity values are a quantitative expression of the dose-response relationship for a chemical. Toxicity values for noncarcinogenic effects take the form of reference doses (RfDs), and carcinogenic effects take the form of slope factors (SFs); both are specific to exposure routes. Toxicity values have been developed for oral ingestion (RfDo) and inhalation exposure (RfDi) because of the exposure route specificity. Exposure route specificity should be designated.

Reference Doses. The EPA RfD Work Group (U.S. EPA, 1989a) defines RfDs as follows:

> The RfD is an estimate (uncertainty may span an order-of-magnitude) of a daily exposure to the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime. The RfD is generally expressed in units of milligram of chemical per kilogram of body weight per day (mg/kg/day).

Slope Factors. The dose-response relationship for carcinogens is expressed as a carcinogenic potency factor or slope factor that converts estimated intakes directly to incremental lifetime cancer risk. The carcinogenic slope factor is defined as the 95-percent upper confidence limit (UCL) of the amount of risk per unit of exposure. Slope factors are presented in units of the inverse of milligrams of chemical per kilogram of body weight per day, or $(mg/kg/day)^{-1}$.

The data used for estimating the dose-response relationship are taken from lifetime laboratory animal studies or human epidemiological studies in which excess cancer risk

has been associated with exposure to the chemical. In animal studies, it is assumed that if a carcinogenic response occurs at the dose levels used in the study, then a response will occur at all lower doses, that is, there is no threshold effect. For practical purposes, low levels of risk cannot be measured directly, either by animal experiments or epidemiologic studies (U.S. EPA, 1989a). Use of cancer potency factors assumes that cancer risk is probable and any degree of exposure leads to some degree of risk.

The linearized multistage approach used by the EPA to estimate the carcinogenic potency factor from animal studies or human data assumes a dose-response relationship with no threshold. There is uncertainty and conservatism built into the EPA's risk extrapolation approach. The EPA has stated that cancer risks estimated by this method lead to an estimate that is "a plausible upper limit to the risk that is consistent with some proposed methods of carcinogenesis. Such an estimate, however, does not necessarily give a realistic prediction of the risk. The true value of the risk is unknown and may be as low as zero" (U.S. EPA, 1986c).

6.2.2 Exposure Assessment

This section identifies the means by which people, or receptors, could come into contact with contaminants from the site (U.S. EPA, 1986a) and will, either qualitatively or quantitatively, address potential exposures to contaminants according to current and future site uses. Potential human exposures identified by this analysis are then characterized and evaluated.

6.2.2.1 Exposure Pathway Analysis

An exposure pathway is the means by which a contaminant moves from a source to a receptor. A complete exposure pathway has five elements:

- Contaminant source
- Mechanism for contaminant release
- Environmental transport medium such as groundwater
- Exposure point or receptor location
- Feasible route of exposure such as ingestion, dermal absorption, or inhalation

Exposure may occur when contaminants migrate from the site to an exposure point (that is, a location where receptors can come into contact with contaminants) or when a receptor comes into direct contact with waste or contaminated media at the site itself. Exposure can occur if there is a way for the receptor to take in contaminants through

ingestion, inhalation, or dermal absorption of contaminated media or waste. Exposure can not occur unless the pathway is completed.

6.2.2.2 Characterization of Exposure Setting

The CLL site is located at the south end of the CLL Company property at 1621 West Washington Street in Indianapolis, Indiana. The property is located about 1 mile east of the White River in central Marion County. The property is enclosed by fencing to restrict access by trespassers.

The parcel that makes up the site is about 4 acres in size. The site is bordered on the west by Reichwein Street, on the south and east by Conrail railroad tracks, and on the north by the office and main plant. A drainage swale runs parallel to the eastern site boundary.

Currently, the site houses three sheds used by CLL for lumber and materials storage. The site is covered with asphalt except 1 acre at the southeast corner which was covered with 6 inches of top soil and 6 inches of gravel.

Land uses in the area proximate to the CLL site consist primarily of heavy industry, except for the west side of Reichwein Street which is developed with older, single-family residential dwellings. Immediately east and south of the site is an older industrial area containing many industrial properties such as the Westinghouse Air Brake Company and an Indianapolis Metro bus terminal which was formerly the Indiana Battery Recycling Company.

The site area is typically flat, although there is a slight downward slope towards the drainage swale in the southeast corner of the site. An extensive coarse-grained sand and gravel outwash terrace exists beneath the site. Discontinuous silt and clay deposits are numerous. The outwash extends along the White River and Eagle Rivers and Fall Creek; its width is about 6.5 miles (east to west). Within the vicinity of the site, the bedrock beneath the outwash deposits consists of Silurian and Devonian age limestones and dolomites. Depth to bedrock is about 120 feet.

The outwash deposits along the White River form the upper, unconfined aquifer. The thickness of the aquifer ranges from 30 to more than 80 feet. The limestone and dolomite formations comprise the lower aquifer. Groundwater flow beneath the site is expected to be east toward the White River and occasionally to the southeast toward a cone of depression caused by extensive groundwater pumping by area industries.

No public water supply wells are identified within a 1-mile radius of the site. Twenty-six industrial water supply wells are identified as being both within a 1-mile radius of the site and downgradient of the site (i.e., to the east or southeast of the site). Only one private water supply well is found to exist downgradient of the site and is located 1.5 miles southeast of the site on Oliver Street. All but one of the wells identified as downgradient are screened in the sand and gravel aquifer. One industrial supply well is screened in the

bedrock. Well depths are generally 60 to 100 feet for the sand and gravel wells and greater than 200 feet for the bedrock wells.

6.2.2.3 Identification of Potential Exposure Pathways

Exposure pathway evaluations (Table 6-1) were made on the basis of site history, analytical results of site samples, and exposure setting. Subsurface soil and groundwater are considered the sources of potential onsite exposure to CPCs.

There is no evidence of offsite migration of CPCs or subsequent offsite exposures. Surface runoff is managed by segregation into two drainage swale areas.

6.2.2.4 Current-Use Scenario

Groundwater. No potential exposure pathways are identified for the contaminants detected in the groundwater under existing land-use conditions. Groundwater beneath the site is not used as a source of water for the site. There is no evidence that contaminants have migrated offsite to downgradient, potable water supply wells. Based on those observations, it is assessed that there is no onsite or offsite exposure to groundwater CPCs under current land-use conditions.

Soil. Soil contamination is limited to subsurface soil. The subsurface soil contaminants are covered by either asphalt or 6 inches of clean topsoil plus 6 inches of gravel. This prevents direct contact with the contaminants in soil.

Under current site conditions and industrial usage, onsite workers are not expected to be exposed to subsurface soil contaminants. This is because the site is only used for lumber storage. Modifications to the site, such as trenching, which might expose the subsurface contaminants are not expected. No potential exposure pathways are identified for the contaminants detected in the subsurface soil under existing land-use conditions.

6.2.2.5 Future-Use Scenario

Groundwater. Exposures to contaminants in groundwater by an occupational receptor and an adult residential receptor were assessed under a future-use scenario. Standard exposure methodology assumes occupational receptors to be adults. Under the residential scenario, a child (6-year exposure) plus an adult (24-year exposure) integrated groundwater exposure (30-year total exposure) is evaluated.

Ingestion of groundwater and dermal absorption of contaminants in groundwater were assessed for the receptors based on the assumption that the groundwater could be used for bathing under a future-use scenario.

Groundwater assessment is performed under the future-use scenario only as a theoretical exercise and does not imply that groundwater use is being planned or projected.

Table 6-1

Potential Exposure Pathways

Contaminant Source	Release Mechanism	Transport Medium	Exposure Point	Exposure Route	Receptor
Groundwater	1. Direct contact	None	Onsite	1a. Ingestion	a,b
				1b. Dermal absorption	a,b
Soil	1. Direct contact	None	Onsite	1a. Ingestion	a,b
				1b. Dermal absorption	a,b
	2. Dust release	Air	Onsite	2a. Inhalation of particulates	a,b

Receptors evaluated:
a. future resident
b. future occupational worker

Soil. Under future site conditions, onsite workers or contractors could potentially be exposed to subsurface soil CPCs when modifying the site (for example, trenching). Also, because property in an area proximate to the CLL site is used as residential sites, the RA evaluates a future residential land-use scenario. Therefore, exposure evaluations are performed for occupational and residential receptors that may incidentally ingest soil, dermally absorb CPCs in soil, and inhale soil particulates. Based on standard exposure assessment methodology, an adult is evaluated for the occupational scenario. A child is evaluated under the residential scenario because a child's large soil intake rate and small body weight put the child at greater risk compared to an adult.

6.2.2.6 Chemical Intake

Chemical intake is a pathway-specific exposure (defined as the contact of an organism with a chemical or physical agent) that is normalized for time and body weight. The chemical intake or normalized exposure rate is calculated using equations that include variables for exposure concentration, contact rate, exposure frequency, exposure duration, body weight, and exposure averaging time. The methodology and equations for calculating chemical intake from groundwater ingestion, dermal absorption of contaminants in groundwater, incidental soil ingestion, dermal absorption of contaminants in soil, and inhalation of contaminants in airborne soil particulates are presented in Appendix C-2. The values of the exposure variables depend on site conditions and the characteristics of the potentially exposed population. The values used are listed in the Exposure Variables Table in Appendix C-2.

The EPA *Risk Assessment Guidance for Superfund*, Part A (July 1989), states that actions at Superfund sites should be based on an estimate of the "reasonable maximum exposure" expected to occur under both current and future land-use conditions. Reasonable maximum exposure (RME) is defined as the highest exposure, or intake value, reasonably expected to occur at a site. The intent of the RME is to estimate a conservative, or well above the average exposure case that is still within the range of possibilities. Consistent with EPA methodology, exposure or intake variables that estimate a reasonable maximum exposure (EPA, 1991b) are used in this RA.

This evaluation assumes that exposure concentrations are constant over time. The conservative, steady-state approach does not reflect potential changes in contaminant concentration that are a result of environmental transport, transfer, or transformation processes. The EPA defines an RME concentration as the 95-percent UCL of the arithmetic mean concentration based on a log normal distribution. Current methodology dictates that if the UCL value is greater than the maximum detected value, the maximum detected value is used as the exposure point concentration.

Statistical analyses were performed to calculate the 95-percent UCL. When performing the statistical calculations, nondetections were considered equal to the one half of the laboratory detection limit (Appendix C-1).

Because the concentrations for positive detections of CPCs in groundwater are less than the detection limit values and there is a large percentage of nondetections, 95-percent UCLs were not used in the exposure assessment for groundwater. The maximum detected value is used as the exposure point concentration for groundwater exposures (Table C-1-2).

When evaluating soil exposures, a 95-percent UCL is used as the exposure point concentration (Table C-1-1).

The results of the chemical intake calculations are presented as part of the health risk estimation tables presented in Appendix C-4.

6.2.3 Health Risk Characterization

This section presents the evaluation of potential risks to human health associated with exposures to contaminants detected in soil and groundwater. The toxicity and exposure assessments are integrated to quantitate risks. The characterization of potential human health risks associated with contaminants detected at the site will focus on carcinogenic and noncarcinogenic health effects for a residential and occupational exposure setting under a future-use scenario. The estimates of risk presented assume that exposures will be constant over the exposure periods assessed (both contaminant concentrations and intake levels will be constant). A detailed description of the methodologies used in developing the human risk estimates is presented in Appendix C-3.

6.2.3.1 Risk Estimation Methodology for Carcinogenic Effects

The potential for carcinogenic effects is evaluated by estimating excess lifetime cancer risk. Excess lifetime cancer risk is the incremental increase in the probability of developing cancer during one's lifetime over the background probability of developing cancer if no exposure to site contaminants occurred. For example, 1×10^{-6} excess lifetime cancer risk means that for every 1 million people exposed to the carcinogen throughout their lifetimes (assumed to be 70 years), the average incidence of cancer is increased by one additional case. Because of the methods followed by the EPA in estimating cancer potency factors, the excess lifetime cancer risks estimated in the RA should be regarded as upper bounds of potential cancer risk rather than accurate representations of true cancer risk.

While synergistic or antagonistic interactions might occur between carcinogens and other chemicals at the site, there is insufficient information in the toxicological literature to predict the effects of such interactions. Therefore, consistent with EPA guidelines on chemical mixtures (U.S. EPA, 1986b), this RA treated carcinogenic risks as additive within a route of exposure.

6.2.3.2 Risk Estimation Methodology for Noncarcinogenic Effects

Noncarcinogenic risk is assessed by comparing the estimated daily intake of individual contaminants to their specific RfDs. To derive a hazard quotient, the estimated daily intake of each chemical in an individual route of exposure is divided by its RfD. This comparison or hazard quotient serves as a *measure of the potential* for noncarcinogenic health effects and should not be interpreted as a direct estimate of risk. If the estimated daily intake for any single chemical is greater than its RfD, there is a potential for a noncarcinogenic health risk.

A hazard index approach adopted by the EPA (U.S. EPA, 1986b) is used to assess the potential for noncarcinogenic effects posed by multiple chemicals. The method assumes dose additivity; therefore, the hazard quotients are added to provide a hazard index. When the hazard index exceeds 1, there is potential for a noncarcinogenic health risk. In this situation, the chemicals in the mixture are segregated by similar critical effect, target organ, or mechanism of toxicity to determine if there is potential for a health risk. A separate hazard index is derived for each segregated effect or mechanism. If any of the separate indices exceed 1, there is potential for that noncarcinogenic health risk.

6.2.3.3 Quantitative Risk Estimation

Based on the analysis of exposure pathways presented earlier in this RA, the following exposure pathways were quantitatively evaluated to estimate the potential risks:

- Future residential:
  - Ingestion of soil
  - Inhalation of soil particulates
  - Dermal absorption of soil contaminants
  - Ingestion of groundwater
  - Dermal absorption of groundwater contaminants
- Future occupational:
  - Ingestion of soil
  - Inhalation of soil particulates
  - Dermal absorption of soil contaminants
  - Ingestion of groundwater
  - Dermal absorption of groundwater contaminants

Detailed calculations of carcinogenic and noncarcinogenic risks from the potential exposures listed above are contained in Appendix C-4. A summary and discussion of the risk estimates follows.

6.2.3.4 *Potential Health Risks to Current Occupational Receptors*

There are no known exposures to contaminants for a current occupational receptor.

6.2.3.5 *Potential Health Risks to Future Residential Receptors*

The noncarcinogenic cumulative hazard index (the hazard quotient for ingestion plus the hazard quotient for inhalation plus the hazard quotient for dermal absorption) estimated for soil exposure is less than 1, indicating negligible potential for adverse health effects (see Table 6-2).

The estimate of cumulative excess lifetime cancer risk (the cancer risk from ingestion plus the cancer risk from inhalation of particulates plus the cancer risk from dermal absorption) for future residential soil exposures is 1×10^{-6} (Table 6-3). The cumulative cancer risk estimate is at the lower end of the EPA's target or acceptable cancer risk range of 1×10^{-4} to 1×10^{-6}.

Table 6-4 shows that the estimate of the cumulative hazard index (hazard quotient for ingestion plus hazard quotient for dermal absorption) for future residential groundwater exposures is less than 1. This indicates a negligible potential for adverse noncarcinogenic health effects.

The estimate of cumulative excess lifetime cancer risk (the cancer risk from ingestion plus the cancer risk from dermal absorption) for future residential groundwater exposures is 3×10^{-7} (Table 6-5). The cumulative cancer risk estimate is below the lower end of the EPA's target or acceptable cancer risk range of 1×10^{-4} to 1×10^{-6}.

6.2.3.6 *Potential Health Risks to Future Occupational Receptors*

The noncarcinogenic cumulative hazard index (the hazard quotient for ingestion plus the hazard quotient for inhalation plus the hazard quotient for dermal absorption) estimated for future occupational soil exposure is less than 1. This indicates a negligible potential for adverse health effects (see Table 6-2).

The estimate of cumulative excess lifetime cancer risk (the cancer risk from ingestion plus the cancer risk from inhalation of particulates plus the cancer risk from dermal absorption) for future occupational soil exposures is 2×10^{-7} (Table 6-3). The cumulative cancer risk estimate is below the lower end of the EPA's target or acceptable cancer risk range of 1×10^{-4} to 1×10^{-6}.

The estimate of the cumulative hazard index (hazard quotient for ingestion plus hazard quotient for dermal absorption) for future occupational groundwater exposures is less than 1, indicating the negligible potential for adverse noncarcinogenic health effects (Table 6-4).

Table 6-2
Summary of Noncarcinogenic Hazards in Soil

	Noncarcinogenic Hazard Quotient			
Land Use - Receptor	**Ingestion of Soil and Inhalation of Particulates**	**Dermal Absorption of Contaminants**	**Cumulative Hazard Index**	**Major Contributors to Hazard**
Future Residential Child	4E-05	5E-05	9E-05	no hazard (index less than 1)
Future Occupational Adult	1E-06	2E-05	2E-05	no hazard (index less than 1)

Exposure Assumptions :

Exposure Scenario	Future Residential	Future Occupational
Receptor	Child	Adult
Body Weight (kg)	15	70
Exposure Frequency (d/yr)	350	250
Exposure Duration (yrs)	6	25
Ingestion Rate (mg/day)	200	50
Inhalation Rate (m3/day)	20	20
Particulate Emission Rate (m3/kg)	5E+09	5E+09
Surface Area Exposed (cm2)	2688	5434
Soil Adherence Factor (mg/cm2)	1	1

Table 6-3 Summary of Carcinogenic Hazards in Soil				
	Excess Lifetime Cancer Risk			
Land Use - Receptor	Ingestion of Soil and Inhalation of Particulates	Dermal Absorption of Contaminants	Cumulative Cancer Risk	Major Contributors to Risk
Future Residential Child	2E-07	8E-07	1E-06	none
Future Occupational Adult	3E-08	2E-07	2E-07	none

Exposure Assumptions :		
Exposure Scenario	Future Residential	Future Occupational
Receptor	Child	Adult
Body Weight (kg)	15	70
Exposure Frequency (d/yr)	350	250
Exposure Duration (yrs)	6	25
Ingestion Rate (mg/day)	200	50
Inhalation Rate (m3/day)	20	20
Particulate Emission Rate (m3/kg)	5E+09	5E+09
Surface Area Exposed (cm2)	2688	5434
Soil Adherence Factor (mg/cm2)	1	1

Table 6-4
Summary of Noncarcinogenic Hazards in Groundwater

	Noncarcinogenic Hazard Quotient			
Land Use - Receptor	**Ingestion of Groundwaer**	**Dermal Absorption of Contaminants**	**Cumulative Hazard Index**	**Major Contributors to Hazard**
Future Residential	7E-04	6E-07	7E-04	no hazard (index less than 1)
Future Occupational	2E-04	4E-07	2E-04	no hazard (index less than 1)

Exposure Assumptions :

Exposure Scenario	Future Residential	Future Occupational
Receptor	Child + Adult	Adult
Body Weight (kg) Adult	70	70
Exposure Frequency (d/yr)	350	250
Exposure Duration (yrs) Adult	24	25
Ingestion Rate (L/day) Adult	2	1
Surface Area Exposed (cm2) Adult	20900	20900
Time in Water (hrs/day)	0.25	0.25
Body Weight (kg) Child	15	
Exposure Duration (yrs) cild	6	
Ingestion Rate (L/day) Child	1	
Surface Area Exposed (cm2) Child	8960	

Table 6-5
Summary of Carcinogenic Risks in Groundwater

	Excess Lifetime Cancer Risks			
Land Use - Receptor	**Ingestion of Groundwater**	**Dermal Absorption of Contaminants**	**Cumulative Cancer Risk**	**Major Contributors to Risk**
Future Residential	3E-07	5E-11	3E-07	none
Future Occupational	8E-08	3E-11	8E-08	none

Exposure Assumptions:		
Exposure Scenario	Future Residential	Future Occupational
Receptor	Child - Adult	Adult
Body Weight (kg) Adult	70	70
Exposure Frequency (d/yr)	350	250
Exposure Duration (yrs) Adult	24	25
Ingestion Rate (L/day) Adult	2	1
Surface Area Exposed (cm2) Adult	20900	20900
Time in Water (hrs/day)	0.25	0.25
Body Weight (kg) Child	15	
Exposure Duration (yrs) Child	6	
Ingestion Rate (L/day) Child	1	
Surface Area Exposed (cm2) Child	8960	

The estimate of cumulative excess lifetime cancer risk (the cancer risk from ingestion plus the cancer risk from dermal absorption) for future occupational groundwater exposures is 8×10^{-8} (Table 6-5). The cumulative cancer risk estimate is above the lower end of the EPA's target or acceptable cancer risk range of 1×10^{-4} to 1×10^{-6}.

6.2.4 Ubiquitous Nature of PAHs in Urban Settings

Polycyclic aromatic hydrocarbon (PAH) compounds are a group of chemicals that are formed during the incomplete combustion or burning of coal, oil and gas, garbage, or other organic substances. PAHs can be man-made or occur naturally. They are found throughout the environment in the air, water, and soil. There are over one hundred different PAH compounds. Most PAHs do not occur alone in the environment (including those found at hazardous waste sites), rather they are found as mixtures of two or more PAHs.

The PAH compounds detected in soil at the CLL site during this RI were screened from further consideration as contaminants of potential concern primarily because of their presence in site-specific background samples. Based on the statistical comparison delineated in Section 4, the concentrations of PAH compounds on the CLL site were not higher than those found in soil samples throughout the area surrounding the CLL property (offsite). The concentrations of PAH compounds onsite were also compared to concentrations typically found in urban soils in the United States. In general, maximum, onsite individual PAH compound concentrations were within or below the range identified by ATSDR as typical in urban soils (ATSDR, 1990). Two exceptions; chrysene and benzo(a)pyrene, exceeded these typical urban ranges identified by ATSDR. However, chrysene and benzo(a)pyrene did not exceed the concentrations found in soil samples surrounding the CLL site.

This comparison suggests that the CLL site does not pose a greater risk to human health or the environment than the surrounding soils in the vicinity of the site. This does not, however, suggest the PAH compounds, both onsite and offsite, do not pose some risk to potentially exposed individuals.

Individuals living near sites or areas with high levels of PAHs, such as the CLL site and industrial/urban settings, may be exposed to PAHs through inhalation of contaminated air, ingestion of contaminated food, soil, or water; and workers on the site could be dermally exposed to soils containing PAHs during onsite excavation activities.

Health Effects of PAH Compounds. The health effects of the individual PAHs are not exactly alike; that is, an individual PAH compound may exhibit greater or lesser toxicity relative to other PAHs. However, most toxicity studies have focused on the effects of mixtures of PAH compounds. Evidence indicates that mixtures of PAH compounds can pose carcinogenic and limited, noncarcinogenic adverse health effects.

Cancer in humans from PAH exposure occurs predominantly in the lung and skin following inhalation and dermal exposure, respectively, in an occupational setting. Typical occupational settings associated with PAH exposure include coke production, oil refining, roofing, coal gasification and other hydrocarbon combustion processes. Ingestion of certain PAH compounds has been shown to induce tumor generation in animals, but studies with humans are not conclusive.

Noncancer adverse health effects associated with PAH mixture exposure have been observed in animals, but generally not in humans.

Data indicate that there may be specific groups in the population that are more susceptible to the effects of PAH exposure than an average individual. These sensitive subpopulations include the unborn, people with nutritional deficiencies, people with genetic diseases that influence the efficiency of DNA-repair, and those with immunodeficiency diseases. Other subpopulations that may be susceptible to the toxic effects of certain PAH compounds include individuals with a history of excessive sun exposure, smokers, people with existing liver and skin diseases, and women—especially of child-bearing age.

Inhalation Exposure. Under current site conditions, inhalation is not considered a feasible exposure pathway for PAH compounds at the CLL site. Normally, inhalation exposure to PAH compounds occurs in an occupational setting where a process involving the combustion of coal tars, or other petroleum hydrocarbons occurs and emissions from that process can provide a mechanism for inhalation of PAHs. Inhalation of PAHs adsorbed to soil particulates is also a potential exposure route. There is not currently an industrial process or PAH contaminated surface soil at the CLL site that would create a pathway for PAH inhalation.

Oral Exposure. Oral exposure to PAH compounds is not likely under the current or future use scenarios projected for the CLL site. However, in an uncontrolled, industrial or residential setting, it is possible for workers or children to incidentally ingest soil or food containing PAH compounds if PAH contaminated subsurface soil is redeposited on the site surface.

Dermal Exposure. Dermal exposure to PAH compounds is not likely under the current or future use scenarios projected for the CLL site. Again however, in an uncontrolled, industrial or residential setting, it is possible for workers or children to directly contact soil containing PAH compounds if PAH contaminated subsurface soil is redeposited on the site surface. Redeposition of subsurface soil containing PAH compounds could occur at the CLL site during excavation activity.

6.3 Uncertainty Factors

6.3.1 General Assumptions

A conservative approach was taken when making assumptions that describe potential human exposures. For this RA, the site's future physical condition was assumed to be generally the same as its existing condition. The future use of the site, however, was assumed to be significantly different from its current use. The major assumptions used in this evaluation are that:

- Contaminant concentrations will remain constant during the exposure period.
- Exposure will remain constant over time.
- The intake rates and population characteristics (weight, life-span, and activities) that were selected are representative for the potentially exposed populations.
- All intake of contaminants will be from site-related exposure media and no other sources will contribute to the receptors' health risk.

6.3.2 Uncertainties

As a scientific activity, RA is subject to two types of uncertainty: general uncertainty related to the RA discipline and specific uncertainty related to the site being evaluated.

This evaluation is subject to uncertainty with respect to:

- Sampling and analysis
- Exposure estimation
- Toxicological assessment
- Risk characterization

Table 6-6 lists some general uncertainties for human health RA that focus on the developing and applying chemical toxicity values used in the RA process. Given the unknowns associated with toxicity measurement, the scientific development of toxicity values employs multiple safety factors to facilitate error on the conservative side and, therefore, their use may overestimate risk.

A number of site-specific factors that contribute to uncertainty and their potential effects are listed in Table 6-7. One major site-specific factor introduces uncertainty by assuming that the groundwater exposure point concentration is equal to the maximum detected value and that it would remain constant over a lifetime, thereby greatly overestimating site risk.

Table 6-6
General Uncertainty Factors

Uncertainty Factor	Potential Effect of Uncertainty	Comment
Use of cancer potency factors	Overestimate risks.	Potencies are upper 95th percent confidence limits derived from the linearized model. Considered unlikely to underestimate true risk.
Risks/doses within an exposure route assumed to be additive	Over- or underestimate risks.	Does not account for synergism or antagonism.
Toxicity values derived primarily from animal studies	Over- or underestimate risks.	Extrapolation from animal to humans may induce error due to differences in absorption, pharmacokinetics, target organs, enzymes, and population variability.
Toxicity values derived primarily from high doses, most exposures are at low doses	Over- or underestimate risks.	Assumes linear at low doses. Tends to have conservative exposure assumptions.
Incorporation of safety factors in development of toxicity values	Overestimate risks.	Not all toxicity values incorporate the same level of safety.
Affect of absorption	Over- or underestimate risks.	The assumption that absorption is equivalent across species is implicit in the derivation of the critical toxicity values. Absorption may actually vary with species and age.
Affect of applying critical toxicity values to soil exposures	Overestimate risks.	Assumes bioavailability of contaminants sorbed onto soils is the same as delivered in lab studies. Contaminants delivered in studies may be more bioavailable.

Table 6-7
Site-Specific Uncertainty Factors

Uncertainty Factor	Potential Effect of Uncertainty	Comment
Maximum detected value used for groundwater exposure point concentration	Overestimate risk.	Large number of nondetections for the chemicals of potential concern in groundwater and the low (less than required detection limit) detected concentrations do not allow calculation of an 95% upper confidence limit.
Some exposure pathways were not quantified	No effect.	Potential health risk due to inhalation of volatilized chemicals was not quantitatively evaluated but is estimated to be negligible relative to the quantitatively assessed exposure pathways.
Exposure assumptions	Overestimate occupational risk. Under or overestimate recreational risk.	Assumptions regarding media intake, population characteristics, and exposure patterns may not characterize exposures.
Exposures assumed constant	Overestimate risk.	Does not account for environmental fate, transport, or transfer which may alter concentration.
Future use of the site	Overestimate risk.	Future residential use of the site is unlikely given the highly industrialized nature of the area, even though small pockets of residential dwellings are proximate to the site.

Section 7.0
Summary and Conclusions

This section summarizes the results of the remedial investigation at the CLL site and attempts to draw conclusions from the data collected to allow decisions to be made regarding future activity and action. Conclusions about the limitations of the data and recommendations for remedial action objectives are made.

7.1 Summary of Results

The contaminant sources identified during previous investigations at the site included neutralized calcium ferrosulfate (spent sulfuric acid pickling liquor) used in metal plating operations, an oily filter cake, and a "red liquid" that may have been the metal plating sludge or other material. A small batch operation to treat wood products using pentachlorophenol was later identified as possibly contributing contamination to the site. These materials were reportedly spread onto the southern portion of the CLL site during the period of 1971 to 1972 by local waste haulers. During earth moving at the site, red soil was encountered and excavated and placed into a trench onsite. During a later activity, the red soil was respread over an area about 220 by 250 feet, where it remains at this point in time.

The RI performed by CH2M HILL evaluated soil and groundwater media. Surface water and ambient air were not directly monitored in this investigation. The fact that there are no direct pathways to surface water bodies from the site was confirmed. The RI also considered the highly industrialized nature of the community wherein the CLL site is located by collecting and analyzing offsite soil samples.

Findings of the RI soil investigation indicated the presence of the same contaminants previously identified by the FIT contractor investigators across much of the study area. SVOCs, metals, and pesticide concentrations were detected in study area soil. The distribution of the SVOCs was generally consistent with the presence of the red soil and with a black, ash and sand fill material at depths of 4 to 8 feet.

The offsite soil samples were collected to statistically compare the ubiquitous concentrations of SVOCs and metals in the surrounding area with those found onsite. The analysis indicates there is no statistically significant difference between the concentrations of SVOCs and heavy metals found in soil onsite compared with those found offsite.

Currently, the contaminants detected at the CLL site have not migrated beyond the source areas identified in the preliminary investigations; i.e., the trench area and respread red soil area. Contaminants were detected in the soil at depths of 4 to 8 feet below the ground surface, probably associated with fill activity, and occasionally in near-surface

soils. However, review of the RI findings does not indicate there has been significant migration of these contaminants to the water table or offsite.

Groundwater indicated inconsistent detections of SVOCs in some monitoring wells for three sampling events. Several pesticides were detected at varying concentrations and with little consistency across the sampling events. The detection of the highest number of individual pesticides is at an upgradient location, CLMW02, and occurred only during the September 1993 sampling event. The only detection of Alpha-BHC also occurred at this upgradient location.

The CPCs chosen for evaluation of potential transport include the pesticide Heptachlor and Arochlor-1254 (PCB) in soil; and the pesticides Alpha-BHC and 4,4'-DDT in groundwater. While other contaminants exist in the soil and groundwater at the site, their presence was not considered further in the risk assessment because there is not a significant difference between onsite and offsite concentrations, or for another basis described previously. PCBs and pesticides are not very mobile compounds in terms of water transport, so it is unlikely that PCBs will transport from the soil to groundwater. Also, it is not apparent that the groundwater pesticides evaluated in the RA were contributed by the CLL site.

Groundwater and soil pathways were considered for each of the following exposure scenarios:

- Current Occupational Receptors
- Future Occupational Receptors
- Future Residential Receptors

There are no known exposures to contaminants for a current occupational receptor, primarily because the site is well covered either in asphalt or 12 inches of compacted gravel and top soil. The noncarcinogenic cumulative hazard index estimated for soil exposure or groundwater exposure in a future occupational receptor setting is less than one, indicating negligible potential for adverse health effects. The excess lifetime cancer risk for future occupational soil exposures is 2×10^{-7}, which is outside the lower end of the EPA's target range of 10^{-4} to 10^{-6} range for acceptable cancer risk.

For future residential receptors, the noncarcinogenic cumulative hazard index estimated for soil and groundwater exposure is less than one, indicating negligible potential adverse health effects. The estimate of cumulative excess lifetime cancer risk for future residential soil exposures is 1×10^{-6}, which is at the lower limit of EPA's acceptable cancer risk range. The cumulative excess lifetime cancer risk for residential groundwater exposures is 3×10^{-7}, which is below the lower end of the EPA's target range for acceptable cancer risk.

7.2 Data Limitations

The data collected during this remedial investigation have been designed with the intent of conducting a preliminary investigation to determine if the site should be considered further for remediation or other site controls. The distribution of site-related contaminants has been defined adequately for soil and groundwater to develop a feasibility study (FS) or engineering evaluation/cost analysis (EE/CA) of appropriate remedial or removal alternatives. The quality control criteria for laboratory samples have been met, per the requirements of the U.S. EPA's evaluation criteria and guidelines.

7.3 Conclusions

The decision to pursue delisting, based on the nature and extent and results of the risk assessment, must be made consistent with EPA regional policy. Should remedial measures be further considered, preliminary remediation goals (PRGs) would be developed to assist in establishing the remedial action objectives and would be performed as the first task of an FS.

If considered by EPA, potential remedial or control measures that may be feasible for this site include:

- Use of institutional controls, such as deed restrictions on the future use of the site should it be sold.
- Placement of an asphalt cap over the remaining portion of the site not currently capped.
- Source control measures using excavation and removal of soils contaminated with PAHs and heavy metals with transport and disposal to a special waste or hazardous waste landfill.
- Source control measures using in situ stabilization.
- Groundwater does not appear to be affected to a point where active treatment would be reasonable. In fact, current onsite soil CPCs are not the same compounds identified as groundwater CPCs. Source control of the contaminated soils above the water table would likely achieve significant reductions in long-term risk to potential receptors.

7.4 References

Bruns, Tom. Hydrogeologist for Indianapolis Water Works. Phone communication. March 17, 1994.

Indiana Department of Natural Resources. *Geology for Environmental Planning in Marion County, Indiana.* Geological Survey Special Report 19. 1980.

Smith, Barry S. *Availability of Water from the Outwash Aquifer, Marion County, Indiana.* U.S.G.S. Water-Resources Investigations Report 83-4144. 1983.

Bruns, Tom. Hydrogeologist for Indianapolis Water Works. Phone communication. March 17, 1994.

U.S. Environmental Protection Agency. 1986a. Guidelines for Estimating Exposure. *Federal Register* 51: 34042-45. September 24, 1986.

———. 1986b. Guidelines for the Health Risk Assessment of Chemical Mixtures. *Federal Register* 51: 34014-41. September 24, 1986.

———. 1986c. Guidelines for Carcinogenic Risk Assessment. *Federal Register* 51: 32992-34013. September 24, 1986

———. *Risk Assessment Guidance for Superfund—Human Health Evaluation Manual—Part A. Interim Final.* U.S. EPA/540/1-89/002. December 1989.

———. 1991a. Health Effects Summary Tables. Annual FY 1991. OERR 9200.6-303 (90-3). December 1991.

———. 1991b. *Standard Default Exposure Factors. Interim Guidance.* OSWER Directive 9285.6-03. March 1991.

———. 1991c. *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions.* OSWER Directive 9355.0-03. April 1991.

———. *Risk Assessment Guidance for Superfund—Human Health Evaluation Manual Part B. Interim Final.* U.S. EPA Publication 9285.7-01B. December 1991.

———. Integrated Risk Information System: Background Information. U.S. EPA Integrated Risk Information System Database. Cincinnati, Ohio. Office of Research and Development. 1992.

Wise-Ewing, Laura. Indianapolis Planning Commission. Phone communicaiton. October 10, 1994.

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APPENDIX A
TECHNICAL MEMORANDUMS

PREPARED FOR: U.S. EPA Region 5

PREPARED BY: Laura Peterson/CH2M HILL

DATE: December 27, 1994

SUBJECT: Carter-Lee Lumber
Phases I and II Remedial Investigation
Soil Boring, Monitoring Well Installation, Water Level Measurements, and Groundwater Sampling

PROJECT: GLE65616.RI.RI

Introduction

This memorandum documents and describes the field activities associated with the soil boring, monitoring well installation, water level measurements, and groundwater sampling efforts. ATEC Associates, Inc., of Indianapolis, Indiana, was contracted directly by CH2M HILL to perform the drilling services. Analytical services were provided by an EPA contract laboratory program (CLP) laboratory. Surveying services were provided by United Surveying, Inc., of Indianapolis, Indiana.

Shallow Soil Boring (Hand Auger) Procedures

Sixteen offsite shallow soil samples (CLBK02 to CLBK17) were collected to compare the concentrations of potential site contaminants with surrounding site conditions. Sampling locations are shown in Figures 2-1 and 2-3 in Section 2.0 of this report. One soil sample was collected from each location. Soil samples were collected from the 0- to 1-foot depth interval at borings CLBK03 and CLBK06. At the remaining sample locations, soil samples were collected from the 0- to 0.5-foot depth interval.

Onsite soil samples (CLSS01, CLSS02, and CLSS03) were collected from three locations in the drainage swales bordering the site on the east and south (Figure 2-2 in Section 2.0). Two soil samples were collected at each location: one from the 0- to 0.5-foot depth interval and one from the 0.5- to 1-foot depth interval.

A decontaminated, 4-inch hand auger was used to collect the shallow soil samples. The hand auger was advanced at about 6-inch intervals. A decontaminated, stainless steel spoon was used to transfer the soil from inside the auger barrel to the sample jars.

Filled sample jars were placed on ice in a cooler pending overnight delivery to a CLP laboratory. Table TM1-1 lists the CLP laboratories used during Phases 1 and 2 of the

Table TM1-1
CLP Laboratories
Carter-Lee Lumber

Sampling Event	Date	Parameters	CLP Laboratory	Address
Phase 1	Nov 1992	RAS Organic	Southwest Laboratories of Oklahoma	
		RAS Inorganic	Silver Valley Laboratories	Kellogg, ID
Phase 2	Jun 1993	RAS Organic	Pace Laboratories	Lenexa, KS
		RAS Inorganic	Skinner & Sherman Labs	Waltham, MA
	Sept 1993	RAS Organic	Ross Analytical Services	Strongsville, OH
		RAS Inorganic	ITMO St. Louis Laboratory	Earth City, MO
		SAS Hardness	Vegas Analytical Laboratories	Las Vegas, NV
		RAS Alkalinity, SO4,Chloride, TOC, TSS, COD	Silver Valley Laboratories	Kellogg, ID

remedial investigation. Soil samples collected from CLSS01 to CLSS03 and CLBK01 to CLBK07 were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, cyanide, pesticides, and PCBs. Soil samples collected from CLBK08 to CLBK17 were analyzed for SVOCs and metals only. Sample custody procedures and documentation used were those developed by the National Enforcement Investigation Center (NEIC).

Deep Soil Borings and Sampling Procedures

Thirteen borings (CLSB01 to CLSB12 and CLBK01) were drilled to provide stratigraphic and hydrogeologic information as well as chemical soil characteristics. Figure 2-2 in Section 2 of the report shows the soil boring locations. A mobile B-61 truck-mounted rig with 4.25-inch-I.D. hollow-stem augers (HSAs) was used to advance the soil borings.

Borehole cuttings were placed in 55-gallon drums supplied by ATEC. The drums were labeled with the sample location and contents (e.g., water or soil). The filled drums were moved to the southeast corner of the site pending disposal.

Soil Sampling

The borings were continuously sampled at 2-foot intervals. Where soil samples were collected for chemical analyses, a 3-inch O.D. split spoon was used. Where soil samples were not collected for chemical analyses, a standard 2-inch O.D. split spoon was used. Immediately after the spoon was opened, the soil sample was field screened for VOCs using an HNu photoionization detector. The samples were logged by the onsite CH2M HILL hydrogeologist. A United Soils Classification System (USCS) field classification was recorded for each soil type observed. Soil properties such as relative moisture content, color, density or consistency, soil structure, and mineralogy were also recorded. The HNu field screening results were also recorded. Copies of the soil boring logs are in Attachment A1-1. For borings in which monitoring wells were not installed, the borehole was abandoned using bentonite chips.

Soil samples were collected for chemical analyses from the 13 borings. Samples were collected from 3 depth intervals at CLBK01 and CLSB01 to CLSB04. One soil sample was collected from borings CLSB07, CLSB08, and CLSB11. Two soil samples were collected from borings CLSB05, CLSB06, CLSB09, and CLSB10. Sample intervals are listed in Table 2-1 in Section 2.0 of this report.

Filled sample jars were placed on ice in a cooler pending overnight delivery to a CLP laboratory (Table TM1-1). The samples were analyzed for VOCs, SVOCs, metals,

cyanide, pesticides, and PCBs. Chain-of-custody procedures and documentation used were those developed by the NEIC.

Monitoring Well Installation

Five monitoring wells were installed at the locations shown in Figure 2-2 in Section 2. Wells CLMW01 and CLMW02 were installed to provide water quality data from an upgradient location. Wells CLMW03, CLMW04, and CLMW05 were installed to represent downgradient conditions.

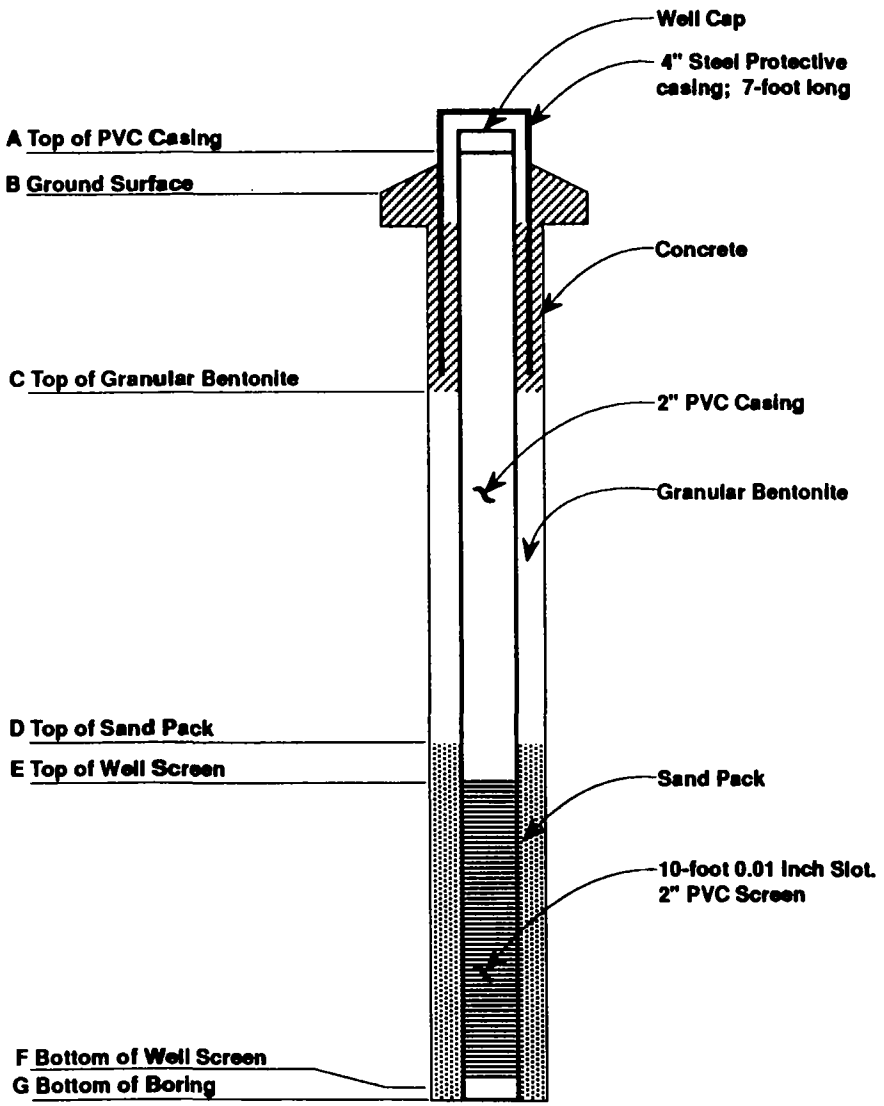
The wells were constructed with 2-inch Schedule 40 PVC riser with a 10-foot length of 0.010-inch factory-slotted PVC screen that intercepted the water table. Following screen and riser installation, a medium-grained sand pack was placed in the annulus of the borehole to a height of about 2 feet above the top of the screen. Fine sand was placed to a height of 2 feet above the filter pack. Granular bentonite was placed above the sand pack to a height of 4 feet bgs. The wells were completed with a concrete surface seal. CLMW02 was completed as a flush-mount. The remaining 4 wells were completed with 4-inch-diameter, locking, steel-protective casing. An expanding well cap was placed on the riser pipe. Monitoring well construction details are shown in Figure TM1-1.

Monitoring Well Development

The completed wells were developed by ATEC using a suction pump until the pumped water was substantially free of sediment. Between 75 and 155 gallons of water were purged from the wells. The purged water was contained in sealed 55-gallon drums. The drums were labeled and moved to a central onsite location.

Water Level Measurements

Groundwater levels were measured before groundwater sampling began in November 1992. Water level measurements were taken with an electric water level indicator. Three additional rounds of groundwater level measurements were taken in June, August, and September 1993. The data was used to assess groundwater flow directions. Groundwater elevations are shown below in Table TM1-2.



Monitoring Well	A	B	C	D	E	F	G
CLMW01	697.18	695.18	691.18	682.15	678.15	668.15	667.65
CLMW02*	696.56	697.14	693.14	681.14	677.14	667.14	666.64
CLMW03	694.33	692.55	688.55	681.55	677.55	667.55	667.05
CLMW04	694.04	691.91	687.91	681.91	677.91	667.91	667.41
CLMW05	692.63	690.72	686.72	681.72	677.72	667.72	667.22

Elevations are in feet and are referenced to MSL.
*CMW-2 is a flush mount.

FIGURE TMI-I
Monitoring Well Construction Details
Carter-Lee Lumber RI

CH2MHILL

GLE66616.R.RI Fig. TMI-I Mon Well Const Dtls 12-21-94 lml

Table TM1-2
Water Level Data

Well No.	Ground Elevation	11/92	6/93	8/93	9/93
CLMW01	695.18	675.68	674.96	674.53	676.65
CLMW02	697.14	675.87	677.80	677.34	676.94
CLMW03	692.55	675.03	674.59	674.14	676.00
CLMW04	691.91	675.21	674.33	673.91	676.13
CLMW05	690.72	674.85	674.28	673.83	675.83

Note: Elevations are in feet and are referenced to MSL.

Groundwater Sampling Procedures

Monitoring Well Sampling

The five monitoring wells were sampled following development during the period of November 4 to 7, 1992. A second round of sampling was conducted on June 6, 1993, and a third round of sampling on September 22, 1993. The depth to water and total well depth were measured to determine the well volume. At least five well volumes were purged with a stainless steel bailer before sampling. Purge water was collected in buckets and transferred to 55-gallon drums. The drums are being stored onsite pending disposal.

One groundwater sample was collected from each well during each round of sampling. Metals samples were filtered in the field. Following sample collection, sample bottles were stored on ice in a cooler pending overnight delivery to a CLP laboratory (Table TM1-1). Groundwater samples were analyzed for VOCs, SVOCs, metals, cyanide, pesticides, and PCBs. Samples collected in September 22, 1993, were also analyzed for the following treatment parameters:

- Alkalinity
- Chemical oxygen demand
- Chloride

- Hardness
- Total organic carbon
- Total dissolved solids
- Total suspended solids

NEIC documentation and chain-of-custody procedures were used for sample collection and routing.

Groundwater Grab Sampling

Groundwater grab samples were collected from four soil borings (CLSB01, CLSB02, CLSB03, and CLSB04). The borings were completed to their target depths. Grab samples were collected from within the augers using a stainless steel bailer. The augers were purged of about 3 volumes of standing water before sampling. The samples were submitted for analysis of the same parameters as the monitoring well samples. Metals samples were field-filtered.

Equipment Decontamination

A temporary decontamination pad was set up in the southeast corner of the site. The sides of the pad were bermed to contain the rinsate. The rinsate was transferred to 55-gallon drums and stored onsite pending disposal.

The drill rig, augers, and sampling equipment were steam-cleaned upon arrival at the site. The augers and sampling equipment were steam-cleaned between boreholes. Split-spoon sampling equipment, hand augers, stainless steel trowels and spoons, and bailers were decontaminated between samples by washing with a solution of trisodium phosphate detergent followed by a tap water rinse, a 10-percent methanol rinse, and a final distilled water rinse.

Documentation

Field measurements and descriptions made during the field work were recorded in the field log book.

Surveying

Coordinates and elevations for the monitoring wells and soil borings CLSB01 to CLSB04 were established during the week of November 8, 1992. Vertical locations for the wells were surveyed to the nearest 0.01 foot. Indiana Flood Control and Water Resources Commission bench marks were used for vertical control. Horizontal locations for the wells and soil borings were surveyed to the nearest foot. The property fenceline was used for horizontal control. Survey data for the monitoring wells is provided in Figure TM1-1.

ATTACHMENT A1-1
SOIL BORING LOGS

CH2MHILL

PROJECT NUMBER	BORING NUMBER		
GL065616.F0.FS	CMW-1	SHEET 1	OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION North-Central end of site

ELEVATION _____ DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61, 4 1/4" HSA 2" spl. t-spoon

WATER LEVELS _____ START 11/3/92 FINISH 11/3/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						HNu BG = 0.2 ppm
1'	0-2		1.5	32-8-6-3 (14)	Upper 1" asphalt Sandy Gravel (GW). Gray. Dry. 1' Loose.	start boring @ 1615 (FILL)
					Clayey SAND. (SC). DK. brown. Moist. Med. dense. Bottom 3 inches is asphalt and cinders	
4'	2-4		0.8	3-2-4-5 (6)	Sandy CLAY (CL). DK brown. Moist. Soft.	(FILL)
6'	4-6		0	4-4-4-5 (8)	No Recovery	
					Clayey SAND (SC). DK. brown. moist. 6'11"	
8'	6-8		1.7	3-7-7-8 (14)	Well-Graded Sand (SW). Gray. Dry. Med dense. Much gravel	
10'	8-10		1.8	5-7-9-8 (16)	Same (SW). Gray-brown. Moist. Rounded and subangular gravel as large as 1" in diameter.	
12'	10-12		1.3	6-5-3-3 (8)	Same (SW). Trace orange mottling. Loose.	
14'	12-14		1.2	6-10-14-14 (24)	Same (SW), Med. dense.	
15.5'	14-16		1.6	7-10-10-9 (20)	Same (SW). Very moist. Bottom 4" a fine-medium	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
5-065616 F0.FS	CMW-1	2	2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION North-central end of site.

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61

WATER LEVELS START 11/3/92 FINISH 11/3/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" 6" 6" N	SOIL DESCRIPTION: SOIL NAME USCS GROUP SYMBOL COLOR MOISTURE CONTENT RELATIVE DENSITY OR CONSISTENCY SOIL STRUCTURE MINERALOGY	COMMENTS: DEPTH OF CASING DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
					poorly-graded sand.	
14'	5-8		1.9	11-15-14-16 (29)	Same (SW) Much rounded and subangular gravel.	
20'	18-20		1	9-12-13-12 (25)	Same (SW). Tip wet.	▽
22'	20-22		1.8	7-9-12-12 (21)	Same (SW). Wet.	
24'			.9	5-7-9-14 (16)	Same (SW) Rock fragments in tip.	
26'			2	7-9-14-15 (23)	Same (SW).	
28			2	9-11-17-12 (28)	Same (SW). Upper 4" a coarse, poorly-graded sand Bottom 2" a fine poorly graded sand with some silt and black horizontal bands EOB @ 27.5'	EOB @ 1711

CH2MHILL

PROJECT NUMBER	BORING NUMBER		
GL065616.F0.FW	CLBK01 (CMW-2)	SHEET 1	OF

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION Reichwein St.

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mob. to B-61, 4¼" HSA, 3" spl.t-spoon

WATER LEVELS START 11/5/92 FINISH 11/5/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						HNu BG = 0.2 ppm
					Sand and gravel Fill (GW). Brown. Moist. Loose. Some asphalt.	Start Boring @ 1030
					1'	
2	0-2	01	1.5	9-8-5-5 (13)	Sandy CLAY (CL). DK. brown. Moist. Medium. Some silt and gravel. Some coal.	HNu = BG
4	2-4		1.2	4-4-4-4 (8)	Same (CL).	HNu = BG
6	4-6		1.7	2-2-3-3 (5)	Same (CL) Master and softer than above. Some black mottling. Some fine sand in bottom inch.	HNu = BG
8	6-8	02	18	3-3-2-5 (5)	Sandy CLAY (CL). DK. Brown. Moist. Soft.	HNu = BG
					8'10"	HNu = BG
10	8-10		1 5	6-5-4-3 (9)	Poorly-graded, fine SAND (SP). Dark brown. Moist Loose. Some gravel.	
					Same (SP)	HNu = BG
	10-12		1.7	3-2-3-4 (5)	11' sandy silty CLAY (CL). DK. brown. Moist. Stiff Some gravel. 11'6" Well-graded SAND and Gravel (SW-GW). Brown Moist. Loose	
12						
14	12-14		1 9	8-11-18-19 (29)	Same (SW-GW). Sand gets a bit finer is bottom 10 inches A thin orange horizontal band about 6 inches from top	HNu = BG
15.5	14-16	03	1.6	15-18-21-23 (39)	Same (SW-GW) Gravel smaller than above	HNu = BG

CH2M HILL

PROJECT NUMBER 2105616 FOFW | BORING NUMBER CLBH01 (CMW-2) | SHEET 2 OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber | LOCATION Rechwein St

ELEVATION | DRILLING CONTRACTOR 4-EC

DRILLING METHOD AND EQUIPMENT

WATER LEVELS | START 11/5/92 | FINISH 11/5/92 | LOGGER L. Peterson

DEPTH IN FEET BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" N	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						BZ = 0.2 ppm
18	16-18		1.9	16-17-17-21 (34)	Same (SW-GW). Sand is coarser than above. Gravel is larger - up to 2" in diameter. Much orange mottling. Rock fragments	
20	18-20		1.7	13-11-14-16 (25)	Poorly-graded SAND (SP). Brown, very moist, med dense. Some gravel. Trace clay. Horizontal stripe about 1" from t.p.	
22	20-22		2	13-13-15-23 (28)	Same (SP). T.p. is wet	
24	22-24		1.5	1-2-3-4 (25)	Same (SP). A 2" coarse sand and gravel lense about 2" from t.p. Bottom 2" has some silt. Wet. 23'10"	now using a 2" split spo ▽
26	24-26		1.8	9-10-13-14 (23)	Well-graded sand (SW). Brown, wet, med dense. Some gravel. Trace silt	
28	26-28		1.9	7-8-11-12	Well-graded sand and gravel (SW-GW). Brown. Wet, med dense. Gravel up to 3/4" in diameter. Sand is coarser than above	
30					Poorly-graded SAND (SP). Brown, wet, med dense. Trace gravel and silt. One coarse sand lense 6" from t.p. Another coarse sand lense 6" from top.	EOB @ 30'

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
GLO65616. FO FS	CLBX08 (CMW-3)	1	2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION South-central end of site

ELEVATION _____ DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61 r.g, 4¼" HSA, 2-inch spl.t-spoon

WATER LEVELS _____ START 11/2/92 FINISH 11/2/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						HNu BG = 0.2 ppm
	0-2'		1.5	3-6-23-23 (29)	Clayey SAND (SC). DK. brown. Moist Med dense. A 2" layey of red clayey soil about 1 ft. from tip. Much rounded gravel. 1'	1600 - Start boring (FILL)
2.0					Gravel Fill (GW). Gray. Dry. Loose. Some red brick and concrete fragments Trace clay. Some sand.	
	2-4		0	6-4-4-6 (8)	No Recovery	
4.0						
	4-6		0.75	3-3-43-5 (46)	Clayey SAND and Gravel (SC-GC). DK brown - black. Moist. Dense. Some red brick. Rock fragment.	(FILL)
6.0						
	6-8		1.2	0-7-6-3 (13)	Clayey SAND (SC) Black. Moist. Loose. Some gravel. Trace coal cinder 7'4"	
8.0					Silty Clay. (CL). Orange. Moist. Soft.	
	8-10		0.75	3-1-2-2 (3)	Same (CL). Trace light brown and light gray mottling	
10						
	10-12		0		No Recovery	
12						
	12-14		1.4	3-7-5-5 (12)	Clay (CL). Gray. Moist Stiff. Some silt. 12'8"	
14					Poorly-graded SAND (SP). Brown Moist. Loose. Some orange mottling. Trace gravel.	
	14-16		0.75	9-13-6-5 (19)	Well-graded gravel and Sand. (GW-SW). Brown. Moist Med-dense.	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET
GL065616.F0.FS	CMW-3	2 OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION South-central end of site

ELEVATION _____ DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61, 4¼" HSA, 2-man split-spoon

WATER LEVELS _____ START 11/2/92 FINISH 11/2/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" 6" 6" N	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
16						
18	16-18			6-9-10-11 (19)	Well-graded SAND (SW) Brown, wet, med. dense, Much gravel. Some orange mottling	▽
20	18-20		0		No Recovery	
22	20-22		1.7	6-14-19-22 (33)	Well-graded SAND (SW) Brown, Wet. Dense. Much gravel. Some rock fragments in tip. Trace silt. Trace clay in upper 6 inches	
24	22-24		1.5	5-12-14-22 (26)	Same, but no trace of silt or clay.	
	24-26		2	11-14-18-17 (32)	Same	
					26' EOB @ 26'	EOB @ 1725

CH2MHILL

PROJECT NUMBER	BORING NUMBER		
GL065616 F0 FS	CMW-4	SHEET 1	OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION East-Central portion of site.

ELEVATION _____ DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61, 4¼" HSA, 2" split-spoon

WATER LEVELS _____ START 11/3/92 FINISH 11/3/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Hole BG = 0.3 ppm
	0-2'		1.5	6-3-6-2 (9)	Sandy Gravel Fill (GW). Gray. 5" Moist. Loose.	Start boring @ 1247 (FILL)
2'					Clayey SAND (SC). DK. brown. Moist. Loose. Some silt and gravel. 8"	
					Sandy CLAY (CL). Brick red. Moist stiff. Trace gravel. Some gold mottling some black cinders.	
	2-4'		1	5-5-6-6 (11)	Same, but more gravelly with orange mottling. Medium.	
4'					Clayey SAND (SC). DK brown. Moist. Loose. Much gravel 3'7" 4'	
	4-6'		1.5	4-4-4-6 (8)	Well-graded SAND (SW). DK. brown. Moist. Loose. Much gravel.	
6'					6'	
	6-8'		0.9	3-2-3-6 (5)	Clayey SILT (ML). DK. brown. Moist. Loose.	
8'						
	8-10'		2	3-5-5-5 (10)	Silty SAND (SM). Light gray Moist Loose Poorly-graded. Very fine. Trace Clay.	
10'						
	10-12'		1.6	3-3-3-3 (6)	Poorly-graded, fine SAND (SP). Gray-brown. Moist Loose. Some orange mottling	
12'						
	12-14		1	5-13-11-9 (24)	Gravelly SAND (SW). Brown-gray. Moist Med. dense. Subangular gravel. Up to 1" in diameter.	
14'						
15.5'	14-16'		1.5	4-8-27 22 (35)	Poorly-graded, fine sand (SP) Brown. Moist. Dense Some gravel. One thin horizontal orange str.p	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
2-0 0501.0 F0 FS	CMW-4	2	2

SOIL BORING LOG

PROJECT Carter Lee Lumber LOCATION

ELEVATION DRILLING CONTRACTOR

DRILLING METHOD AND EQUIPMENT

WATER LEVELS START 11/3/92 FINISH 11/3/92 LOGGER L. Peterson

DEPTH IN FEET BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" - 6" - 6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0					Gravelly SAND (SW) brown-gray Moist dense	5"
5	10-18		1' 7"	7-7-12-14 (19)	Same (SW). Wet. Med. dense. Gravel somewhat smaller and a bit more rounded	▽ =
20	18-20		1' 8"	6 13 16 22 (29)	Same (SW).	
22	20-22		2' 0"	4-6-12-15 (18)	Same (SW) Med. dense	
24'	22-24		1' 8"	5-9-15-16 (25)	Same (SW). Gravel a bit larger than above up to 1" in diameter	24' EOB @ 1340
					EOB	

PROJECT NUMBER	BORING NUMBER		
GL065616.F0.FS	CLSB12 (CMW-5)	SHEET 1	OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION SE corner of site

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61, 4¼" HSA, 3" split-spoon

WATER LEVELS START 11/4/92 FINISH 11/4/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						HNu BG = 0.2 ppm
2	0-2	CLSB1201	1.5	8-8-9-7 (17)	Sandy Gravel (GW). Gray. Moist. Med dense. Some gray clay. 1' Well-graded SAND (SW). Brown. Moist. Med. dense, much gravel some black cinders throughout.	Start boring @ 1035 HNu = BG t = 1038
4	2-4		1.7	7-3-4-4 (7)	Same (SW). Poorly-graded, fine SAND (SP). 3'4" Brown. Moist. Loose. A 1½" layer of black cinders about 2" from tip. Trace gravel Trace orange mottling	HNu = BG
6	4-6		1.6	6-4-4-5 (8)	Same (SP). No gravel or orange mottling.	HNu = BG
8	6-8		1.8	6-7-9-20 (16)	Same (SP). Med. dense. 8'	HNu = BG
10	8-10	CLSB1202	1.7	18-35-45-68 (80)	Gravelly SAND (SP-GW) Brown. Moist. Gravel as large as 1½" in diameter. Rounded and subangular. Trace black cinder. 2	HNu = BG t = 1058
12	10-12		2	35-56-83-67 (139)	Same (SP-GW). Gravel as large as 2" in diameter	HNu = BG
14	12-14		2	19-33-28-39 (61)	Sand and gravel (SP-GW). Brown Moist. Very dense. Trace silt in lower foot Large gravel - up to 3" in diameter.	HNu = BG
15.5	14-16		1.3	24-42-41-37 (83)	Well-graded SAND and Gravel (SW-GW). Brown. Moist. Very dense. Some silt.	HNu: BG

CH2M HILL

PROJECT NUMBER: GLO651016 FO.FS | BORING NUMBER: CMW-5 | SHEET 2 OF 2

SOIL BORING LOG

PROJECT: Carter-Lee Lumber | LOCATION: SE corner of site in swale

ELEVATION: | DRILLING CONTRACTOR: ATEC

DRILLING METHOD AND EQUIPMENT: Mobile B-61

WATER LEVELS: | START 11/4/92 | FINISH 11/4/92 | LOGGER L Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" 6" 6" N	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
16						
18	16-18	CMW5D03	1.2	33-34-34 (68)	Same (SW-GW) Gravel not as large and more rounded wet. yellow-brown.	HNu = BG ▽
20	18-20		1	34-35-33 (68)	Same (SW-GW). Some 1" horizontal orange stripes.	Begin using 2" split spoon
22	20-22		1.5	9-10-18-19 (28)	same (SW-GW). Sand finer near top. Some silt No orange bands. 2.19"	
24	22-24		1.5	10-12-18-S (30)	Well graded SAND (SW). Brown and gray. Med dense Many ~~roots~~ Some gravel. Some silt	EOB @ 1151
					EOB @ 24'	

CH2M HILL

PROJECT NUMBER	BORING NUMBER		
GL065616.F0.FS	CLSB01	SHEET 1	OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION Site where red soil spread

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mob. B-61, 4 1/4" HSA, 3" split spoon

WATER LEVELS START 11/6/92 FINISH 11/6/92 LOGGER L. Petersen

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						HNu BG = 0.2 ppm
2	0-2	01	1.9	32-15-15-28 (30)	Coarse sand and gravel FILL (SW-GW) Dk. brown and gray dry. Dense. Some silt. Bottom 6" has some clay. Red soil lense (1") about 8" from top.	Begin boring @ 1230 HNu = BG
4	2-4		1	37-78-20-16 (98)	Same (SW-GW). Some red brick fragments in bottom 2 inches some clay	HNu = BG
6	4-6		1.3	21-9-9-6 (18)	Same (SW-GW). Much fly ash. Some red brick fragments. Med dense. Not as much gravel. 5'6" Poorly graded SAND (SP) Brown. slightly moist. some gravel.	HNu = BG
8	6-8	02	1.5	29-37-95-66	Same (SP) Black discoloration. 6'6" Silty sand (SM). Black. Dry Dense. Much black material - fly ash? some gravel.	HNu = BG
10	8-10		1	15-7-18-23	Same (SM). Much fly ash. Bottom 6" has red brick fragments and pieces of wood.	HNu = BG
12	10-12		1.5	100-130-95-86	Same (SM). Soil very hard and dry. Compressed. 6" from top was 6" of rock fragments	Black Slight odor. Compressed cinders? Compressed creosote? HNu - 0.1 ppm
14	12-14		1	42-25-9-9	Same. (SM). Very Compressed. Hard. Horizontal fractures Trace gravel. Wood fragments on top	HNu = 0.05 ppm
15.5	14-16		1	7-7-8-9	Same (SM) Wood fragments Horizontal fractures	HNu: .36

PROJECT NUMBER	BORING NUMBER	SHEET	OF
G1065616.F0 FS	CLSB01	2	2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION Central

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT

WATER LEVELS START 11/6/92 FINISH 11/6/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" 6" 6" N	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
16					15'8" Clayey SILT (ML) Gray Mo.st. Dense some orange mottling	
18	16-18		2	N-29-13-13 (42)	Clayey SILT (ML-CL) Black Some sand Mo.st. Dense. Well-graded Sand and Gravel (SW-GW) Brown Mo.st. Dense Rock fragments 8" from top	
20	18-20	S3	2	13-12-11-11 (26)	Same (SW-GW)	▽
25					Blind Drilled	EOB @ 1327

PROJECT NUMBER	BORING NUMBER		
GL065616.F0.FS	CLSB02	SHEET 1	OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION Site where red soil spread

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61, 4 1/4" HSA, 3" split-spoon

WATER LEVELS START 11/6/92 FINISH 11/6/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY)	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION)
						HNu BG = 0.2 ppm
2	0-2	01	1.5	21-8-15-23 (23)	Sand and gravel FILL (SW-GW). Gray Dry Loose. 6" Silty CLAY (CL). DK. red. Dry St. Eff. 1' Silty, sandy CLAY (CL). DK. brown. Dry. Stff. Some gravel. Some black cinder. Some red soil.	Start boring @ 0730 (FILL) HNu = BG
4	2-4		0.9	23-24-12-12 (36)	Silty SAND (sm). Black. Dry. Loose. Black cinders. Some large gravel Chunks of wood — Black. Railroad ties?	Slight odor Like mothballs (FILL)
6	4-6	02	1.5	15-8-6-6 (14)	Same (sm). Lots of black pieces of wood.	Mothball odor. Creosote? (FILL) HNu = 0.1 ppm
8	6-8		1.9	28-44-35-24 (79)	Same (sm) 6'9" Red brick fragments. 7'10"	HNu = 0.2 ppm (Black material) (FILL)
10	8-10		1.5	17-24-30-34 (54)	Silty fine SAND (sm) Black Dry Dense Same (sm). some chunks of Coal. Red brick fragments Sand is very hard and compressed together with what may be fly ash.	(FILL) Fly Ash? HNu = BG
12	10-12		1.2	9-7-8-10 (15)	Same (sm) 11' Silty CLAY (CL). DK brown slightly mo.st. Stff Some fine Sand	(FILL) HNu = BG
14	12-14		1	7-6-13-19 (19)	Same (CL) 13' Clayey SILT (ML). Lt. Gray. Slightly mo.st. Med. dense Some lt. orange mottling. 13'9" Silty SAND (sm) DK. Brown Slightly Moist Some gravel Med dense	HNu = BG
	14-16		1.6	19-20-23-39 (43)	Gravelly, Poorly-graded SAND (SP-GW). Brown. Moist. Dense. Gravel up to 1 1/2" in diameter.	HNu = BG

PROJECT NUMBER	BORING NUMBER	SHEET	OF
GLO6S016 FO.FS	CLSB02	2	2

SOIL BORING LOG

PROJECT Carter Lee Lumber LOCATION Gravel Area where red soil sprea

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT

WATER LEVELS START 11/6/92 FINISH 11/6/92 LOGGER L Peterson

DEPTH IN FEET (FEET BELOW SURFACE)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS (BLOWS/6")	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY)	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION)
16						
18	16-18		1'	15-25-21+8 (46)	Sand (SP-GW) much orange mottling in bottom 6 inches Rock fragments large gravel	HNu = 0.1 ppm
20	18-20	G3	19	13-14-20-17 (34)	Well graded Sand and gravel (SW-GW) Much orange mottling. Bottom 6" is wet	HNu = BG ▽
22					Blind Drilled	
24'						
25'					25' EOB	EOB @ 0815

CH2M HILL

PROJECT NUMBER	BORING NUMBER		
GLD65616.F0.FS	CLSB03	SHEET 1	OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61, 4 1/4" HSA, 3" Spl.t spoon

WATER LEVELS START 11/5/92 FINISH 11/5/92 LOGGER L. Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						HNu BG = 0.2 ppm
2	0-2	01	1.3	6-18-21 (auger refusal)	Upper 4" a sand and gravel FILL (GW). Gray. Dry. Loose. 1" Shale layer at top. Sandy, silty CLAY. DK brown and dk. red (red soil). Dry. Med. stiff. Some gravel. 1'6" Sandy, silty CLAY (CL). DK brown. Slightly moist Med. Stiff. Some gravel and Coal bits. 2'	4" Begin boring @ 1650 (FILL) HNu = BG
4	2-4		1	8-15- (auger refusal)	Sandy gravel (GW). DK brown. Dry. Med. Dense. Coal fragments. One chunk is 1" in diameter. Red brick fragments.	(FILL) HNu = BG
6	4-6		0.7	28-33-50-26	Sand and rocks (GW). Gray. Dry. Loose	(FILL)
8	6-8		0.9	8-5-5-6 (10)	Very fine silty sand (SM) DK brown to black. Dry. Loose. Bottom 3" same only brown with some black specks.	HNu = BG
10	8-10	02	1.3	4-4-6-5 (10)	Fine, Poorly-graded SAND (SP) Brown. Moist Loose Some Silt	HNu = BG
12	10-12		1.7	5-5-6-4 (11)	Same (SP).	HNu = BG
14	12-14		1.8	4-5-5-7 (10)	Same (SP). Some orange banding about 3" from tip Sand is a bit coarser in bottom foot.	HNu = BG
	14-16			9-7-8-13 (15)	Same (SP). 14'9"	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
5-065016.F0.FS	CLSB03	2	2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION Former site of red soil stockpile

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61, 4 1/4" HSA, 3" Spl-t-spoon

WATER LEVELS START 11/5/92 FINISH 11/5/92 LOGGER L Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" 6" 6" N	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
16	14-16				Poorly-graded, gravelly SAND (SP-GW). Brown gray. Mo. st. Med dense Gravel is rounded and up to 3/4" diameter	Hand-BG
	16-18	03	2	27 22 15 37	Same (SP-GW) Large gravel - up to 2 1/2" Rock fragments. Trace of coal?	
18						
	18-20	2			Same (SP-GW), 1" orange horizontal band 11" from top	▽
20					Well graded SAND and Gravel (SW-GW) Black, gray, and brown. Wet. Some SILT	
					Poorly-graded med coarse SAND (SP) DK brown wet. Trace gravel. Some silt	
					Bottom Drilled	
23.5					23.5' EOB at 1735.	
					EOB	

CH2MHILL

PROJECT NUMBER	BORING NUMBER		
GL065616.F0.FS	CLSB04	SHEET 1	OF 2

SOIL BORING LOG

PROJECT Carter-Lee Lumber LOCATION Site of former trench

ELEVATION DRILLING CONTRACTOR ATEC

DRILLING METHOD AND EQUIPMENT Mobile B-61, 4 1/4" HSA, 3" split-spoon

WATER LEVELS START 11/4/92 FINISH 11/4/92 LOGGER L Peterson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						HNu BG = 0.2 ppm
2	0-2		0.3	13-11-15-53 (26)	Sandy Gravel (GW). Gray. Dry. Med dense. 3-inch rock	start boring @ 1447 (FILL)
4	2-4		1	42-13-19-43 (32)	Clayey SAND (SC-CL). DK brown. Moist. Med dense. 3' Sandy Gravel (GW). Gray. Dry Dense 3.4' Sandy Clay (CL-SC). DK brown Moist. Medium. Some "Red Soil" present	(FILL) HNu = BG
6	4-6	01	1.3	27-7-15-16 (22)	Same (CL-SC). Some gravel, brick fragments, black cinders. Some fine roots. Some black streaking	(FILL) HNu = BG
8	6-8		1	10-12-9-8 (21)	Silty CLAY (CL). DK brown. Moist. Very Stiff Black streaks Horizontal fractures. Trace fine roots Some very fine sand in bottom 2 inches	HNu = BG
10	8-10	02	2	4-6-6-8 (12)	Clayey SILT (ML). Lt gray Moist Very dense. Much orange mottling Black streaks. Some snail shells	HNu = BG
12	10-12		1.9	4-7-28-44 (35)	Same (ML) 10'4" SILT (ML). Lt gray. Moist. Dense. Some orange mottling and shells. 11'4" Poorly-graded SAND (SP) Brown Moist Dense. Much rounded gravel, rock fragments. Orange horizontal banding	HNu = BG
14	12-14		1.5	16-56-119-118 (175)	Poorly-graded sand and gravel (SP-GW). Brown Moist. Dense Much orange horizontal banding. Gravel up to 2-inches in diameter	HNu = BG
15.5	14-16	03	1.6	69-55-65-32 (120)	Same (SP-GW). No orange banding Tip is wet	

PROJECT NUMBER	BORING NUMBER	SHEET	OF
GLO 65016.F0.FS	C-SB04	2	2

SOIL BORING LOG

PROJECT: Carter-Lee Lumber — LOCATION: Former Trench

ELEVATION: — DRILLING CONTRACTOR: ATEC

DRILLING METHOD AND EQUIPMENT:

WATER LEVELS: — START 11/4/92 — FINISH 11/4/92 — LOGGER L-Peterson

DEPTH (FEET BELOW SURFACE)	SAMPLE: INTERVAL	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS: 6"-6"-6" N	SOIL DESCRIPTION	COMMENTS
16						
18	16-18		1.5		Poorly graded SAND (SP). Brown. Wet. Smaller and less gravel than above. A 1-inch well-graded sand lense about 1 ft. from top	
					Blind Drilled	
23.5					23.5' EOB	EOB @ 1550

11/6/92

2'-4' - Same. Very dense. Bottom @ 8" has large gray gravel and a 3" red brick fragment

1448 - Complete sampling @ CLSB09.

Note: Collected samples @ 0-2'
2-4'

1455 - Begin sampling @ CLSB06.

Note: Samples collected from 0-2'
2-4'

Log for CLSB06

0-2 ft. - Sand and gravel fill. A 3" silty clay lense about 8" from tip. Trace red soil near lense. Red brick fragments. Very dense.

2-4' - Very dense, clayey, silty sand fill. Much gravel. Black. Layer 6" more sandy and gravelly.

1507 - Complete sampling @ CLSB06.

1515 - Begin sampling @ CLSB05.

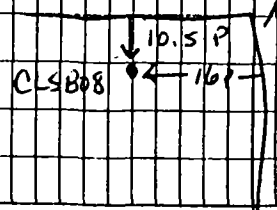
1525 - Complete sampling @ CLSB05

Log for CLSB05

0-2 ft. - 1" asphalt followed by 4" gravel + sand fill. Glass. Next is 6" of silty clay fill. Very stiff. Gray. Moist. Next 4" is a coarse brown sand. Some clay 3' from tip.

2-4' - Well-graded sand and gravel. Brown. Dry. Loose.

Note: Samples collected from 0-2'
2-4'



11/6/92

1405 - Begin sampling @ CLSB07

Log for CLSB07:

0-4" - Sandy, silty, gravel fill. Gray. Dry. Med dense

4-12" - Silty sand, DK brown. Dry. Dense. Much gravel

1'-1'4" - Clay. Red. Moist. Stiff. Some silt and sand

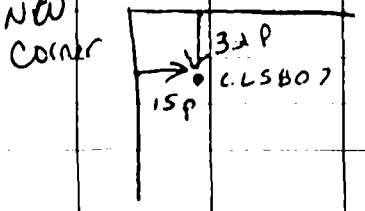
1'4"-2' - Well graded sand & gravel (SW GW) DK brown. Dense. Dry. Some black cinders

2'-2'6" - Same (SW GW). Much black cinders

2'6"-3' - Gravel and sand. Large rock fragments. Gray. Dry

1411 - Complete sampling. Abandoning hole

Note: Collected one sample @ 0-2 ft.



11/6/92

1420 - Begin sampling @ CLSB08.

Log for CLSB08:

0-2' - Sand and silt. Black and DK brown. Much black cinders in upper foot. Some glass. Some DK brown clayey sand 1' down. Very gravelly in bottom foot. Trace rootlets.

2-4' - Sand & gravel fill.

1430 - Abandoning hole @ CLSB08.

1437 - Begin sampling CLSB09.

Note: Collected one sample from CLSB08 at 0-2 ft.

Log for CLSB08

0-2' - Sandy, gravelly fill. A 1" layer of red soil about 1 ft. from top. Some silt and clay. Red brick fragments. Trace black cinders.

11/6/92

Note Surveyor can't find benchmark off of Belmont St. Will try to locate 2 others. Surveyor will want to write contract so get paid hourly rate rather than a lump sum.

1120 - Complete borehole abandonment @ CLSB02.

1130 - Thru decanning

1135 - Setting up @ CLSB01.

1145 - Break for lunch.

1218 - Back on site.

1230 - Begin boring @ CLSB01.

1322 - Complete boring to 25 ft @ CLSB01

Note: Samples collected from CLSB01:

CLSB0101	0-2'	Grain Size, TOC
CLSB0102	6-8'	Grain Size, TOC
CLSB0103	18-20'	Grain Size

11/6/92

1334 - Setting up @ CLSB10.

1345 - Complete boring @ CLSB10.
Sampled to 4 ft

Note: Samples collected at 0-2 ft.
2-4 ft.

Log for CLSB10

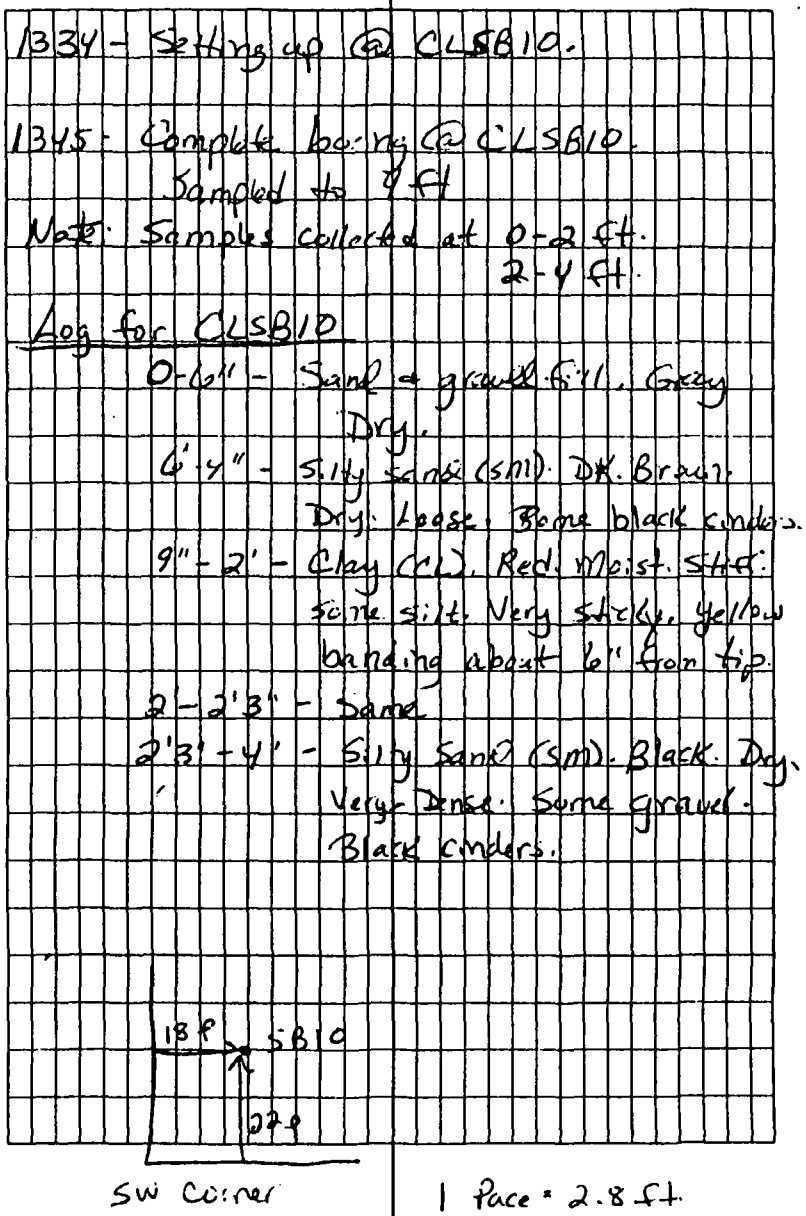
0-6" - Sand & gravel fill. Gray Dry.

6"-9" - Silty sand (sm). Dk. Brown. Dry. Loose. Some black cinders.

9"-2' - Clay (CL). Red. Moist. Stiff. Some silt. Very sticky. Yellow banding about ½" from tip.

2-2'3" - Same

2'3"-4' - Silty Sand (sm). Black. Dry. Very Dense. Some gravel. Black cinders.



PROJECT NUMBER	BORING NUMBER	SHEET	OF
G-065010-FD-FS	L-SB11	1	1

SOIL BORING LOG

PROJECT: Carter-Lee Lumber — LOCATION: Former site of trench

ELEVATION: — DRILLING CONTRACTOR: A-E-C

DRILLING METHOD AND EQUIPMENT: Mobile B-61, 4 1/4" HSA, 3" split-spoon

WATER LEVELS — START: 11/5/92 — FINISH: 11/5/92 — LOGGER: L. Peterson

DEPTH IN FEET BELOW SURFACE	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS (BLOWS/FT)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						HNu BG = 0.2 ppm
2	0-2		1	12-9-11-7 (20)	Sandy a gravel fill (SW-GW) upper 6 inches: Lower 6" is clayey silty, gravelly SAND (SC-CL). Some red soil and bits of coal. Red brick fragments. Moist. Med dense	Begin boring at 1615 (FILL) HNu = BG
4	2-4		2.0	5-23-9-4 (32)	Same (SC-CL).	(FILL) HNu = BG
		5	0.5	6-9-super refusal	Same (SC-CL) A lot of red brick fragments	Soil Sample Collected from 3-5 ft.
6					6' EOB	EOB @ 1635

PREPARED FOR: U.S. EPA Region 5

PREPARED BY: Sandy Feher/CH2M HILL

DATE: April 1, 1994

SUBJECT: Carter-Lee Lumber
Groundwater Users Survey

PROJECT: GLE65616.DE.GS

Introduction

A groundwater users survey was conducted to evaluate whether pumping schedules for wells within a 1-mile radius of the site may affect groundwater flow in the vicinity of the site. The survey was conducted using the following process:

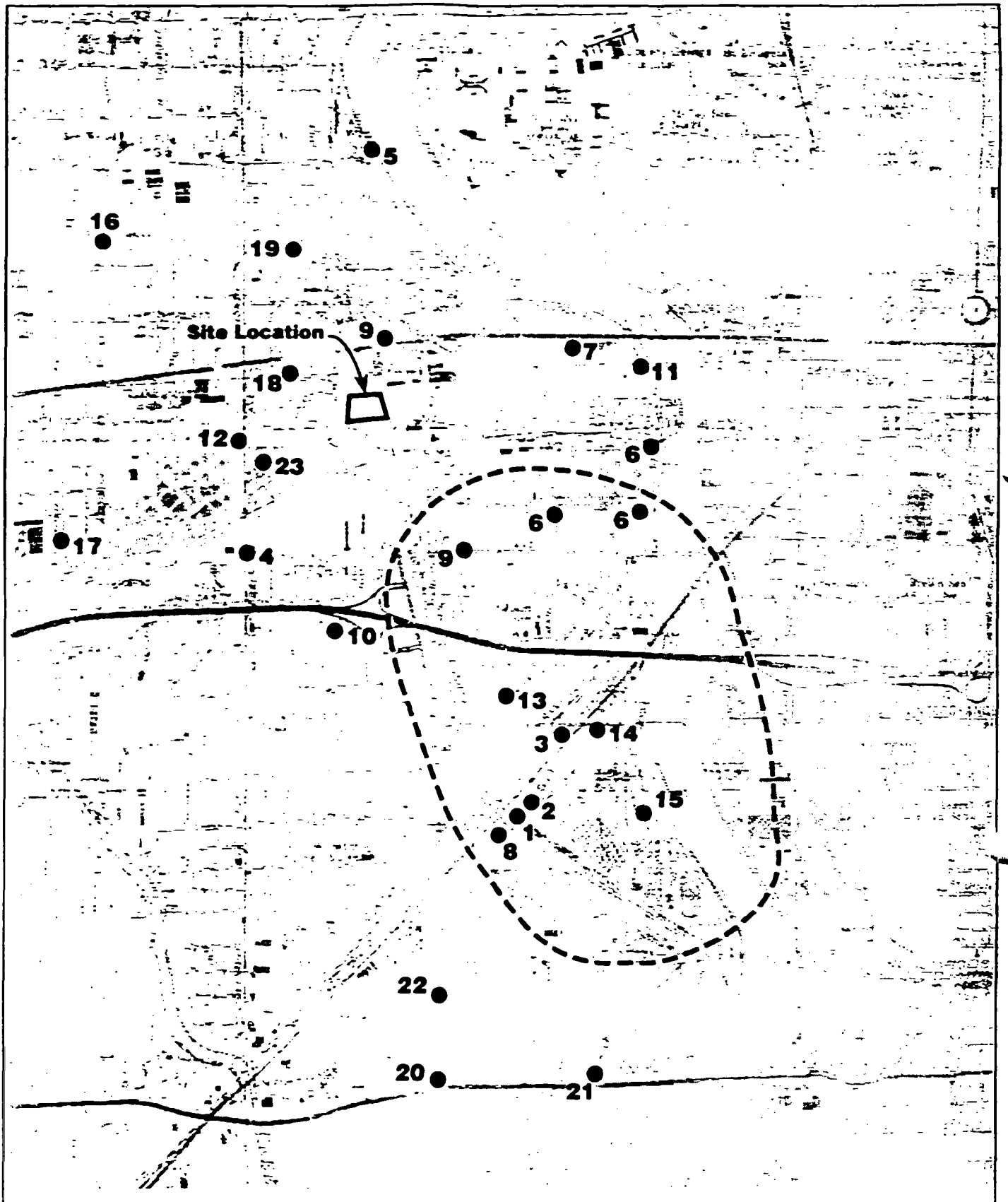
- Review of existing, State of Indiana, well files
- Introductory letter sent to identified well owners
- Followup telephone call to owner
- Personal visit to the location of the well if necessary

Data Gathering

Water well records for the area of concern were obtained from the Indiana Department of Natural Resources. The records were reviewed to identify industrial, public, and private water supplies. The Indianapolis Water Works Company was contacted for any additional information on industrial and public water supplies within the area of concern.

No public water supply wells are situated within a 1-mile radius of the Carter-Lee Lumber site. Fifty industrial supply wells were identified within 1 mile of the site. Of those 50 wells, 26 wells were identified as possibly being downgradient of the site (to the east and southeast of the site). Figure TM2-1 depicts locations of wells for which information was gathered during the survey. The number at each location corresponds to the well owner name and address given in Table TM2-1.

Well owners were contacted and were asked several questions by a CH2M HILL representative. The questions pertained to well use, pumping schedules, pumping rates, and well abandonment. Survey questions are included as Attachment A2-1.



LEGEND

12 ● Approximate Location of Private or Industrial Wells (Number Refers to Well Owner - See Table TM 2-1)

( ) Approximate Extent of Cone of Depression

SOURCE: Source of Cone of Depression Adapted From Geology for Environmental Planning in Marion Co., Indiana, 1980, Figure 10.

N

0 2000

SCALE IN FEET

FIGURE TM 2-1
Area Well Locations
Carter-Lee Lumber RI

CH2M HILL

GI1 65618 RI RI Fig 1M 2 1 Area Well Locations 3/31/94kmw

Table TM2-1
Supply Wells in Vicinity of CLL Site
Carter-Lee Lumber

No.	Well Owner	Well Address	Well Use	Well Depth (feet)	Screen Diameter (inches)	Top of Screen (BGS)	Bottom of Screen (BGS)	Aquifer	Average Well Yield 1991 (gpm)
1	Belt RR Stockyards	Kentucky Avenue & Stock Street	Industrial	75.0	30	--	--	SG	--
2	Curtiss-Wright Corporation	Kentucky Avenue & Stock Street	Industrial	70.0	18	55.0	70.0	SG	--
2	Curtiss-Wright Corporation	Kentucky Avenue & Stock Street	Industrial	70.0	18	55.0	70.0	SG	--
3	Eli Lilly & Company	Nordyke Avenue	Industrial	60.0	18	55.0	60.0	SG	--
3	Eli Lilly & Company	Morris Street	Industrial	91.0	18	71.0	91.0	SG	500
3	Eli Lilly & Company	Morris Street	Industrial	60.0	18	45.0	60.0	SG	--
3	Eli Lilly & Company	Morris Street	Industrial	65.0	18	45.0	65.0	SG	600
3	Eli Lilly & Company	Morris Street	Industrial	68.0	--	--	--	SG	1961
4	Queens Group Indiana	620 S. Belmont	Industrial	118.5	10	98.5	118.5	SG	--
5	Illinois Cereal Mills	1730 W. Michigan	Industrial	--	--	--	--	SG	--
5	Illinois Cereal Mills	1730 W. Michigan	Industrial	340.0	12	--	--	BR	--
5	Illinois Cereal Mills	1730 W. Michigan	Industrial	93.0	--	--	--	SG	--
5	Illinois Cereal Mills	1730 W. Michigan	Industrial	180.0	12	--	--	SG	26
6	GM Truck	White River Parkway	Industrial	81.0	18	61.0	81.0	SG	57
6	GM Truck	White River Parkway	Industrial	84.8	18	59.8	84.8	SG	--
6	GM Truck	White River Parkway	Industrial	78.3	18	53.3	78.3	SG	--
6	GM Truck	Henry & Morris	Industrial	65.0	18	45.0	65.0	SG	--
7	Indianapolis Zoo	1025 W. Washington Street	Residential	55.0	4	--	--	SG	--
8	Indianapolis Stockyards	1501 Kentucky Avenue	Industrial	101.5	12	80.5	101.5	SG	--
9	Industrial Anodizing	1436 W. Oliver	Residential	51.0	3.5	--	--	SG	--
9	Industrial Anodizing	1610 W. Washington Street	Industrial	93.0	8	--	--	SG	15
9	Industrial Anodizing	1610 W. Washington Street	Industrial	93.0	8	--	--	SG	55
10	Mrs. Norma Turner	750 S. Shephard Street	Residential	50.0	3	--	--	SG	--
11	Indianapolis Zoo	W. Maryland & White River Parkway	Industrial	59.5	--	--	--	SG	--
11	Indianapolis Zoo	W. Maryland & White River Parkway	Industrial	52.0	--	--	--	SG	--
12	Link-Belt Company	220 S. Belmont	Industrial	120.0	--	100.0	120.0	SG	--
12	Link-Belt Company	220 S. Belmont	Industrial	125.0	2	107.8	122.8	SG	--
12	Link-Belt Company	220 S. Belmont	Industrial	123.5	--	103.5	123.5	SG	--
12	Link-Belt Company	220 S. Belmont	Industrial	121.0	18	101.0	121.0	SG/BR	--
12	Link-Belt Company	220 S. Belmont	Industrial	111.0	10	91.0	111.0	SG	--
12	Link-Belt Company	220 S. Belmont	Industrial	117.0	18	97.0	117.0	SG	--
12	Link-Belt Company	220 S. Belmont	Industrial	121.0	26	91.0	121.0	SG	--
12	Link-Belt Company	220 S. Belmont	Industrial	123.0	18	113.0	123.0	SG	--
12	Link-Belt Company	220 S. Belmont	Industrial	438.0	--	--	--	BR	--

Table TM2 1
Supply Wells in Vicinity of C.L. Site
Carter Lee Lumber

No.	Well Owner	Well Address	Well Use	Well Depth (feet)	Screen Diameter (inches)	Top of Screen (BGS)	Bottom of Screen (BGS)	Aquifer	Average Well Yield 1991 (gpm)
13	Amphibious Construction	1032 Division Street	Industrial	288 0	- -	- -	- -	BR	- -
14	Marmon Motor Car Company	1101 W Morris	Industrial	70*	- -	- -	- -	SG	- -
15	National Starch & Chemical	1515 Drover	Industrial	90 0	18	- -	- -	SG	600
15	National Starch & Chemical	1515 Drover	Industrial	86 0	18	- -	- -	SG	600
15	National Starch & Chemical	1515 Drover	Industrial	82 0	18	- -	- -	SG	600
15	National Starch & Chemical	1515 Drover	Industrial	86 0	30	- -	- -	SG	700
15	National Starch & Chemical	1515 Drover	Industrial	96 0	30	- -	- -	SG	1000
15	National Starch & Chemical	1515 Drover	Industrial	88 0	16	- -	- -	SG	800
16	Natl Malleable & Steel Castings	546 N Holmes	Industrial	94 0	12	79 0	94 0	SG	- -
16	Natl Malleable & Steel Castings	546 N Holmes	Industrial	89 0	- -	- -	- -	SG	- -
16	Natl Malleable & Steel Castings	546 N Holmes	Industrial	- -	- -	- -	- -	SG	- -
16	Natl Malleable & Steel Castings	546 N Holmes	Industrial	106 0	12	86 0	106 0	SG	- -
17	Oxide & Chemical	560 S Harris	Industrial	56 0	8	- -	- -	SG	- -
18	Paul Wam Drugs	2051 W Washington Street	Residential	56 0	6	- -	- -	SG	- -
19	Polar Ice Company	223 Lynn Street	Industrial	103 0	- -	- -	- -	SG	- -
19	Polar Ice Company	223 Lynn Street	Industrial	103 0	- -	83 0	103 0	SG	- -
20	Ronald P Harding Paving	1500 W Raymond Street	Industrial	82 0	8	71 0	82 0	SG	- -
21	Royster Company	1050 N Raymond Street	Industrial	64 0	- -	49 0	64 0	SG	- -
22	Thompson Poultry	2001 S Harding Street	Industrial	65 0	8	55 0	65 0	SG	- -
23	Indianapolis Regional Recycling	217 S Belmont	Industrial	110 0	10	- -	- -	SG	- -

Note * indicates Well Point
- - indicates information not available
BGS indicates Below Ground Surface
SG indicates Sand and Gravel Aquifer
BR indicates Bedrock Aquifer

Sources Indiana DNR Well Logs
Indiana DNR Well Registration Forms

A followup to the survey questions, where needed, was made by telephone. Telephone numbers for the 23 well owners identified from well records were obtained from the following sources:

- Indianapolis telephone information service (317) 555-1212
- Secretary of State Corporations Division (317) 232-6582
- Indiana Chamber of Commerce (317) 464-2200
- St. Louis Library-Main Branch, reference department (314) 241-2288
- Ben Davis Conservancy District (317) 241-2941

The search for phone numbers produced 11 numbers out of 23 well owners. Of the 11 numbers obtained, only 6 produced successful correspondence. The remaining 5 numbers were either assigned to businesses no longer in operation, or that had no knowledge of the well(s) in question.

Site Visit

A site visit was conducted on Monday, August 16, 1993, by two CH2M HILL representatives to supplement the well information search. The site visit helped to identify current well owners within the 1-mile radius who were not previously identified or surveyed. The current owner and/or the status of each property was noted. Some property owners were spoken to directly and asked questions about the status of the well(s) on their property.

The site visit produced responses from five well owners not previously surveyed and provided additional information on wells from owners contacted prior to the site visit. Water levels from monitoring wells on the site were also taken during this site visit.

Survey Results

Eleven well owners were contacted by phone and/or site visit. Their survey responses are in Table TM2-2.

The well owners surveyed have wells screened in the sand and gravel aquifer. Eli Lilly and Company, is the largest groundwater user of the well owners surveyed, pumping from 126 million gallons (mg) to 225 mg/month. The site visit indicated that 6 of the 23 properties originally described in Table 3 of the *Preliminary Site Investigation Report* (CH2M HILL, May 1992) are now owned by Eli Lilly and Company. Correspondence with Eli Lilly demonstrated that the wells on these properties have either been abandoned or are out of use, or their existence was unknown.

Table TM2-2 Survey Responses		
Map No.	**Well Owner**	**Response**
3	Eli Lilly & Company	Three wells pump continuously at a total average rate of 225 mg month (max) and 126 mg month (min).
10	Norma Turner	No pumping for 5 years.
9	Industrial Anodizing	Wells do not pump continuously; about 3.7 mg month on average.
15	National Starch & Chemical Company	Five of six wells pump continuously; 2 mgd on average; one well pumps 290,000 g day on holidays (total = 69 mg month); also owns well at 1050 W. Raymond Street which pumps 20 mg month on average.
6	General Motors North American Truck Platform	One well pumps continuously; to 2 to 3 mg month in summer and 1 mg month in winter.
12	Link-Belt Co.	All wells sealed between 1991 and 1992.
11	Indianapolis Zoo (formerly Kingan & Company and Grocer's Supply Company)	Well is no longer in use, but has not been abandoned.
4	Queens Group Indiana, Inc. (formerly Engineering Metal Products)	Well is no longer in use; abandoned in summer 1989.
5	Illinois Cereal Mills, Inc. (formerly Evans Milling Company)	One of four wells is still in use. It pumps continuously at 1 mg month, but is shut down on holidays. In 6 months (March 1994), well pumping rate will be reduced to 1,000 gal month.
23	Indianapolis Regional Recycling) formerly Westinghouse Air Brake)	Well has not been used since 1983; has not been abandoned.
13	Amphibious Construction, Inc. (formerly Liquid Carbonic)	The well has not been used for at least 5 years; has been abandoned.

National Starch and Chemical is the second largest groundwater user pumping a total of 89 mg/month on average. In addition, both General Motors Truck Platform and Industrial Anodizing pump large quantities of groundwater from their wells. Illinois Cereal Mills pumps the least amount of groundwater at 1 mg/month. None of the parties surveyed indicated that their wells are shut down for significant periods of time during a given year.

Conclusions

Four out of five facilities pumping groundwater fall within the cone of depression southeast of the site (Figure TM2-1). Survey responses indicated that there are no extended periods of well shutdowns at these facilities. It is probable that these wells from Industrial Anodizing, Eli Lilly and Company, National Starch and Chemical, and General Motors Truck are contributing to the cone of depression and are affecting the direction of groundwater flow beneath the site.

ATTACHMENT A2-1
GROUNDWATER USERS SURVEY QUESTIONS

Attachment A2-1
Carter-Lee Lumber Company
Site Groundwater Users Survey
Indianapolis, Indiana

1. Are your water wells currently in use?

2. Which wells are/are not in operation?

3. Do the well(s) in operation pump continuously?

4. If you answered no to No. 3, how often do they pump?

5. Are there extended periods when the well(s) are not pumping (estimate months/days)?

6. What are the approximate pumping rates of the wells in operation, and for what period(s) of time are the rates maintained?

7. Have the well(s) no longer in operation been abandoned?

PREPARED FOR: Environmental Protection Agency Region V

PREPARED BY: Jack Dingledine/CH2M HILL

DATE: April 1, 1994

SUBJECT: Results of the Ecological Site Investigation at the Carter-Lee Lumber Site, Indianapolis, Indiana

PROJECT: GLE65616.F2.FB

Introduction

An ecological investigation of the Carter-Lee Lumber Superfund site in Indianapolis, Indiana, was conducted as part of the Phase 1 Remedial Investigation/Feasibility Study (RI/FS) of the site. The objective of the investigation was to provide a basis for qualitative evaluation of potential ecological impacts of contaminants associated with the abandoned disposal area. The scope of the investigation was limited to a general characterization of existing ecological conditions of the site and surrounding area, and an identification of overt signs of adverse impacts on terrestrial and aquatic communities. This level of investigation was considered appropriate for the current phase of the RI/FS investigation, based on existing knowledge of site conditions.

This technical memorandum summarizes the results of the onsite characterization conducted on October 5, 1993. Additional supporting information relative to the evaluation such as data on the nature and extent of contaminants of concern, as well as fate and transport mechanisms will be provided in appropriate sections of the RI report. The results of the qualitative ecological investigation may serve as a basis for future ecological investigations at CLL, if additional information on site contamination suggests further studies are warranted.

Assessment Approach

Available guidance on ecological risk assessments currently proposes a phased approach to project execution that typically includes site characterization, a preliminary screening assessment, a determination for the need for further study, and an assessment report (U.S. EPA 1992). Results of the ecological site characterization described below will provide a basis for the preliminary screening assessment when combined with other RI project components such as an evaluation of contaminant fate and transport .

Ecological characterization of the site consisted of a 1-day visit to document the current biological communities in the project area. In addition, contacts to state agencies were

made to identify historical information on the presence of rare, threatened and endangered species.

A CH2M HILL ecologist conducted a 1-day walk over of the site and surrounding area on October 5, 1993. The purpose of the site visit was to identify the major plant and animal communities in the project area and record any overt signs of possible adverse impacts on the environment. The identification of potential impact was intended as a gross evaluation, limited to obvious signs such as plant stress, sediment/soil staining, etc.

The perimeter of the previous disposal area on the site was walked and visible species recorded. The area south of the property was also examined, as this area represented potential wildlife habitat in the immediate vicinity of the site. Major plant communities were identified and a list of dominant plant species prepared. Sensitive species or habitats were noted, but in-depth surveys were not conducted during the site visit. Photographs of the site were also taken during the site visit.

The scheduled survey was not intended to produce a comprehensive assessment of species present or habitat condition. Surveys were conducted in October during a time period when wildlife activity and abundance may not be as great as other times of the year. Although wildlife species were expected to be present, activity levels, particularly for avian species, are typically less in October than that during the breeding season. In addition, by fall some avian species may have left the site for southern winter habitats.

Results

The CLL Property

The CLL Company property lies within the city of Indianapolis, Indiana. The site is an active lumber yard located in an area of other urban retail, industry and residential development. The area of potential contamination lies in the south eastern corner of the property, and is currently being used for lumber storage. The majority of the area of concern is paved and the entire site is surrounded by chain-link fencing.

Major Plant Communities

Vegetative cover at the Carter-Lee Lumber site is restricted to narrow borders or bands of primarily herbaceous plant species along the eastern and western perimeter (See attached photographs). The sparse plant communities are composed of predominantly weedy species typical of disturbed lands such as road sides and old fields. Dominant species observed during the October site visit include golden rod (*Solidago spp.*), evening

primrose (*Oenother biennis*), and Queen Anne's lace (*Daucus carota*). A more complete list of plant species observed in and around the site is presented in Table 1. The presence of the paved surface and the current level of disturbance relating to lumber yard operation are factors which appear to influence habitat condition. Gross evidence of potential contaminant effects on vegetation was not noted at the site, but physical factors may mask signs of contaminant effects.

Sensitive or high value communities such as wetlands, mature forested cover or remnant prairie are not currently present within the site boundary.

Table 1
Plant Species Observed in and Around the Carter-Lee Lumber Site

Common Name	Scientific Name
Woody Species	
Eastern Red Cedar	*Juniperus virginiana*
Mulberry	*Morus spp.*
Eastern Cottonwood	*Populus deltoides*
Tree-of-Heaven	*Ailanthus altissima*
Staghorn Sumac	*Rhus typhina*
Silver Maple	*Acer saccharinum*
Willow	*Salix spp.*
Nonwoody Species	
Queen Anne's Lace*	*Daucus carota*
Teasel	*Dipsacus sylvestris*
Late Goldenrod*	*Solidago gigantea*
Bittersweet Nightshade*	*Solanum dulcamara*
Common Ragweed*	*Ambrosia artemisiifolia*
Common Mullen*	*Verbascum thapsus*
Small White Aster*	*Aster vimineus*
Common-Sunflower*	*Helianthus annuus*
Black Knapweed*	*Centaurea nigra*
Common Evening Primrose*	*Oenother biennis*
Polkweed	*Phytolacea americana*
Honeysuckle	*Lonicera spp.*
Common Cattail	*Tyhpa latifolia*
Japanese Knotweed	*Polygonum cuspidatum*
Smartweed	*Polygonum spp.*
Giant Reed	*Phragmites communis*
Poison Ivy	*Rhus toxicodendron*

*Observed on the Carter-Lee Site

Wildlife Observations

Wildlife species present at the site were recorded by an ecologist during the course of the October site visit. Weather conditions on the day of the survey were good and were not considered a factor in the number of species observed.

Birds were the only group of wildlife species observed during the visit. In total, only 3 bird species were seen on or in the immediate vicinity of the site. These included the house sparrow (*Passer domesticus*), the house finch (*Carpodacus mexicanus*) and the mourning dove (*Zenaida macroura*). All of the species observed may be considered common for the habitat types present and are typical species of urban or suburban landscapes. All of the species are also granivorous/omnivorous ground foragers. This species characteristic may increase the potential for contaminant exposure if contaminants are present at the ground surface. Other bird species may utilize the site, but habitat condition is considered to be a limiting factor.

No species of mammals, reptiles or amphibians were seen while conducting the survey. The potential exists for some common species to be present, but as with avian species, habitat condition is expected to limit their occurrence. The presence of the chain-link fencing around the perimeter of the property also limits wildlife presence, particularly for larger mammals.

Table 2
Wildlife Species Observed in and Around the Carter-Lee Lumber Site

Common Name	Scientific Name
Mallard	*Anas platyrhynchos*
Blue Jay	*Cyanocitta cristata*
Black-capped Chickadee	*Parus atricapillus*
Grey Catbird	*Dumetella carolinensis*
American Robin	*Turdus migratorius*
Mourning Dove*	*Zenaida macroura*
House Sparrow*	*Passer domesticus*
Song Sparrow	*Melospiza melodia*
House Finch*	*Carpodacus mexicanus*
American Goldfinch	*Carduelis tristis*

*Observed on the Carter-Lee Lumber Site

Surrounding Areas

Major Plant Community Types

Predominant land use types surrounding the Carter-Lee Lumber site are a mixture of urban residential and industrial/business retail. The area in the southeastern corner of the Carter-Lee Lumber property is immediately bordered to the east and south by railroad tracks. Narrow strips of vegetation occur in the area between the tracks and the chain-link fence surrounding the site. Plant community composition in these borders is similar to the herbaceous communities present on the site. Along the eastern perimeter, however, small trees and shrubs such as mulberry (*Morus spp.*) and poplar (*Populus spp.*) are also present.

South of Carter-Lee Lumber lies a small area that is characteristic of a second growth or old field successional community. This location represents the most significant area of potential wildlife habitat in the immediate vicinity of the site. Microtopography is variable over the area and debris and other refuse are scattered throughout. Evidence of the placement of fill material is also present, suggesting previous land disturbance. The dominant plant community consists of scattered trees and shrubs intermixed with herbaceous plant growth. Some areas of bare ground were also noted. Dominant tree and shrub species consist of eastern cottonwood (*Populus deltoides*), tree-of-heaven (*Ailanthus altissima)*, staghorn sumac (*Rhus typhina)*, and silver maple (*Acer saccharinum*). These species are unevenly distributed over the area into clumps or irregular rows. Nonwoody species of the area include goldenrods, small white aster (*Aster vimineus*) and honeysuckle (*Lonicera spp.*) as well as various grasses and sedges.

Within the eastern and southeastern portion of this area, open surface water was observed. Areas of open water were fringed with emergent vegetation (e.g., cattails (*Typha latifolia*)) and willows (*Salix spp.*) that extended away from the open water. The exact extent of the open water/wetland area was not determined during the site visit. Evidence was present to suggest the degree of open water may fluctuate with season.

Wildlife Observations

Wildlife observations in areas surrounding the Carter-Lee Lumber site focused on the area south of the site, as this location represented the most significant area of potential habitat.

Observations made while surveying this location were again limited to avian species. A total of 10 bird species were observed, including the American robin (*Turdus migratorious*) and the mallard (*Anas platyrhynchos*) (Table 2). Similar to the onsite

observations, the species identified in the area may be considered typical for the present habitat type and condition. In contrast, however, the greater extent and structure of the habitat, as well as the presence of wetlands increases the probability that other species may use the area than were observed during the October site visit. A greater use by bird species during the migratory season may also occur for similar reasons.

Mammals, reptiles or amphibians were not seen on the area south of teh CLL site. Habitat type and condition, however, suggests a potential for the occurrence of wildlife such as small mammals. Larger mammals like the cottontail (*Slyvilagus floridanas*), ground hog (*Marmota monax*) and raccoon (*Procyon lotor*) may also occur. Mammals larger than fur bearers or small game are less likely due to the size of the area and the type of surrounding land use. Reptiles and amphibians, which were not observed, are expected to potentially occur in the wetlands or other areas of open surface water.

Sensitive or Critical Habitats

Information on rare, threatened and endangered species inhabiting the site was obtained through an information request to the Indiana Department of Natural Resources, Division of Nature Preserves. A copy of the response is provided in Attachment I. The Division of Nature Preserves maintains a database on state and federal rare, threatened and endangered species in Indiana, as well as information on the presence of high quality natural communities and natural areas. The information request on species and communities of concern revealed no records of occurrence within a 1-mile radius of the CLL site. Although this information does not preclude the occurrence of rare, threatened or endangered species from the site, their presence is considered unlikely due to the lack of historical information and the current habitat and land use conditions.

Wetlands may also be considered sensitive habitats, due to their function and value within the landscape. A wetland delineation using the three parameter approach as described in the current wetland delineation manual (U.S. Corps of Engineers 1987) was not conducted, but plant community composition and evidence of hydrology typical of wetlands suggested wetlands are located in the area south of the site. These areas appeared to consist of palustrine emergent or scrub/shrub communities.

Conclusions

Results of the ecological characterization of the CLL site in Indianapolis, Indiana, indicated a limited number of wildlife species are present on and adjacent the site. Current site conditions including the presence of a paved surface and surrounding chain-link fence, significantly limit habitat quality. Plant communities within the property

boundary consist of common species typical of disturbed areas. The site is located within an urban area of similar retail/industrial development.

The most significant area of potential wildlife habitat occurs adjacent to the southern site boundary. Wildlife and plant communities in this area are also limited, but a number of avian species were observed during the site visit. The presence of a small area of open water or wetland potentially increase habitat quality and the occurrence of additional wildlife species.

Gross evidence of adverse impacts on the plant and animal communities of the site was not apparent during the October visit. If additional investigation reveals contaminant concentrations and exposure pathways that may pose a threat to terrestrial or aquatic organisms, a more detailed characterization of existing communities may need to be conducted.

References

U.S. Army Corps of Engineers. Wetland Delineation Manual. Technical Report Y-87-1. Washington, D.C. 100 pp. 1987.

U.S. Environmental Protection Agency. Developing a Work Scope for Ecological Assessments. ECO Update, Vol. 1:4. EPA Pub. 9345.0-051. Washington, D.C. 15 pp. 1992.

ATTACHMENT A3-1
AGENCY CORRESPONDENCE

INDIANA DEPARTMENT OF NATURAL RESOURCES

PATRICK R. RALSTON, DIRECTOR

Division of Nature Preserves
402 W. Washington St., Rm. 267
Indianapolis, Indiana 46204
317-232-4052

October 15, 1993

Mr. Jack Dingledine, Environmental Scientist
CH2M HILL
1 Dayton Centre, Suite 1400
1 South Main Street
Dayton, OH 45402-1828

Dear Mr. Dingledine:

I am responding to your request for information on the endangered, threatened, or rare (ETR) species and high quality natural communities and natural areas documented from a one mile radius of Carter Lee Lumber NPL site, Indianapolis, Indiana. The Indiana Natural Heritage Data Center has been checked and no ETR species and significant areas are documented in this one mile radius.

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. You should contact the Service at their Bloomington, Indiana office.

U.S. Fish and Wildlife Service
620 South Walker St.
Bloomington, Indiana 47403-2121
(812)334-4261

At some point, you may need to contact the Department of Natural Resources' Environmental Review Coordinator so that other divisions within the department have the opportunity to review your proposal. For more information, please contact:

Patrick R. Ralston, Director
Department of Natural Resources
attn: Stephen H. Jose
Environmental Coordinator
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204
(317)232-4080

Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

I have enclosed an invoice for $30.00 to cover the cost of the request.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)232-4052 if you have any questions or need additional information.

Sincerely,

Ronald P. Hellmich for Michelle Martin Hedge

Michelle Martin Hedge
Indiana Natural Heritage Data Center

enclosure: invoice

ATTACHMENT A3-2
PHOTOGRAPHS OF THE PROJECT AREA

Attachment A3-2 Photo Log (October 1993)	
Photo No.	**Description**
1	Looking southeast toward southeast corner of site and well CLMW05.
2	Looking south along eastern drainage swale. Note darkened gravel within swale.
3	Looking west along southern property boundary.
4	Looking southeast toward well CLMW05 and Conrail railroad tracks.
5	Looking northwest toward pole barns. Area where red soil spread in foreground.
6	Vegetated area across railroad tracks south of CLL site and adjacent to Westinghouse Air Brake facility.
7	Same as above.
8	Same as above.
9	Same as above.
10	Same as above.
11	Same as above.
12	Same as above.
13	Same as above.
14	Looking east along Conrail railroad tracks. CLL site is to the north.
15	Looking southeast along Conrail railroad tracks to the south of the CLL site.

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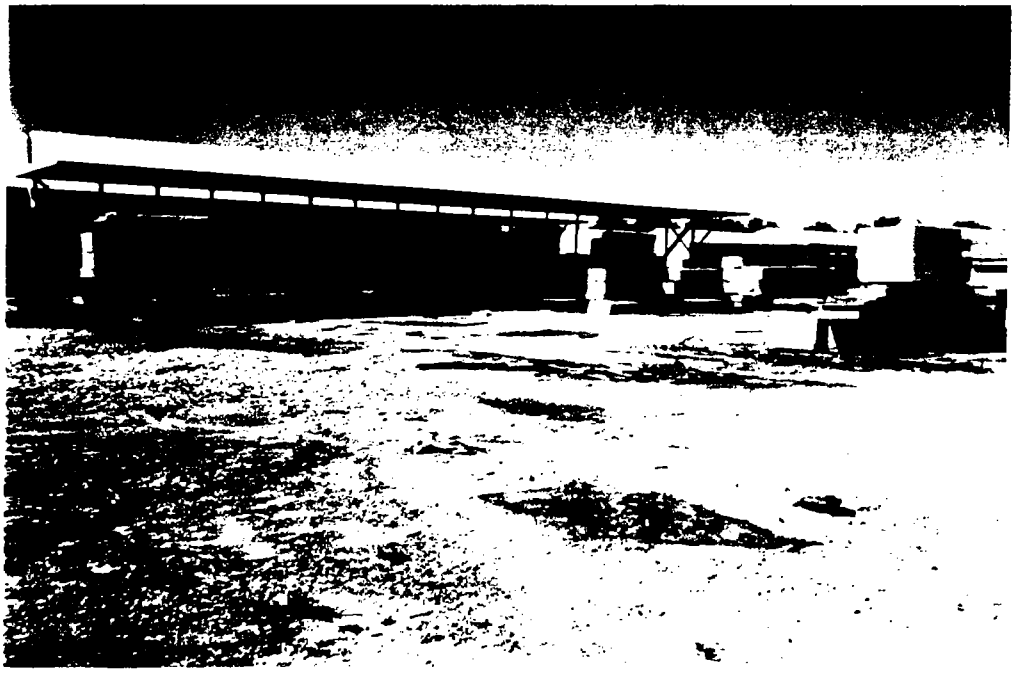

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PREPARED FOR: U.S. EPA Region 5

PREPARED BY: Laura Peterson/CH2M HILL

DATE: December 27, 1994

SUBJECT: Statistical Comparison of Onsite versus Offsite Constituent Concentrations for the Carter-Lee Lumber Remedial Investigation

PROJECT: GLE65616.RI.RI

Introduction

This technical memorandum describes the statistical methods and assumptions used to determine whether or not concentrations of onsite soil constituents were statistically different than those detected offsite. Offsite soil samples were collected both off the CLL Company property and on the property, but away from the site where red soil had been spread in the past (A complete description is found in Section 1.0).

Methodology and Assumptions

The following assumptions were made during the statistical analysis:

- The environmental data are distributed log normally
- A constituent that was not detected at the method reporting limit was assumed to exist at half that limit when it was detected in at least one other sample within a sample data set.
- A constituent with an estimated "J" qualifier was used and counted at full value.
- A constituent with a rejected "R" qualifier was not used in any of the calculations.

Offsite and onsite data sets were compared to each other using an F-test (to determine equality of variances) and unequal variance or equal variance t-test (for comparison of means). If the probability (P) for the F-test was less than or equal to 0.05 (meaning P was greater than 95 percent that the variances were unequal), the t-test assuming unequal variances was run. If P was greater than 0.05 (meaning the probability was less than 95 percent that the variances were unequal), the equal variance t-test was run.

If P for the t-test was greater than 0.05 (meaning the probability was less than 95 percent that the means were statistically different), the onsite data were not considered statistically different than the offsite data. If P was less than or equal to 0.05 (meaning the probability was greater than 95 percent that the means were statistically different), the onsite data were considered statistically different than offsite data.

Table TM4-1 summarizes the median, maximum, and minimum concentrations of constituents in both onsite and offsite soil samples. The results of the t-test are included in the table. For the statistical comparison, an onsite or offsite background constituent that was not detected at the method reporting limit was assumed to exist at half the limit when it was detected in at least one other sample within a sample data set. For these cases, the median and maximum concentrations shown in Tables 4-1 and 4-2 in Section 4 of the report may be greater than the actual concentrations reported because of a high method reporting limit.

Conclusions

Results of the t-test indicated no statistical difference between offsite and onsite results for VOCs, SVOCs, and pesticides. For inorganics, statistical results indicated that calcium and magnesium concentrations were statistically greater onsite than offsite. For the remaining inorganic compounds, the results indicated either no statistical difference between offsite and onsite results, or offsite concentrations were statistically greater than onsite concentrations.

Table TM4-1
Statistical Summary Table for Soil
Carter-Lee Lumber
(Page 1 of 2)

Compound	Median		Maximum Value		Minimum Value		T-test	Statistical
	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	(P(T< t)	Difference
Volatiles (ug/kg)								
Toluene	6.0	10.8	160	130	1.0	3.0	0.23	No
Semi-volatiles (ug/kg)								
Naphthalene	217	214	60000	2200	21	34	0.98	No
2-Methylnaphthalene	227	182	60000	1400	25	28	0.62	No
Acenaphthylene	155	128	19000	1800	24	21	0.62	No
Acenaphthene	206	166	20000	1800	28	32	0.58	No
Dibenzofuran	190	140	9000	1200	30	19	0.40	No
Fluorene	171	143	30000	610	23	23	0.69	No
Phenanthrene	1106	672	370000	6500	28	60	0.37	No
Anthracene	303	270	70000	1200	39	45	0.80	No
Carbazole	232	157	49000	580	42	42	0.35	No
Di-n-butylphthalate	168	115	60000	1800	20	20	0.39	No
Fluoranthene	1196	875	790000	8400	29	74	0.59	No
Pyrene	1331	1022	800000	15000	28	74	0.66	No
Benzo[a]anthracene	908	575	360000	5300	22	59	0.39	No
Chrysene	1170	631	410000	6400	35	70	0.24	No
bis(2-Ethylhexyl)phthalate	379	247	14000	3600	61	39	0.18	No
Di-n-octylphthalate	215	188	60000	3600	29	19	0.76	No
Benzo[b]fluoranthene	1261	848	290000	12000	180	130	0.94	No
Benzo[k]fluoranthene	880	454	290000	5700	180	170	0.15	No
Benzo[a]pyrene	1019	549	360000	7800	180	58	0.22	No
Indeno[1,2,3-cd]pyrene	763	327	90000	3600	140	29	0.051	No
Dibenz[a,h]anthracene	314	259	60000	3600	23	78	0.65	No
Benzo[g,h,i]perylene	620	388	140000	6200	120	84	0.30	No
Pesticides/PCBs (ug/kg)								
Heptachlor (a)	0.98	1.14	1.15	4.2	0.9	0.95	0.23	No
Heptachlor epoxide	1.58	1.19	5.1	5.6	0.9	0.9	0.30	No
4,4'-DDE (a)	1.90	2.22	2.2	46	1.8	1.7	0.47	No
Endrin	5.13	3.09	19	15	1.8	1.7	0.11	No
Endosulfan II	2.19	2.38	6.5	21	1.8	1.7	0.67	No
4,4'-DDD	2.21	1.98	7.6	4.6	1.8	1.7	0.52	No
Endosulfan sulfate (a)	1.90	2.20	2.2	28	1.8	1.7	0.45	No
4,4'-DDT	3.87	4.71	14	140	1.8	1.7	0.62	No
Methoxychlor	15.30	10.76	84	46	9	9	0.09	No
Endrin ketone	4.50	2.41	44	33	1.8	1.7	0.21	No
alpha-Chlordane	1.35	1.57	4.8	24	0.9	0.9	0.69	No
gamma-Chlordane	1.98	1.51	10	25	0.9	0.9	0.50	No
Aroclor-1254 (a)	19.02	20.48	22	35	18	17	0.11	No

Table TM4-1
Statistical Summary Table for Soil
Carter-Lee Lumber
(Page 2 of 2)

Compound	Median		Maximum Value		Minimum Value		T-test	Statistical
	Offsite	Onsite	Offsite	Onsite	Offsite	Onsite	(P(T< t)	Difference
Metals (mg/kg)								
Aluminum	6726	4821	16000	14900	2740	1750	0.030	Yes*
Antimony	8.5	5.9	32.9	10.0	6.8	3.4	0.002	Yes*
Arsenic	7.0	11.3	257.0	197.0	0.2	2.6	0.290	No
Barium	70.3	43.4	198.0	328.0	14.9	1.2	0.040	Yes*
Beryllium	0.7	0.6	2.0	151.0	0.3	0.2	0.520	No
Cadmium	1.3	0.7	5.6	1.3	0.9	0.1	0.001	Yes*
Calcium	30566	80737	107000	198000	2250	4460	0.001	Yes
Chromium	15.5	20.5	48.9	439.0	7.6	5.3	0.210	No
Cobalt	7.1	5.9	16.9	15.3	3.3	2.5	0.140	No
Copper	55.4	22.4	6970.0	114.0	12.1	4.1	0.010	Yes*
Iron	17564	16458	39200	161000	7190	5030	0.730	No
Lead	90.5	42.8	2270.0	376.0	14.6	2.9	0.040	Yes*
Magnesium	10400	17953	39400	59000	1480	605	0.048	Yes
Manganese	489	468	1400	1280	252	220	0.730	No
Mercury	0.1	0.1	0.4	0.5	0.1	0.1	0.650	No
Nickel	17.4	20.7	39.9	173.0	7.0	6.2	0.360	No
Potassium	975	634	2130	1250	511	169	0.001	Yes*
Selenium	0.5	0.4	4.0	3.5	0.2	0.2	0.290	No
Silver	0.9	0.8	1.0	2.4	0.8	0.4	0.030	Yes*
Sodium	133.0	104.8	1510.0	332.0	28.2	29.3	0.230	No
Thallium	0.3	0.2	0.5	0.5	0.2	0.1	0.005	Yes*
Vanadium	22.1	15.3	45.9	88.6	10.5	5.3	0.010	Yes*
Zinc	127.0	76.4	424.0	564.0	29.4	11.6	0.034	Yes*
Cyanide	0.4	0.5	0.6	2.1	0.3	0.3	0.630	No

Notes

a. No background detections for valid statistical background computations. One-half the detection limit was used

* Indicates offsite concentration is statistically higher than onsite concentration

APPENDIX B
DATA TABLES AND DATA VALIDATION TECHNICAL MEMORANDUMS

ATTACHMENT B-1
DATA VALIDATION TECHNICAL MEMORANDUMS

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLBK01-1	CLBK01-2	CLBK01-3	CLBK02	CLBK04	CLBK05	CLBK07	CLBK08	CLBK09
Sample Number:		ELG33	ELG34	ELG35	ELG11	ELG14	ELG15	ELG13	ELG01	ELG02
Date Sampled:		11-5-92	11-5-92	11-5-92						
Media:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles	**Units**									
Chloromethane	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
Bromomethane	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
Vinyl Chloride	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
Chloroethane	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
Methylene Chloride	µg/L	14 J	12 U	9 J	12	14	42	12		
Acetone	µg/L	13 UJ	12 U	11 U	19	11 U	11 U	16		
Carbon Disulfide	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
1,1-Dichloroethene	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
1,1-Dichloroethane	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
1,2-Dichloroethene (total)	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
Chloroform	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
1,2-Dichloroethane	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
2-Butanone (MEK)	µg/L	13 UJ	12 U	11 U	11 U	11 U	11 U	11 U		
1,1,1-Trichloroethane	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
Carbon Tetrachloride	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
Bromodichloromethane	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
1,2-Dichloropropane	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
cis-1,3-Dichloropropene	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
Trichloroethene	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
Dibromochloromethane	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
1,1,2-Trichloroethane	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
Benzene	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
trans-1,3-Dichloropropene	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
Bromoform	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 U		
4-Methyl-2-Pentanone	µg/L	13 UJ	12 U	11 U	11 UJ	11 U	11 UJ	11 UJ		
2-Hexanone	µg/L	13 UJ	12 U	11 U	11 UJ	11 UJ	11 UJ	11 UJ		
Tetrachloroethene	µg/L	13 UJ	12 U	11 U	11 UJ	11 UJ	11 UJ	11 UJ		
1,1,2,2-Tetrachloroethane	µg/L	13 UJ	12 U	11 U	11 UJ	11 UJ	11 UJ	11 UJ		
Toluene	µg/L	160 J	12 U	6 J	5 J	11 UJ	2 J	1 J		
Chlorobenzene	µg/L	13 UJ	12 U	11 U	11 UJ	11 UJ	11 UJ	11 UJ		
Ethylbenzene	µg/L	13 UJ	12 U	11 U	11 UJ	11 UJ	11 UJ	11 UJ		
Styrene	µg/L	13 UJ	12 U	11 U	11 UJ	11 UJ	11 UJ	11 UJ		
Xylene (mixed)	µg/L	13 UJ	12 U	11 U	11 UJ	11 UJ	2 J	11 UJ		
Semivolatiles	**Units**									
Phenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 UJ
bis(2-chloroethyl)ether	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2-Chlorophenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
1,3-Dichlorobenzene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
1,4-Dichlorobenzene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
1,2-Dichlorobenzene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2-Methylphenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2,2'-oxybis(1-Chloropropane)	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
4-Methylphenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
N-Nitroso-di-n-propylamine	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Hexachloroethane	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Nitrobenzene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Isophorone	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2-Nitrophenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2,4-Dimethylphenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
bis(2-Chloroethoxy)methane	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2,4-Dichlorophenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
1,2,4-Trichlorobenzene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Naphthalene	µg/L	40 J	390 U	350 U	21 J	360 U	2900 J	35 J	390 U	120000 U
4-Chloroaniline	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Hexachlorobutadiene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
4-Chloro-3-methylphenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2-Methylnaphthalene	µg/L	53 J	390 U	350 U	29 J	25 J	2400 J	27 J	390 U	120000 U
Hexachlorocyclopentadiene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2,4,6-Trichlorophenol	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2,4,5-Trichlorophenol	µg/L	1100 U	940 U	850 U	890 U	870 U	9100 UJ	900 U	940 U	310000 U
2-Chloronaphthalene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
2-Nitroaniline	µg/L	1100 U	940 U	850 U	890 U	870 U	9100 UJ	900 U	940 U	310000 U
Dimethylphthalate	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Acenaphthylene	µg/L	440 U	390 U	350 U	370 U	360 U	590 J	54 J	26 J	19000 J
2,6-Dinitrotoluene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
3-Nitroaniline	µg/L	1100 U	940 U	850 U	890 U	870 U	9100 UJ	900 U	940 U	310000 U
Acenaphthene	µg/L	28 J	390 U	350 U	40 J	360 U	1700 J	56 J	390 U	20000 J
2,4-Dinitrophenol	µg/L	1100 U	940 U	850 U	890 U	870 U	9100 UJ	900 U	940 U	310000 U
4-Nitrophenol	µg/L	1100 U	940 U	850 U	890 U	870 U	9100 UJ	900 U	940 U	310000 U
Dibenzofuran	µg/L	30 J	390 U	350 U	41 J	360 U	1800 J	38 J	390 U	9000 J
2,4-Dinitrotoluene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Diethylphthalate	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
4-Chlorophenyl-phenylether	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Fluorene	µg/L	42 J	390 U	350 U	47 J	360 U	3500 J	58 J	390 U	30000 J
4-Nitroaniline	µg/L	1100 U	940 U	850 U	890 U	870 U	9100 UJ	900 U	940 U	310000 U
4,6-Dinitro-2-methylphenol	µg/L	1100 U	940 U	850 U	890 U	870 U	9100 UJ	900 U	940 U	310000 U
N-Nitrosodiphenylamine	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
4-Bromophenyl-phenylether	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Hexachlorobenzene	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Pentachlorophenol	µg/L	1100 U	940 U	850 U	890 U	870 U	9100 UJ	900 U	940 U	310000 U
Phenanthrene	µg/L	500	390 U	350 U	260 J	28 J	22000	780	62 J	370000
Anthracene	µg/L	84 J	390 U	350 U	57 J	360 U	4900 J	160 J	390 U	70000 J
Carbazole	µg/L	44 J	390 U	350 U	42 J	360 U	2000 J	76 J	390 U	49000 J
Di-n-butylphthalate	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	20 J	390 U	120000 U
Fluoranthene	µg/L	550	29 J	350 U	370	43 J	18000	1300	150 J	790000
Pyrene	µg/L	430 J	28 J	350 U	300 J	72 J	20000	1400	180 J	800000
Butylbenzylphthalate	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
3,3'-Dichlorobenzidine	µg/L	440 U	390 U	350 U	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Benzo(a)anthracene	µg/L	270 J	390 U	350 U	240 J	22 J	8700 J	660	180 J	360000
Chrysene	µg/L	300 J	390 U	350 U	360 J	35 J	9100 J	700	210 J	410000
bis(2-Ethylhexyl)phthalate	µg/L	61 J	230 J	28 J	810 B	360 U	3700 UJ	830 B	390 U	14000 J
Di-n-octylphthalate	µg/L	32 J	35 J	35 J	370 U	360 U	3700 UJ	370 U	390 U	120000 U
Benzo(b)fluoranthene	µg/L	280 J	390 U	350 U	310 J	360 U	5400 J	660	240 J	290000
Benzo[k]fluoranthene	µg/L	200 J	390 U	350 U	240 J	360 U	5900 J	660	190 J	290000

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location		CLBKH-1	CLBKH-2	CLBKH-3	CLBK02	CLBK04	CLBK05	CLBK07	CLBK08	CLBK09
Sample Number		ELG33	ELG34	ELG36	ELG11	ELG14	ELG15	ELG13	ELG01	ELG02
Date Sampled		11-5-92	11-5-92	11-5-92						
Media		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Semivolatiles	**Units**									
Benzo(a)pyrene	ug/kg	[illegible]	[illegible]	[illegible]	220 J	360 J	9600 J	540	220 J	360000
Indeno(1,2,3-cd)pyrene	ug/kg	[illegible]	[illegible]	[illegible]	160 J	360 J	3100 J	450	210 J	90000 J
Dibenz(a,h)anthracene	ug/kg	440 U	390 U	350 U	360 U	360 U	3700 UJ	370 U	42 J	120000 U
Benzo(g,h,i)perylene	ug/kg	440	[illegible]	350	120 J	360	2700 J	370 J	140 J	140000
Pesticides/PCBs	**Units**									
alpha-BHC	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
beta-BHC	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
delta-BHC	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
gamma-BHC (Lindane)	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
Heptachlor	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
Aldrin	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
Heptachlor epoxide	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
Endosulfan I	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
Dieldrin	ug/kg	4.4 U	3.9 U	3.5 U	3.6 U	3.6 U	3.7 U	3.7 U		
4,4'-DDE	ug/kg	4.4 U	3.9 U	3.5 U	3.6 U	3.6 U	3.7 U	3.7 U		
Endrin	ug/kg	7.8 J	3.9 U	3.5 U	3.6 U	3.6 U	3.7 U	11 J		
Endosulfan II	ug/kg	4.4 U	3.9 U	3.5 U	3.6 U	3.6 U	6.5 J	3.7 U		
4,4'-DDD	ug/kg	4.4 U	3.9 U	3.5 U	3.6 U	3.6 U	3.7 U	3.7 U		
Endosulfan sulfate	ug/kg	4.4 U	3.9 U	3.5 U	3.6 U	3.6 U	3.7 U	3.7 U		
4,4'-DDT	ug/kg	5.7 J	3.9 U	3.5 U	3.6 U	3.6 U	3.7 U	8.5 J		
Methoxychlor	ug/kg	23 U	20 U	18 U	19 U	18 U	19 U	19 U		
Endrin ketone	ug/kg	4.4 U	3.9 U	3.5 U	3.6 U	3.6 U	3.7 U	3.7 U		
Endrin aldehyde	ug/kg	4.4 U	3.9 U	3.5 U	3.6 U	3.6 U	3.7 U	3.7 U		
alpha-Chlordane	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
gamma-Chlordane	ug/kg	2.3 U	2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U		
Toxaphene	ug/kg	230 U	200 U	180 U	190 U	180 U	190 U	190 U		
Aroclor-1016	ug/kg	44 U	39 U	35 U	36 U	36 U	37 U	37 U		
Aroclor-1221	ug/kg	88 U	79 U	71 U	74 U	73 U	76 U	75 U		
Aroclor-1232	ug/kg	44 U	39 U	35 U	36 U	36 U	37 U	37 U		
Aroclor-1242	ug/kg	44 U	39 U	35 U	36 U	36 U	37 U	37 U		
Aroclor-1248	ug/kg	44 U	39 U	35 U	36 U	36 U	37 U	37 U		
Aroclor-1254	ug/kg	44 U	39 U	35 U	36 U	36 U	37 U	37 U		
Aroclor-1260	ug/kg	44 U	39 U	35 U	36 U	36 U	37 U	37 U		

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLBK10		CLBK11		CLBK12		CLBK13		CLBK14		CLBK15		CLBK16		CLBK17		CLSS01-A	
Sample Number:		ELG03		ELG04		ELG05		ELG06		ELG07		ELG08		ELG09		ELG10		ELG18	
Date Sampled:																			
Media:		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Volatiles	**Units**																		
Chloromethane	µg/L																	13	U
Bromomethane	µg/L																	13	U
Vinyl Chloride	µg/L																	13	U
Chloroethane	µg/L																	13	U
Methylene Chloride	µg/L																	17	
Acetone	µg/L																	14	
Carbon Disulfide	µg/L																	13	U
1,1-Dichloroethene	µg/L																	13	U
1,1-Dichloroethane	µg/L																	13	U
1,2-Dichloroethene (total)	µg/L																	13	U
Chloroform	µg/L																	13	U
1,2-Dichloroethane	µg/L																	13	U
2-Butanone (MEK)	µg/L																	13	U
1,1,1-Trichloroethane	µg/L																	13	U
Carbon Tetrachloride	µg/L																	13	U
Bromodichloromethane	µg/L																	13	U
1,2-Dichloropropane	µg/L																	13	U
cis-1,3-Dichloropropene	µg/L																	13	U
Trichloroethene	µg/L																	13	U
Dibromochloromethane	µg/L																	13	U
1,1,2-Trichloroethane	µg/L																	13	U
Benzene	µg/L																	13	U
trans-1,3-Dichloropropene	µg/L																	13	U
Bromoform	µg/L																	13	U
4-Methyl-2-Pentanone	µg/L																	13	U
2-Hexanone	µg/L																	13	U
Tetrachloroethene	µg/L																	13	U
1,1,2,2-Tetrachloroethane	µg/L																	13	U
Toluene	µg/L																	3	J
Chlorobenzene	µg/L																	13	U
Ethylbenzene	µg/L																	13	U
Styrene	µg/L																	13	U
Xylene (mixed)	µg/L																	13	U
Semivolatiles	**Units**																		
Phenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
bis(2-chloroethyl)ether	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2-Chlorophenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
1,3-Dichlorobenzene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
1,4-Dichlorobenzene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
1,2-Dichlorobenzene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2-Methylphenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2,2'-oxybis(1-Chloropropane)	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
4-Methylphenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
N-Nitroso-di-n-propylamine	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Hexachloroethane	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Nitrobenzene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Isophorone	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2-Nitrophenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2,4-Dimethylphenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
bis(2-Chloroethoxy)methane	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2,4-Dichlorophenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
1,2,4-Trichlorobenzene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Naphthalene	µg/L	170	J	67	J	100	J	350	U	100	J	200	J	150	J	260	J	34	J
4-Chloroaniline	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Hexachlorobutadiene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
4-Chloro-3-methylphenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2-Methylnaphthalene	µg/L	180	J	100	J	220	J	350	U	160	J	160	J	140	J	420		28	J
Hexachlorocyclopentadiene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2,4,6-Trichlorophenol	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2,4,5-Trichlorophenol	µg/L	930	U	890	U	930	U	860	U	940	U	860	U	880	U	890	U	1100	U
2-Chloronaphthalene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
2-Nitroaniline	µg/L	930	U	890	U	930	U	860	U	940	U	860	U	880	U	890	U	1100	U
Dimethylphthalate	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Acenaphthylene	µg/L	260	J	24	J	41	J	48	J	390	U	300	J	340	J	390		59	J
2,6-Dinitrotoluene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
3-Nitroaniline	µg/L	930	U	890	U	930	U	860	U	940	U	860	U	880	U	890	U	1100	U
Acenaphthene	µg/L	230	J	60	J	380	U	350	U	28	J	300	J	700		340	J	57	J
2,4-Dinitrophenol	µg/L	930	U	890	U	930	U	860	U	940	U	860	U	880	U	890	U	1100	U
4-Nitrophenol	µg/L	930	U	890	U	930	U	860	U	940	U	860	U	880	U	890	U	1100	U
Dibenzofuran	µg/L	140	J	43	J	380	U	350	U	82	J	290	J	450		190	J	41	J
2,4-Dinitrotoluene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Diethylphthalate	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
4-Chlorophenyl-phenylether	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Fluorene	µg/L	260	J	38	J	39	J	350	U	390	U	470		840		160	J	67	J
4-Nitroaniline	µg/L	930	U	890	U	930	U	860	U	940	U	860	U	880	U	890	U	1100	U
4,6-Dinitro-2-methylphenol	µg/L	930	U	890	U	930	U	860	U	940	U	860	U	880	U	890	U	1100	U
N-Nitrosodiphenylamine	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
4-Bromophenyl-phenylether	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Hexachlorobenzene	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Pentachlorophenol	µg/L	930	U	890	U	930	U	860	U	940	U	860	U	880	U	890	U	1100	U
Phenanthrene	µg/L	3000		660		1000		170	J	560		2500		9400	D	5000	D	900	
Anthracene	µg/L	630		160	J	180	J	39	J	83	J	680		1400		790		210	J
Carbazole	µg/L	550		78	J	65	J	350	U	64	J	370		1200		470		99	J
Di-n-butylphthalate	µg/L	110	J	150	J	82	J	47	J	28	J	350	U	41	J	370	U	23	J
Fluoranthene	µg/L	2700		950		830		320	J	630		2300		2800		9100	D	1400	
Pyrene	µg/L	3100	E	1000		810		400		710		5600	D	12000	D	7600	D	1300	
Butylbenzylphthalate	µg/L	380	UJ	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
3,3'-Dichlorobenzidine	µg/L	380	UJ	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Benzo(a)anthracene	µg/L	1900	J	570		560		310	J	380	J	2800		6300	D	5200	D	980	
Chrysene	µg/L	3000	J	790		670		400		570		3600	D	7100	D	5900	D	870	
bis(2-Ethylhexyl)phthalate	µg/L	620	J	370	U	380	U	350	U	640		350	U	450	B	860		440	U
Di-n-octylphthalate	µg/L	380	U	370	U	380	U	350	U	390	U	350	U	360	U	370	U	440	U
Benzo(b)fluoranthene	µg/L	3900	E	800		530		380		350	J	2600		5400	D	5200	D	720	J
Benzo(k)fluoranthene	µg/L	2400		450		450		240	J	330	J	1200		1300		3400	D	450	J

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
September 1992

	Station Location:	CLSS19	CLSS11	CLSS12	CLSS13	CLSS14	CLSS15	CLSS16	CLSS17	CLSS01-A	
	Sample Number:	ELG03	ELG04	ELG05	ELG06	ELG07	ELG08	ELG09	ELG10	ELG18	
	Date Sampled:										
	Matrix:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
[illegible]	Units:										
[illegible]	ug/L	[illegible]	540	46	310 J	960 J	1100	5400 J	4400 U	620	
[illegible]	ug/L	1900	680	83	290 J	970 J	2400	5900 J	5100 U	680	
[illegible]	ug/L	1400	570 J	80 J	25 J	390 J	500	780	870	440	U
[illegible]	ug/L	280	190 J	27 J	210 J	240 J	220	220	1400	630	
[illegible]	Units:										
[illegible]	ug/L									2.3	U
[illegible]	ug/L									2.3	U
[illegible]	ug/L									2.3	U
[illegible]	ug/L									2.3	U
[illegible]	ug/L									2.3	U
[illegible]	ug/L									2.3	U
[illegible]	ug/L									2.4	J
[illegible]	ug/L									2.3	U
[illegible]	ug/L									4.4	U
[illegible]	ug/L									4.4	U
[illegible]	ug/L									5.8	J
[illegible]	ug/L									4.4	U
[illegible]	ug/L									4.4	U
[illegible]	ug/L									4.4	U
[illegible]	ug/L									14	
[illegible]	ug/L									23	U
[illegible]	ug/L									4.4	U
[illegible]	ug/L									4.4	U
[illegible]	ug/L									24	J
[illegible]	ug/L									21	J
[illegible]	ug/L									230	U
[illegible]	ug/L									44	U
[illegible]	ug/L									89	U
[illegible]	ug/L									44	U
[illegible]	ug/L									44	U
[illegible]	ug/L									44	U
[illegible]	ug/L									44	U
[illegible]	ug/L									44	U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLSS01-B	CLSS02-A	CLSS02-B	CLSS03-A	CLSS03-B	CLSS04	CLSB01-1	CLSB01-2	CLSB01-3
Sample Number:		ELG19	ELG21	ELG22	ELG17	ELG16	ELG31	ELG50	ELG52	ELG54
Date Sampled:			11-3-92	11-3-92			11-4-92	11-6-92	11-6-92	11-6-92
Media:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles	Units									
Chloromethane	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
Bromomethane	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
Vinyl Chloride	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
Chloroethane	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
Methylene Chloride	µg/L	34	19	4 J	36	15	8 J	11 U	38 J	3 J
Acetone	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	170 J	61
Carbon Disulfide	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
1,1-Dichloroethene	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
1,1-Dichloroethane	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
1,2-Dichloroethene (total)	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
Chloroform	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
1,2-Dichloroethane	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
2-Butanone (MEK)	µg/L	12 U	11 U	11 U	11 U	14 U	12 U	11 U	11 UJ	11 U
1,1,1-Trichloroethane	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
Carbon Tetrachloride	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
Bromodichloromethane	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
1,2-Dichloropropane	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
cis-1,3-Dichloropropene	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
Trichloroethene	µg/L	12 UJ	11 U	2 J	11 U	14 U	12 UJ	11 U	11 UJ	11 U
Dibromochloromethane	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
1,1,2-Trichloroethane	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
Benzene	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
trans-1,3-Dichloropropene	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
Bromoform	µg/L	12 UJ	11 U	11 U	11 U	14 U	12 UJ	11 U	11 UJ	11 U
4-Methyl-2-Pentanone	µg/L	12 UJ	11 U	11 U	11 UJ	14 U	12 UJ	11 U	11 UJ	11 U
2-Hexanone	µg/L	12 UJ	11 U	11 U	11 UJ	14 U	12 UJ	11 U	11 UJ	11 U
Tetrachloroethene	µg/L	12 UJ	11 U	11 U	11 UJ	14 U	12 UJ	11 U	11 UJ	11 U
1,1,2,2-Tetrachloroethane	µg/L	12 UJ	11 U	11 U	11 UJ	14 U	12 UJ	11 U	11 UJ	11 U
Toluene	µg/L	12 UJ	11 U	4 J	11 UJ	14 U	5 J	11 U	8 J	5 J
Chlorobenzene	µg/L	5 J	11 U	11 U	11 UJ	14 U	12 UJ	11 U	11 UJ	11 U
Ethylbenzene	µg/L	12 UJ	11 U	11 U	11 UJ	14 U	12 UJ	11 U	11 UJ	11 U
Styrene	µg/L	12 UJ	11 U	11 U	11 UJ	14 U	12 UJ	11 U	11 UJ	11 U
Xylene (mixed)	µg/L	12 UJ	11 U	11 U	11 UJ	14 U	4 J	11 U	11 UJ	11 U
Semivolatiles	Units									
Phenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
bis(2-chloroethyl)ether	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2-Chlorophenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
1,3-Dichlorobenzene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
1,4-Dichlorobenzene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
1,2-Dichlorobenzene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2-Methylphenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2,2'-oxybis(1-Chloropropane)	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
4-Methylphenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
N-Nitroso-di-n-propylamine	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Hexachloroethane	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Nitrobenzene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Isophorone	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2-Nitrophenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2,4-Dimethylphenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
bis(2-Chloroethoxy)methane	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2,4-Dichlorophenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
1,2,4-Trichlorobenzene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Naphthalene	µg/L	65 J	260 J	360 U	38 J	140 J	87 J	360 U	3600 U	350 U
4-Chloroaniline	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Hexachlorobutadiene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
4-Chloro-3-methylphenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2-Methylnaphthalene	µg/L	47 J	360 J	360 U	34 J	380 J	140 J	360 U	240 J	350 U
Hexachlorocyclopentadiene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2,4,6-Trichlorophenol	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2,4,5-Trichlorophenol	µg/L	950 U	910 U	880 U	890 U	1100 U	960 U	880 U	8700 U	850 U
2-Chloronaphthalene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
2-Nitroaniline	µg/L	950 U	910 U	880 U	890 U	1100 U	960 U	880 U	8700 U	850 U
Dimethylphthalate	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Acenaphthylene	µg/L	110 J	150 J	360 U	35 J	110 J	400 U	22 J	3600 U	350 U
2,6-Dinitrotoluene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
3-Nitroaniline	µg/L	950 U	910 U	880 U	890 U	1100 U	960 U	880 U	8700 U	850 U
Acenaphthene	µg/L	140 J	36 J	360 U	85 J	32 J	400 U	35 J	3600 U	350 U
2,4-Dinitrophenol	µg/L	950 U	910 U	880 U	890 U	1100 U	960 U	880 U	8700 U	850 U
4-Nitophenol	µg/L	950 U	910 U	880 U	890 U	1100 U	960 U	880 U	8700 U	850 U
Dibenzofuran	µg/L	100 J	110 J	360 U	55 J	93 J	55 J	19 J	220 J	350 U
2,4-Dinitrotoluene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Diethylphthalate	µg/L	64 J	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
4-Chlorophenyl-phenylether	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Fluorene	µg/L	190 J	49 J	360 U	83 J	42 J	400 U	34 J	230 J	350 U
4-Nitroaniline	µg/L	950 U	910 U	880 U	890 U	1100 U	960 U	880 U	8700 U	850 U
4,6-Dinitro-2-methylphenol	µg/L	950 U	910 U	880 U	890 U	1100 U	960 U	880 U	8700 U	850 U
N-Nitrosodiphenylamine	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
4-Bromophenyl-phenylether	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Hexachlorobenzene	µg/L	390 U	370 U	360 U	370 U	450 U	400 U	360 U	3600 U	350 U
Pentachlorophenol	µg/L	950 U	910 U	880 U	890 U	1100 U	960 U	880 U	8700 U	850 U
Phenanthrene	µg/L	2000	750	60 J	1100	660	310 J	410	1900 J	850 U
Anthracene	µg/L	520	170 J	360 U	230 J	150 J	39 J	110 J	420 J	350 U
Carbazole	µg/L	240 J	60 J	360 U	81 J	94 J	400 U	42 J	290 J	350 U
Di-n-butylphthalate	µg/L	390 U	44 J	360 U	20 J	30 J	40 J	27 J	3600 U	350 U
Fluoranthene	µg/L	2600	990	74 J	1400	1000	290 J	770	1600 J	850 U
Pyrene	µg/L	2600	990	74 J	1800	970 J	280 J	750	4100 J	350 U
Butylbenzylphthalate	µg/L	390 U	370 U	360 U	370 U	450 UJ	400 U	360 U	3600 J	350 U
3,3'-Dichlorobenzidine	µg/L	390 U	370 U	360 U	370 U	450 UJ	400 U	360 U	3600 J	350 U
Benzo(a)anthracene	µg/L	1800	710	59 J	790	730 J	160 J	400	1500 J	350 U
Chrysene	µg/L	1800	800	70 J	740	810 J	220 J	390	2100 J	350 U
bis(2-Ethylhexyl)phthalate	µg/L	390 U	370 U	360 U	370 U	450 U	250 J	360 U	3600 J	350 U
Di-n-octylphthalate	µg/L	390 U	370 U	360 U	370 U	450 UJ	60 J	19 J	3600 J	350 U
Benzo[b]fluoranthene	µg/L	1200 J	1600	360 U	680	1100 J	180 J	470	3600 J	350 U
Benzo[k]fluoranthene	µg/L	1000 J	370 U	360 U	610	410 J	91 J	320 J	3600 J	350 U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLSS01-B	CLSS02-A	CLSS02-B	CLSS03-A	CLSS03-B	CLSS04	CLSS01-1	CLSS01-2	CLSS01-3
Sample Number:		ELG19	ELG21	ELG22	ELG17	ELG16	ELG31	ELG50	ELG52	ELG54
Date Sampled:			11-3-92	11-3-92			11-4-92	11-6-92	11-6-92	11-6-92
Media:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Semivolatiles	Units									
Benzo(a)pyrene	ug/L	[illegible]	[illegible]	55 J	[illegible]	560 J	400 U	590	3600 J	350 U
Indeno(1,2,3-cd)pyrene	ug/L	[illegible]	580 J	390 J	400	450 J	400 U	360 J	3600 J	350 U
Dibenz(a,h)anthracene	ug/L	400 U	370 U	360 U	370 U	450 UJ	400 U	360 U	3600 J	350 U
Benzo(g,h,i)perylene	ug/L	[illegible]	590	490	350 J	400 J	400 J	84 J	3600 J	350 U
Pesticides/PCBs	Units									
alpha-BHC	ug/L	2 U	1.9 U	1.9 U	1.9 U	2.3 U	2 U	1.9 U	1.8 UJ	1.8 U
beta-BHC	ug/L	2 U	1.9 U	1.9 U	1.9 U	2.3 U	2 U	1.9 U	1.8 UJ	1.8 U
delta-BHC	ug/L	2 U	1.9 U	1.9 U	1.9 U	2.3 U	2 U	1.9 U	1.8 UJ	1.8 U
gamma-BHC (Lindane)	ug/L	2 U	1.9 U	1.9 U	1.9 U	2.3 U	2 U	1.9 U	1.8 UJ	1.8 U
Heptachlor	ug/L	2.4 J	1.9 U	1.9 U	1.9 U	2.3 U	3.1 J	1.9 U	1.8 UJ	1.8 U
Aldrin	ug/L	2 U	1.9 U	1.9 U	1.9 U	2.3 U	2 U	1.9 U	1.8 UJ	1.8 U
Heptachlor epoxide	ug/L	2.5 J	1.9 U	1.9 U	2 J	2.3 U	15	1.9 U	1.8 UJ	1.8 U
Endosulfan I	ug/L	2 U	1.9 U	1.9 U	1.9 U	2.3 U	2 U	1.9 U	1.8 UJ	1.8 U
Dieldrin	ug/L	3.8 U	3.7 U	3.6 U	3.7 U	4.5 U	4 U	3.6 U	3.6 UJ	3.5 U
4,4'-DDE	ug/L	3.8 U	3.7 U	3.6 U	3.7 U	4.5 U	27	3.6 U	3.6 UJ	3.5 U
Endrin	ug/L	3.8 U	8.5	5.4	13 J	25	4 U	3.6 U	3.6 UJ	3.5 U
Endosulfan II	ug/L	5.5 J	3.7 U	3.6 U	3.9 J	4.5 U	4 U	3.6 U	3.6 UJ	3.5 U
4,4'-DDD	ug/L	3.8 U	3.7 U	3.6 U	3.7 U	4.5 U	4 U	3.6 U	3.6 UJ	3.5 U
Endosulfan sulfate	ug/L	3.8 U	3.7 U	3.6 U	3.7 U	4.5 U	4 U	3.6 U	3.6 UJ	3.5 U
4,4'-DDT	ug/L	3.8 U	3.7 U	5.6 J	3.7 U	4.5 U	46 J	5.7 J	8.2 J	3.5 U
Methoxychlor	ug/L	20 U	19 U	19 U	19 U	23 U	20 U	19 U	46 J	18
Endrin ketone	ug/L	3.8 U	3.7 U	3.6 U	3.7 U	4.5 U	4 U	3.6 U	15 J	3.5 U
Endrin aldehyde	ug/L	3.8 U	3.7 U	3.6 U	3.7 U	4.5 U	4 U	3.6 U	3.6 UJ	3.5 U
alpha-Chlordane	ug/L	4.5 J	1.9 U	1.9 U	12 J	2.3 U	100 E	1.9 U	1.8 UJ	1.8 U
gamma-Chlordane	ug/L	7.4 J	1.9 U	1.9 U	13	2.3 U	79 E	1.9 U	1.8 UJ	1.8 U
Toxaphene	ug/L	200 U	190 U	190 U	190 U	230 U	200 U	190 U	180 U	180 U
Aroclor-1016	ug/L	38 U	37 U	36 U	37 U	45 U	40 U	36 U	36 U	35 U
Aroclor-1221	ug/L	80 U	76 U	74 U	74 U	91 U	81 U	74 U	73 U	71 U
Aroclor-1232	ug/L	38 U	37 U	36 U	37 U	45 U	40 U	36 U	36 U	35 U
Aroclor-1242	ug/L	38 U	37 U	36 U	37 U	45 U	40 U	36 U	36 U	35 U
Aroclor-1248	ug/L	38 U	37 U	36 U	37 U	45 U	40 U	36 U	36 U	35 U
Aroclor-1254	ug/L	38 U	54 J	36 U	37 U	45 U	40 U	35 J	36 U	35 U
Aroclor-1260	ug/L	38 U	37 U	36 U	37 U	45 U	40 U	36 U	36 U	35 U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLSB02-1	CLSB02-2	CLSB02-3	CLSB03-1	CLSB03-2	CLSB03-3	CLSB04-1	CLSB04-2	CLSB04-3
Sample Number:		ELG44	ELG45	ELG46	ELG40	ELG41	ELG43	ELG27	ELG28	ELG29
Date Sampled:		11-6-92	11-6-92		11-5-92	11-5-92	11-5-92	11-4-92	11-4-92	11-4-92
Media:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles	**Units**									
Chloromethane	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
Bromomethane	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
Vinyl Chloride	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
Chloroethane	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
Methylene Chloride	µg/L	33 J	31 J	11 U	22	7 J	10 U	12	7 J	10 U
Acetone	µg/L	11 UJ	12 UJ	11 U	31	11 U	10 U	23	27	10 U
Carbon Disulfide	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
1,1-Dichloroethene	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
1,1-Dichloroethane	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
1,2-Dichloroethene (total)	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
Chloroform	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
1,2-Dichloroethane	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
2-Butanone (MEK)	µg/L	11 UJ	12 UJ	11 U	11 U	11 U	10 U	11 U	12 U	10 U
1,1,1-Trichloroethane	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Carbon Tetrachloride	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Bromodichloromethane	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
1,2-Dichloropropane	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
cis-1,3-Dichloropropene	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Trichloroethene	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Dibromochloromethane	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
1,1,2-Trichloroethane	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Benzene	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
trans-1,3-Dichloropropene	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Bromoform	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
4-Methyl-2-Pentanone	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
2-Hexanone	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Tetrachloroethene	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
1,1,2,2-Tetrachloroethane	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Toluene	µg/L	6 J	12 UJ	11 U	11 UJ	5 J	4 J	5 J	4 J	5 J
Chlorobenzene	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Ethylbenzene	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Styrene	µg/L	11 UJ	12 UJ	11 U	11 UJ	11 U	10 U	11 U	12 U	10 U
Xylene (mixed)	µg/L	11 UJ	65 J	11 U	11 UJ	11 U	10 U	11 U	12 U	4 J
Semivolatiles	**Units**									
Phenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
bis(2-chloroethyl)ether	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2-Chlorophenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
1,3-Dichlorobenzene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
1,4-Dichlorobenzene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
1,2-Dichlorobenzene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2-Methylphenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2,2'-oxybis(1-Chloropropane)	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
4-Methylphenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
N-Nitroso-di-n-propylamine	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Hexachloroethane	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Nitrobenzene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Isophorone	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2-Nitrophenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2,4-Dimethylphenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
bis(2-Chloroethoxy)methane	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2,4-Dichlorophenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
1,2,4-Trichlorobenzene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Naphthalene	µg/L	110 J	710	350 U	360 U	370 U	340 U	230 J	410 U	340 U
4-Chloroaniline	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Hexachlorobutadiene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
4-Chloro-3-methylphenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2-Methylnaphthalene	µg/L	170 J	520	350 U	360 U	370 U	340 U	180 J	410 U	340 U
Hexachlorocyclopentadiene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2,4,6-Trichlorophenol	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2,4,5-Trichlorophenol	µg/L	920 U	940 U	860 U	870 U	910 U	830 U	890 U	990 U	820 U
2-Chloronaphthalene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
2-Nitroaniline	µg/L	920 U	940 U	860 U	870 U	910 U	830 U	890 U	990 U	820 U
Dimethylphthalate	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Acenaphthylene	µg/L	240 J	100 J	350 U	24 J	370 U	340 U	42 J	410 U	340 U
2,6-Dinitrotoluene	µg/L	380 U	390 U	350 U	360 U	910 U	830 U	370 U	410 U	340 U
3-Nitroaniline	µg/L	920 U	940 U	860 U	870 U	370 U	340 U	890 U	990 U	820 U
Acenaphthene	µg/L	64 J	360 J	350 U	97 J	370 U	340 U	270 J	410 U	340 U
2,4-Dinitrophenol	µg/L	920 U	940 U	860 U	870 U	910 U	830 U	890 U	990 U	820 U
4-Nitophenol	µg/L	920 U	940 U	860 U	870 U	910 U	830 U	890 U	990 U	820 U
Dibenzofuran	µg/L	130 J	350 J	350 U	56 J	370 U	340 U	180 J	410 U	340 U
2,4-Dinitrotoluene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Diethylphthalate	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
4-Chlorophenyl-phenylether	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Fluorene	µg/L	83 J	400	350 U	99 J	370 U	340 U	270 J	410 U	340 U
4-Nitroaniline	µg/L	920 U	940 U	860 U	870 U	910 U	830 U	890 U	990 U	820 U
4,6-Dinitro-2-methylphenol	µg/L	920 U	940 U	860 U	870 U	910 U	830 U	890 U	990 U	820 U
N-Nitrosodiphenylamine	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
4-Bromophenyl-phenylether	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Hexachlorobenzene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Pentachlorophenol	µg/L	920 U	940 U	860 U	870 U	910 U	830 U	890 U	990 U	820 U
Phenanthrene	µg/L	1100	1600	350 U	870	86 J	340 U	2600	410 U	340 U
Anthracene	µg/L	310 J	560	350 U	230 J	370 U	340 U	640	410 U	340 U
Carbazole	µg/L	110 J	120 J	350 U	97 J	370 U	340 U	270 J	410 U	340 U
Di-n-butylphthalate	µg/L	32 J	33 J	31 J	360 U	370 U	340 U	370 U	410 U	340 U
Fluoranthene	µg/L	2700	1200	350 U	1100	140 J	340 U	2600	410 U	340 U
Pyrene	µg/L	3700 D	1200	350 U	1100	120 J	340 U	2600	410 U	340 U
Butylbenzylphthalate	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
3,3'-Dichlorobenzidine	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Benzo[a]anthracene	µg/L	1900	570	350 U	680	72 J	340 U	1700	410 U	340 U
Chrysene	µg/L	2100	580	350 U	680	79 J	340 U	1800	410 U	340 U
bis(2-Ethylhexyl)phthalate	µg/L	380 UJ	390 U	350 U	39 J	370 U	340 U	370 U	410 U	340 U
Di-n-octylphthalate	µg/L	380 UJ	390 U	350 U	360 U	370 U	340 U	21 J	410 U	340 U
Benzo[b]fluoranthene	µg/L	2700 DJ	490	350 U	920 J	130 J	340 U	2400	410 U	340 U
Benzo[k]fluoranthene	µg/L	1200 J	370 J	350 U	320 J	370 U	340 U	370 U	410 U	340 U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

	Station Location:	CLSB02-1	CLSB02-2	CLSB02-3	CLSB03-1	CLSB03-2	CLSB03-3	CLSB04-1	CLSB04-2	CLSB04-3
	Sample Number:	ELG44	ELG45	ELG46	ELG40	ELG41	ELG43	ELG27	ELG28	ELG29
	Date Sampled:	11-4-92	11-4-92		11-5-92	11-5-92	11-5-92	11-4-92	11-4-92	11-4-92
	Media:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Semivolatiles	Units									
Benzo(a)pyrene	µg/L	2100 J	400	350 U	620	54 J	340 U	1900	410 U	340 U
Indeno(1,2,3-cd)pyrene	µg/L	980 J	220 J	350 U	390	29 J	340 U	370 U	410 U	340 U
Dibenz(a,h)anthracene	µg/L	380 U	390 U	350 U	360 U	370 U	340 U	370 U	410 U	340 U
Benzo(g,h,i)perylene	µg/L	440 J	140 J	350 U	200 J	370 U	340 U	370 U	410 U	340 U
Pesticides/PCBs	Units									
alpha-BHC	µg/L	2 U	2 U	1.8 U	1.8 U	1.9 U	1.8 U	1.9 U	2.1 U	1.8 U
beta-BHC	µg/L	2 U	2 U	1.8 U	1.8 U	1.9 U	1.8 U	1.9 U	2.1 U	1.8 U
delta-BHC	µg/L	2 U	2 U	1.8 U	1.8 U	1.9 U	1.8 U	1.9 U	2.1 U	1.8 U
gamma-BHC (Lindane)	µg/L	2 U	2 U	1.8 U	1.8 U	1.9 U	1.8 U	1.9 U	2.1 U	1.8 U
Heptachlor	µg/L	2 U	2 U	1.8 U	1.9 J	1.9 U	1.8 U	1.9 U	2.1 U	1.8 U
Aldrin	µg/L	2 U	2 U	1.8 U	1.8 U	1.9 U	1.8 U	1.9 U	2.1 U	1.8 U
Heptachlor epoxide	µg/L	2 U	2 U	1.8 U	5.6 J	1.9 U	1.8 U	2.4	2.1 U	1.8 U
Endosulfan I	µg/L	2 U	2 U	1.8 U	1.8 U	1.9 U	1.8 U	1.9 U	2.1 U	1.8 U
Dieldrin	µg/L	3.8 U	3.9 U	3.5 U	3.6 U	3.7 U	3.4 U	3.7 U	4.1 U	3.4 U
4,4'-DDE	µg/L	3.8 U	3.9 U	3.5 U	3.6 U	3.7 U	3.4 U	3.7 U	4.1 U	3.4 U
Endrin	µg/L	3.8 U	3.9 U	3.5 U	6 J	3.7 U	3.4 U	22	4.1 U	3.4 U
Endosulfan II	µg/L	3.8 U	3.9 U	3.5 U	3.6 U	3.7 U	3.4 U	3.7 U	4.1 U	3.4 U
4,4'-DDD	µg/L	3.8 U	3.9 U	3.5 U	3.6 U	3.7 U	3.4 U	3.7 U	4.1 U	3.4 U
Endosulfan sulfate	µg/L	3.8 U	5.2	3.5 U	3.6 U	3.7 U	3.4 U	3.7 U	4.1 U	3.4 U
4,4'-DDT	µg/L	11 J	14 J	3.5 U	81	3.7 U	3.4 U	7.9 J	4.1 U	3.4 U
Methoxychlor	µg/L	20 U	20 U	18 U	18 U	19 U	18 U	19 U	21 U	18 U
Endrin ketone	µg/L	3.8 U	4.4 J	3.5 U	3.6 U	3.7 U	3.4 U	3.7 U	4.1 U	3.4 U
Endrin aldehyde	µg/L	3.8 U	3.9 U	3.5 U	3.6 U	3.7 U	3.4 U	3.7 U	4.1 U	3.4 U
alpha-Chlordane	µg/L	2 U	2 U	1.8 U	35 E	1.9 U	1.8 U	22 J	2.1 U	1.8 U
gamma-Chlordane	µg/L	2 U	2 U	1.8 U	40 E	1.9 U	1.8 U	25	2.1 U	1.8 U
Toxaphene	µg/L	200 U	200 U	180 U	180 U	190 U	180 U	190 U	210 U	180 U
Aroclor-1016	µg/L	38 U	39 U	35 U	36 U	37 U	34 U	37 U	41 U	34 U
Aroclor-1221	µg/L	77 U	79 U	72 U	73 U	76 U	70 U	74 U	83 U	69 U
Aroclor-1232	µg/L	38 U	39 U	35 U	36 U	37 U	34 U	37 U	41 U	34 U
Aroclor-1242	µg/L	38 U	39 U	35 U	36 U	37 U	34 U	37 U	41 U	34 U
Aroclor-1248	µg/L	38 U	39 U	35 U	36 U	37 U	34 U	37 U	41 U	34 U
Aroclor-1254	µg/L	38 U	39 U	35 U	36 U	37 U	34 U	37 U	41 U	34 U
Aroclor-1260	µg/L	38 U	39 U	35 U	36 U	37 U	34 U	37 U	41 U	34 U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLSB05-1	CLSB05-2	CLSB06-1	CLSB06-2	CLSB07	CLSB08	CLSB09-1	CLSB09-2	CLSB10-1
Sample Number:		ELG55	ELG56	ELG58	ELG57	ELG59	ELG60	ELG61	ELG62	ELG63
Date Sampled:		11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92
Media:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles	Units									
Chloromethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Bromomethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Vinyl Chloride	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Chloroethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Methylene Chloride	µg/L	12 U	11 U	3 J	2 J	6 J	55 J	11 U	14 B	4 J
Acetone	µg/L	12 U	19	160 J	150	11 U	48 B	45 B	130 J	160
Carbon Disulfide	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
1,1-Dichloroethene	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
1,1-Dichloroethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
1,2-Dichloroethene (total)	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Chloroform	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
1,2-Dichloroethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
2-Butanone (MEK)	µg/L	12 U	11 U	13 UJ	31	11 U	11 U	11 U	14 B	17 U
1,1,1-Trichloroethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Carbon Tetrachloride	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Bromodichloromethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
1,2-Dichloropropane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
cis-1,3-Dichloropropene	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Trichloroethene	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Dibromochloromethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
1,1,2-Trichloroethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Benzene	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
trans-1,3-Dichloropropene	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
Bromoform	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 U	11 U	11 U	17 U
4-Methyl-2-Pentanone	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 UJ	11 U	11 U	17 U
2-Hexanone	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 UJ	11 U	11 U	17 U
Tetrachloroethene	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 UJ	11 U	11 U	17 U
1,1,2,2-Tetrachloroethane	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 UJ	11 U	11 U	17 U
Toluene	µg/L	5 J	11 U	72 J	41	130	110 J	5 J	85	29
Chlorobenzene	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 UJ	11 U	11 U	17 U
Ethylbenzene	µg/L	12 U	11 U	13 UJ	11 U	11 U	2 J	11 U	2 J	17 U
Styrene	µg/L	12 U	11 U	13 UJ	11 U	11 U	11 UJ	11 U	11 U	17 U
Xylene (mixed)	µg/L	12 U	11 U	13 UJ	11 U	11 U	6 J	11 U	3 J	17 U
Semivolatiles	Units									
Phenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
bis(2-chloroethyl)ether	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2-Chlorophenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
1,3-Dichlorobenzene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
1,4-Dichlorobenzene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
1,2-Dichlorobenzene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2-Methylphenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2,2'-oxybis(1-Chloropropane)	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
4-Methylphenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
N-Nitroso-di-n-propylamine	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Hexachloroethane	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Nitrobenzene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Isophorone	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2-Nitrophenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2,4-Dimethylphenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
bis(2-Chloroethoxy)methane	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2,4-Dichlorophenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
1,2,4-Trichlorobenzene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Naphthalene	µg/L	380 U	350 U	420 U	42 J	110 J	360 U	1100 U	350 J	560 U
4-Chloroaniline	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Hexachlorobutadiene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
4-Chloro-3-methylphenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2-Methylnaphthalene	µg/L	380 U	350 U	420 U	49 J	130 J	360 U	1100 U	190 J	560 U
Hexachlorocyclopentadiene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2,4,6-Trichlorophenol	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2,4,5-Trichlorophenol	µg/L	930 U	840 U	1000 U	920 U	2700 U	870 U	2600 U	2700 U	1400 U
2-Chloronaphthalene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
2-Nitroaniline	µg/L	930 U	840 U	1000 U	920 U	2700 U	870 U	2600 U	2700 U	1400 U
Dimethylphthalate	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Acenaphthylene	µg/L	380 U	350 U	29 J	21 J	170 J	360 U	1100 U	49 J	560 U
2,6-Dinitrotoluene	µg/L	380 U	350 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
3-Nitroaniline	µg/L	930 U	840 U	1000 U	920 U	2700 U	870 U	2600 U	2700 U	1400 U
Acenaphthene	µg/L	380 U	350 U	420 U	45 J	1100 U	360 U	250 J	530 J	560 U
2,4-Dinitrophenol	µg/L	930 U	840 U	1000 U	920 U	2700 U	870 U	2600 U	2700 U	1400 U
4-Nitophenol	µg/L	930 U	840 U	1000 U	920 U	2700 U	870 U	2600 U	2700 U	1400 U
Dibenzofuran	µg/L	380 U	840 U	420 U	44 J	100 J	360 U	120 J	360 J	560 U
2,4-Dinitrotoluene	µg/L	380 U	840 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Diethylphthalate	µg/L	380 U	840 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
4-Chlorophenyl-phenylether	µg/L	380 U	840 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Fluorene	µg/L	380 U	840 U	23 J	40 J	85 J	360 U	240 J	610 J	560 U
4-Nitroaniline	µg/L	930 U	840 U	1000 U	920 U	2700 U	870 U	2600 U	2700 U	1400 U
4,6-Dinitro-2-methylphenol	µg/L	930 U	840 U	1000 U	920 U	2700 U	870 U	2600 U	2700 U	1400 U
N-Nitrosodiphenylamine	µg/L	380 U	840 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
4-Bromophenyl-phenylether	µg/L	380 U	840 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Hexachlorobenzene	µg/L	380 U	840 U	420 U	380 U	1100 U	360 U	1100 U	1100 U	560 U
Pentachlorophenol	µg/L	930 U	840 U	1000 U	920 U	2700 U	870 U	2600 U	2700 U	1400 U
Phenanthrene	µg/L	380 U	840 U	300 J	590	1000 J	95 J	2800	4200	340 J
Anthracene	µg/L	380 U	840 U	83 J	150 J	260 J	360 U	740 J	1200	320 J
Carbazole	µg/L	380 U	840 U	50 J	130 J	86 J	360 U	240 J	570 J	62 J
Di-n-butylphthalate	µg/L	380 U	21 J	420 U	29 J	1100 U	21 J	1100 U	1100 U	560 U
Fluoranthene	µg/L	380 U	350 U	830	1200	2400	150 J	3500	4600	650
Pyrene	µg/L	380 U	350 U	630	880	6300 J	280 J	6200 J	8700 J	1100 J
Butylbenzylphthalate	µg/L	380 U	350 U	420 U	380 U	1100 UJ	360 UJ	1100 UJ	1100 UJ	560 UJ
3,3'-Dichlorobenzidine	µg/L	380 U	350 U	420 U	380 U	1100 UJ	360 UJ	1100 UJ	1100 UJ	560 UJ
Benzo(a)anthracene	µg/L	380 U	350 U	330 J	430	2100 J	94 J	2100 J	2800 J	330 J
Chrysene	µg/L	380 U	350 U	410 J	580	2500 J	120 J	2100 J	2800 J	440 J
bis(2-Ethylhexyl)phthalate	µg/L	380 U	350 U	420 U	380 U	1100 UJ	360 UJ	1100 UJ	1100 UJ	560 UJ
Di-n-octylphthalate	µg/L	22 J	350 U	420 U	380 U	1100 UJ	55 J	1100 U	1100 UJ	560 UJ
Benzo(b)fluoranthene	µg/L	380 U	350 U	840	890	4700 J	230 J	3400 J	4100 J	730 J
Benzo(k)fluoranthene	µg/L	380 U	350 U	420 U	1000	1100 UJ	360 UJ	1100 UJ	2100 UJ	890 J

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

	Station Location:	CLS805-1	CLS805-2	CLS806-1	CLS806-2	CLS807	CLS808	CLS809-1	CLS809-2	CLS810-1
	Sample Number:	ELG55	ELG56	ELG58	ELG57	ELG59	ELG60	ELG61	ELG62	ELG63
	Date Sampled:	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92
	Media:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Semivolatiles	Units									
[illegible]	µg/L	380 [illegible]	350 [illegible]	340 [illegible]	440	1400 J	330 J	2100 J	2600 J	350 J
[illegible]	µg/L	380 [illegible]	350 [illegible]	420 [illegible]	350 J	1100 UJ	360 UJ	1100 UJ	1100 UJ	560 UJ
[illegible]	µg/L	380 [illegible]	350 [illegible]	83 J	78 J	1100 UJ	360 UJ	920 J	1100 UJ	560 UJ
[illegible]	µg/L	380	350 [illegible]	420 [illegible]	380 J	1400	360 UJ	2500 J	1800 J	560 UJ
Pesticides/PCBs	Units									
alpha-BHC	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
beta-BHC	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
delta-BHC	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
gamma-BHC (Lindane)	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
Heptachlor	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
Aldrin	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
Heptachlor epoxide	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
Endosulfan I	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
Dieldrin	µg/L	3.8 U	3.5 U	4.2 U	3.8 U	3.7 U	3.6 U	3.5 U	3.7 U	5.6 U
4,4'-DDE	µg/L	3.8 U	3.5 U	4.2 U	4.3 J	3.7 U	3.6 U	3.6 U	3.7 U	5.6 U
Endrin	µg/L	3.8 U	3.5 U	4.2 U	3.8 U	3.7 U	3.6 U	3.5 U	3.7 U	5.6 U
Endosulfan II	µg/L	3.8 U	3.5 U	4.2 U	3.8 U	4.5 J	3.6 U	3.5 U	3.7 U	5.6 U
4,4'-DDD	µg/L	3.8 U	3.5 U	4.2 U	4.6 J	3.7 U	3.6 U	3.5 U	3.7 U	5.6 U
Endosulfan sulfate	µg/L	3.8 U	3.5 U	4.2 U	3.8 U	3.7 U	3.6 U	3.6 U	3.7 U	5.6 U
4,4'-DDT	µg/L	3.8 U	3.5 U	4.2 U	6.6 J	12 J	12	5.1 J	3.7 U	5.6 U
Methoxychlor	µg/L	22 U	18	22 U	20 U	19 U	18 U	18 U	19 U	29 U
Endrin ketone	µg/L	3.8 U	3.5 U	4.2 U	3.8 U	3.7 U	3.6 U	3.6 U	3.7 U	5.6 U
Endrin aldehyde	µg/L	3.8 U	3.5 U	4.2 U	3.8 U	3.7 U	3.6 U	3.6 U	3.7 U	5.6 U
alpha-Chlordane	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
gamma-Chlordane	µg/L	2 U	1.8 U	2.2 U	2 U	1.9 U	1.8 U	1.8 U	1.9 U	2.9 U
Toxaphene	µg/L	200 U	180 U	220 U	200 U	190 U	180 U	180 U	190 U	290 U
Aroclor-1016	µg/L	38 U	35 U	42 U	38 U	37 U	36 U	36 U	37 U	56 U
Aroclor-1221	µg/L	78 U	71 U	86 U	77 U	76 U	73 U	73 U	74 U	110 U
Aroclor-1232	µg/L	38 U	35 U	42 U	38 U	37 U	36 U	36 U	37 U	56 U
Aroclor-1242	µg/L	38 U	35 U	42 U	38 U	37 U	36 U	36 U	37 U	56 U
Aroclor-1248	µg/L	38 U	35 U	42 U	38 U	37 U	36 U	36 U	37 U	56 U
Aroclor-1254	µg/L	38 U	35 U	42 U	38 U	37 U	36 U	36 U	37 U	56 U
Aroclor-1260	µg/L	38 U	35 U	42 U	38 U	37 U	36 U	36 U	37 U	56 U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLSB10-2	CLSB11	CLSB12-1	CLSB12-2	CLSB12-3	CLMW01-FR	CLMW01	CLMW02
Sample Number:		ELG64	ELG38	ELG23	ELG24	ELG26	ELG36	ELG37	ELG68
Date Sampled:		11-6-92	11-5-92	11-4-92	11-4-92	11-4-92	11/5/92	11-5-92	11-7-92
Media:		Soil	Soil	Soil	Soil	Soil	Water	Water	Water
Volatiles	Units								
Chloromethane	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
Bromomethane	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
Vinyl Chloride	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
Chloroethane	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
Methylene Chloride	µg/L	24 B	21	10 J	4 J	3 J	10 U	10 U	10 U
Acetone	µg/L	46 BJ	11 U	12 U	16	11 U	10 U	10 U	10 U
Carbon Disulfide	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
1,1-Dichloroethene	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
1,1-Dichloroethane	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
Chloroform	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	1 J
1,2-Dichloroethane	µg/L	11 UJ	11 U	12 U	10 U	11 U	10 U	10 U	10 U
2-Butanone (MEK)	µg/L	13 B	11 U	12 U	10 U	11 U	10 U	10 U	10 U
1,1,1-Trichloroethane	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Carbon Tetrachloride	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Bromodichloromethane	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
1,2-Dichloropropane	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Trichloroethene	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Dibromochloromethane	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
1,1,2-Trichloroethane	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Benzene	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Bromoform	µg/L	11 UJ	11 UJ	12 UJ	10 U	11 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
2-Hexanone	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Tetrachloroethene	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Toluene	µg/L	130 J	11 UJ	9 J	6 J	2 J	10 U	10 U	10 U
Chlorobenzene	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Ethylbenzene	µg/L	2 J	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Styrene	µg/L	11 UJ	11 UJ	12 U	10 U	11 U	10 U	10 U	10 U
Xylene (mixed)	µg/L	7 J	11 UJ	5 J	2 J	11 U	10 U	10 U	10 U
Semivolatiles	Units								
Phenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	3 J
bis(2-chloroethyl)ether	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2-Chlorophenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
1,3-Dichlorobenzene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
1,4-Dichlorobenzene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
1,2-Dichlorobenzene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2-Methylphenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
4-Methylphenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
Hexachloroethane	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
Nitrobenzene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
Isophorone	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2-Nitrophenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2,4-Dimethylphenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2,4-Dichlorophenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
Naphthalene	µg/L	2200 J	1800	380 U	340 U	350 U	10 U	10 U	10 U
4-Chloroaniline	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
Hexachlorobutadiene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2-Methylnaphthalene	µg/L	1400 J	550 J	62 J	340 U	350 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	µg/L	4500 UJ	1800 U	930 U	830 U	860 U	25 U	25 U	25 U
2-Chloronaphthalene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2-Nitroaniline	µg/L	4500 UJ	1800 U	930 U	830 U	860 U	25 U	25 U	25 U
Dimethylphthalate	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
Acenaphthylene	µg/L	550 J	740 U	380 U	340 U	350 U	10 U	10 U	10 U
2,6-Dinitrotoluene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
3-Nitroaniline	µg/L	4500 UJ	1800 U	930 U	830 U	860 U	25 U	25 U	25 U
Acenaphthene	µg/L	270 J	410 J	380 U	340 U	350 U	10 U	10 U	10 U
2,4-Dinitrophenol	µg/L	4500 UJ	1800 U	930 U	830 U	860 U	25 U	25 U	25 U
4-Nitophenol	µg/L	4500 UJ	1800 U	930 U	830 U	860 U	25 U	25 U	25 U
Dibenzofuran	µg/L	1200 J	270 J	34 J	340 U	350 U	10 U	10 U	10 U
2,4-Dinitrotoluene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
Diethylphthalate	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 U	10 U
Fluorene	µg/L	230 J	430 J	380 U	340 U	350 U	10 U	10 U	10 U
4-Nitroaniline	µg/L	4500 UJ	1800 U	930 U	830 U	860 U	25 U	25 UJ	25 U
4,6-Dinitro-2-methylphenol	µg/L	4500 UJ	1800 U	930 U	830 U	860 U	25 U	25 UJ	25 U
N-Nitrosodiphenylamine	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 UJ	10 U
4-Bromophenyl-phenylether	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 UJ	10 U
Hexachlorobenzene	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 UJ	10 U
Pentachlorophenol	µg/L	4500 UJ	1800 U	930 U	830 U	860 U	25 U	25 UJ	25 U
Phenanthrene	µg/L	6500 J	3200	360 J	340 U	350 U	10 U	10 UJ	10 U
Anthracene	µg/L	910 J	960	45 J	340 U	350 U	10 U	10 UJ	10 U
Carbazole	µg/L	580 J	510 J	380 U	340 U	350 U	10 U	10 UJ	10 U
Di-n-butylphthalate	µg/L	100 J	740 U	380 U	340 U	350 U	10 U	10 UJ	10 U
Fluoranthene	µg/L	8400 J	5000	250 J	340 U	350 U	10 U	10 UJ	10 U
Pyrene	µg/L	15000 J	4200 J	210 J	340 U	350 U	10 U	10 UJ	10 U
Butylbenzylphthalate	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 UJ	10 U
3,3'-Dichlorobenzidine	µg/L	1900 UJ	740 U	380 U	340 U	350 U	10 U	10 UJ	10 U
Benzo[a]anthracene	µg/L	5300 J	2400	200 J	340 U	350 U	10 U	10 UJ	10 U
Chrysene	µg/L	6400 J	2600	220 J	340 U	350 U	10 U	10 UJ	10 U
bis(2-Ethylhexyl)phthalate	µg/L	1900 UJ	290 J	380 U	340 U	350 U	10 U	10 UJ	0.6 J
Di-n-octylphthalate	µg/L	1900 UJ	100 J	380 U	340 U	350 U	10 U	10 UJ	10 U
Benzo[b]fluoranthene	µg/L	12000 J	2400	360 J	340 U	350 U	10 U	10 UJ	10 U
Benzo[k]fluoranthene	µg/L	5700 J	2000	380 U	340 U	350 U	10 U	10 UJ	10 U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
September 1992

Station Location:		CLSMW-2	CLSM11	CLSM12-1	CLSM12-2	CLSM12-3	CLSMWW-2R	CLMW08	CLMW02
Sample Number:		ELG44	ELG38	ELG23	ELG24	ELG26	ELG36	ELG37	ELG48
Date Sampled:		11-6-92	11-5-92	11-6-92	11-6-92	11-6-92	11/5/92	11-5-92	11-7-92
Matrix:		Soil	Soil	Soil	Soil	Soil	Water	Water	Water
Semivolatiles	Units								
benzo(a)pyrene	ug/L	98 J	21 J	190 J	340 U	350 U	33 J	10 UJ	10 U
chrysene	ug/L	120 J	11 J	140 J	340 U	350 U	36 J	10 UJ	10 U
2-Methylnaphthalene	ug/L	2500 J	780 J	580 J	340 U	350 U	10 J	10 UJ	10 U
benzo(g,h,i)perylene	ug/L	210 J	49 J	52 J	340 U	350 U	10 J	10 UJ	10 U
Pesticides/PCBs	Units								
alpha-BHC	ug/L	1.8 UJ	1.6 UJ	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
beta-BHC	ug/L	1.8 UJ	1.6 UJ	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
delta-BHC	ug/L	1.8 UJ	1.6 UJ	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
gamma-BHC (Lindane)	ug/L	1.8 UJ	1.6 UJ	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
Heptachlor	ug/L	1.8 UJ	4.2 J	2.2 J	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
Aldrin	ug/L	1.8 UJ	1.6 UJ	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
Heptachlor epoxide	ug/L	1.8 UJ	1.6 UJ	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
Endosulfan I	ug/L	1.8 UJ	1.6 UJ	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
Dieldrin	ug/L	3.7 UJ	3.3 UJ	3.8 UJ	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
4,4'-DDE	ug/L	46 J	3.3 UJ	3.8 UJ	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
Endrin	ug/L	3.7 UJ	9.2 J	8.2 J	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
Endosulfan II	ug/L	21 J	4.1 J	3.8 UJ	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
4,4'-DDD	ug/L	3.7 UJ	3.3 UJ	3.8 UJ	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
Endosulfan sulfate	ug/L	28 J	3.3 UJ	3.8 UJ	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
4,4'-DDT	ug/L	140 DJ	4 J	3.8 UJ	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
Methoxychlor	ug/L	1.9 UJ	1.8 UJ	2 UJ	1.8 UJ	1.8 UJ	0.5 UJ	0.5 UJ	0.5 U
Endrin ketone	ug/L	3.7 J	3.3 UJ	3.8 UJ	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
Endrin aldehyde	ug/L	3.7 UJ	3.3 UJ	3.8 UJ	3.4 UJ	3.5 UJ	0.1 UJ	0.1 UJ	0.1 U
alpha-Chlordane	ug/L	1.8 UJ	4.5 J	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
gamma-Chlordane	ug/L	1.8 UJ	3.7 J	2 UJ	1.8 UJ	1.8 UJ	0.05 UJ	0.05 UJ	0.05 U
Toxaphene	ug/L	190 UJ	190 UJ	200 UJ	180 UJ	180 UJ	5 UJ	5 UJ	5 U
Aroclor-1016	ug/L	37 UJ	33 UJ	38 UJ	34 UJ	35 UJ	1 UJ	1 UJ	1 U
Aroclor-1221	ug/L	74 UJ	66 UJ	76 UJ	70 UJ	72 UJ	2 UJ	2 UJ	2 U
Aroclor-1232	ug/L	37 UJ	33 UJ	38 UJ	34 UJ	35 UJ	1 UJ	1 UJ	1 U
Aroclor-1242	ug/L	37 UJ	33 UJ	38 UJ	34 UJ	35 UJ	1 UJ	1 UJ	1 U
Aroclor-1248	ug/L	37 UJ	33 UJ	38 UJ	34 UJ	35 UJ	1 UJ	1 UJ	1 U
Aroclor-1254	ug/L	37 UJ	33 UJ	38 UJ	34 UJ	35 UJ	1 UJ	1 UJ	1 U
Aroclor-1260	ug/L	37 UJ	33 UJ	38 UJ	34 UJ	35 UJ	1 UJ	1 UJ	1 U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLMW03	CLMW04	CLMW05	CLGRB01	CLGRB02	CLGRB03	CLGRB04
Sample Number:		ELG66	ELG47	ELG65	ELG51	ELG49	ELG48	ELG30
Date Sampled:		11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11/4/92
Media:		Water	Water	Water	Water	Water	Water	Water
Volatiles	Units							
Chloromethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone (MEK)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (mixed)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles	Units							
Phenol	µg/L	10 U	10 U	10 U	10 U	2 J	1 J	10 U
bis(2-chloroethyl)ether	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	10 U	10 U	10 U	10 U	2 J	10 U	10 U
4-Chloroaniline	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Dimethylphthalate	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acenaphthene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitophenol	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Dibenzofuran	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	µg/L	10 U	10 U	10 U	10 U	0.9 J	10 U	10 U
4-Chlorophenyl-phenylether	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
N-Nitrosodiphenylamine	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Phenanthrene	µg/L	0.8 J	10 U	10 U	10 U	0.6 J	10 U	10 U
Anthracene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	µg/L	0.8 J	10 U	10 U	1 J	1 J	0.9 J	0.5 J
Fluoranthene	µg/L	1 J	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	0.8 J	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	µg/L	1 J	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Table B-1
Soil and Groundwater Organic Analytical Results
Carter-Lee Lumber
September 1992

Station Location:	CLSW03	CLSW04	CLSW05	CLGB01	CLGB02	CLGB03	CLGB04
Sample Number:	ELG46	ELG47	ELG45	ELG51	ELG49	ELG48	ELG50
Date Sampled:	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11-6-92	11/6/92
Matrix:	Water	Water	Water	Water	Water	Water	Water
Semivolatiles	Units						
Benzene,n-propenyl-	ug/L	-- U	-- U	10 U	10 U	10 U	10 U
1,1'-Biphenyl, 2,2'-dimethyl-	ug/L	-- U	-- U	10 U	10 U	10 U	10 U
Dibenz[a,h]anthracene	ug/L	-- U	-- U	10 U	10 U	10 U	10 U
Benzo[g,h,i]perylene	ug/L	-- U	-- U	10 U	10 U	10 U	10 U
Pesticides/PCBs	Units						
alpha-BHC	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
beta-BHC	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
delta-BHC	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
gamma-BHC (Lindane)	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
Heptachlor	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
Aldrin	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
Heptachlor epoxide	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
Endosulfan I	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
Dieldrin	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
4,4'-DDE	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
Endrin	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
Endosulfan II	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
4,4'-DDD	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
Endosulfan sulfate	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
4,4'-DDT	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
Methoxychlor	ug/L	19 U	19 U	0.5 U	0.5 U	19 U	0.5 U
Endrin aldehyde	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
Endrin ketone	ug/L	3.7 U	3.7 U	0.1 U	0.1 U	3.7 U	0.1 U
alpha-Chlordane	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
gamma-Chlordane	ug/L	1.94 U	1.94 U	0.05 U	0.05 U	1.94 U	0.05 U
Toxaphene	ug/L	4 U	4 U	5 U	5 U	5 U	5 U
Aroclor 1016	ug/L	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1221	ug/L	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor 1232	ug/L	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1242	ug/L	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1248	ug/L	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1254	ug/L	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1260	ug/L	1 U	1 U	1 U	1 U	1 U	1 U

Table B-2
Soil and Groundwater Inorganic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLBK01-1		CLBK01-2		CLBK01-3		CLBK02		CLBK02-FR		CLBK04		CLBK05		CLBK07		CLBK08		CLBK09		CLBK10		CLBK11		CLBK12		CLBK13		CLBK14		CLBK15	
Sample Number:		MEKA33		MEKA34		MEKA35		MEKA11		MEKA12		MEKA14		MEKA15		MEKA13		MEKA02		MEKA01		MEKA03		MEKA04		MEKA05		MEKA06		MEKA07		MEKA08	
Date Sampled:		11-5-92		11-5-92		11-5-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92		11-3-92	
Media:		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Metals	Units																														
Aluminum	mg/kg	6980		6120		2460		9310		11000		2880		7090		8830		10100		6540		12400		7220		8310		2820		16000		7820	
Antimony	mg/kg	7.7	UJ	7.6	UJ	6.8	UJ	7	UJ	7.5	UJ	6.9	UJ	7.5	UJ	7.2	UJ	7.5	UJ	7.9	UJ	7.3	UJ	7.6	UJ	7.5	UJ	6.8	UJ	7.3	UJ	7.3	UJ
Arsenic	mg/kg	14.2	J	5.7	J	2.9	J	4.8		3.6		6.9		8.9		0.26	B	6.4		9.9		0.23	UJ	0.24	UJ	9.5		7		12.3		4	
Barium	mg/kg	70.6		81.2		15.1		108		97.4		17.5		68.2		55.5		90.8		128		114		91.7		85.2		14.9		198		62.6	
Beryllium	mg/kg	0.91		0.57		0.21		0.64		0.7		0.25		0.51		0.61		0.63		0.75		0.82		1		1.2		0.25		2		0.46	
Cadmium	mg/kg	0.96		0.95		0.84		0.87		0.94		0.86		0.94		0.91		0.93		5.6		0.92		0.95		0.94		0.85		5.2		0.92	
Calcium	mg/kg	13900	J	2250		128000		64600	J	3150	J	107000	J	77400	J	12500	J	54800	J	42800	J	19900	J	30400	J	31200	J	106000	J	13700	J	44400	J
Chromium	mg/kg	10.2		9.7		6.7		16..6	J	14.8	J	9.5	J	48.9	J	16	J	14.4	J	15.6	J	35.2	J	15.3	J	18.5	J	7.6	J	29.3	J	10.7	J
Cobalt	mg/kg	7.1		7.2		3.1		16.9		8.3		3.6		7.1		6.4		7.2		4.8		9.8		6.5		8.8		3.3		15.1		6.4	
Copper	mg/kg	20.2		12.1		8.3		21.2		18.7		6970		84.6		26.3		27.2		73.5		55.1		51.9		98.9		13.2		54.9		26.7	
Iron	mg/kg	12900		11300		6570		18800	J	14300	J	7190	J	20300	J	17100	J	16100	J	11900	J	21900	J	36400	J	18800	J	7890	J	33800	J	12000	J
Lead	mg/kg	50.4	J	19	J	10.1	J	18.4	J	57.1	J	30.2	J	176	J	16.6	J	42.2	J	493	J	191	J	94.1	J	230	J	14.6	J	151	J	150	J
Magnesium	mg/kg	4000	J	1480	J	30600	J	22800		1950		39400		16500		4080		17000	J	17700	J	8590	J	5760	J	11300	J	31100	J	4350		10600	
Manganese	mg/kg	569	J	798	J	464	J	1400		721		276		484		379		592	J	353	J	769	J	837	J	469	J	252	J	646		302	
Mercury	mg/kg	0.12		0.12		0.11		0.11		0.12		0.11		0.38		0.11		0.12		0.2		0.16		0.14		0.27		0.11		0.13		0.11	
Nickel	mg/kg	15.9		10.8		6.9		21.4		14.4		11		21.2		14.3		14.9		27.8		26.3		14.6		20.1		7		33.3		19.5	
Potassium	mg/kg	836		692		433		1730		1190		566		1050		947		1490		511		1610		793		984		546		2130		815	
Selenium	mg/kg	0.38	J	0.24	UJ	0.23	J	0.22	UJ	0.25	J	0.22	J	0.28	J	0.23	UJ	0.36	J	1	J	0.24	J	0.24	J	0.82	J	0.35	J	0.68	J	0.43	J
Silver	mg/kg	0.96		0.95		0.84		0.87		0.94		0.86		0.94		0.91		0.93		0.99		0.92		0.95		0.94		0.85		0.91		0.92	
Sodium	mg/kg	89.8		28.2		99.8		117		58.2		105		165		47.9		94.8		140		108		268		178		115		1510		217	
Thallium	mg/kg	0.29	J	0.29	J	0.26	J	0.27	J	0.23		0.26	J	0.29	J	0.23	UJ	0.26	J	0.3	J	0.23		0.26	J	0.26	J	0.21		0.42	J	0.25	J
Vanadium	mg/kg	29.2		18.8		8.3		30.2		31.3		10.7		26.7		25.2		25.8		17.7		32.9		35.1		22.8		10.5		45.9		15.1	
Zinc	mg/kg	85.9		43.8		23.1		69.9		72.9		66.2		118		124		82.2		424		164		241		190		29.4		129		183	
Cyanide	mg/kg	0.6		0.6		0.53												NA		NA		NA		NA		NA		NA		NA		NA	

Table B-2
Soil and Groundwater Inorganic Analytical Results
Carter-Lee Lumber
November 1992

Metals	Units	CLBK16	CLBK17	CLSS01-A	CLSS01-B	CLSS02-A	CLSS02-A-FR	CLSS02-B	CLSS03-A	CLSS03-B
Sample Number:		MEKA09	MEKA10	MEKA18	MEKA19	MEKA21	MEKA20	MEKA22	MEKA17	MEKA16
Date Sampled:		11-3-92	11-3-92	11-3-92	11-3-92	11-3-92	11-3-92	11-3-92	11-3-92	11-3-92
Media:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	mg/kg	6120	8860	5530	6900	3350	6060	3920	3030	5580
Antimony	mg/kg	7.2 UJ	7.4 UJ	7.2 UJ	7.8 UJ	7.2 UJ	7 UJ	6.9 UJ	7 UJ	7.1 UJ
Arsenic	mg/kg	11.2	59.5	12.8	10.2	7.2 J	7.8	4.5 J	14.4	6.7
Barium	mg/kg	50.1	67.7	61	75.8	31.5	41	14.6	20.9	46
Beryllium	mg/kg	0.52	1	0.48	0.7	0.36	0.49	0.25	0.41	0.51
Cadmium	mg/kg	0.9	0.93	0.9	0.98	0.89	0.88	0.86	1.2	0.89
Calcium	mg/kg	72300 J	33700 J	122000 J	118000 J	102000	94400 J	96600 J	194000 J	72000 J
Chromium	mg/kg	11.9 J	15.2 J	41 J	99.5 J	11.2	20.7 J	5.1	17.1 J	14.8 J
Cobalt	mg/kg	5.6	8	4.4	7.2	4	5.7	2.5	4	5.4
Copper	mg/kg	25.4	139	25.6	45.9	22	25.5	14.7	22.9	30.9
Iron	mg/kg	13600 J	21400 J	19900 J	44700 J	8860	14100 J	5800	7060 J	14800 J
Lead	mg/kg	87.6 J	69.1 J	212 J	128 J	84.2 J	58.7 J	14.4 J	45.7 J	56.4 J
Magnesium	mg/kg	26100 J	11400 J	50100	16900	37600 J	28100	26100 J	37800	19900
Manganese	mg/kg	194 J	312	404	677	119 J	401	220 J	275	354
Mercury	mg/kg	0.13	0.12	0.41	0.45	0.26	0.11	0.11	0.11	0.11
Nickel	mg/kg	11	19.2	14.1	36.3	11	15.5	8.2	9.9	15.1
Potassium	mg/kg	810	964	775	892	465	830	511	633	995
Selenium	mg/kg	0.45 J	0.92 J	0.57 J	0.8 J	0.34 J	0.22 UJ	0.22 UJ	0.24 J	0.37 J
Silver	mg/kg	0.9	0.93	0.9	0.98	0.89	0.88	0.86	0.87	0.89
Sodium	mg/kg	123	121	139	157	112	127	96.8	103	110
Thallium	mg/kg	0.13	0.45	0.44 J	0.45 J	0.22 UJ	0.29 J	0.22 UJ	0.24 J	0.27 J
Vanadium	mg/kg	17	26.7	16.4	18.2	11.7	19	7.4	9.7	18.5
Zinc	mg/kg	220	130	90.2	124	49.6	76.5	27.4	124	72.6
Cyanide	mg/kg	NA	NA							

Metals	Units	CLSS04	CLSB01-1	CLSB01-2	CLSB01-3	CLSB02-1	CLSB02-2	CLSB02-3
Sample Number:		MEKA31				MEKA44	MEKA48	
Date Sampled:		11-4-92				11-8-92	11-8-92	
Media:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	mg/kg	6820	4480	6880	2010	4400	11400	2130
Antimony	mg/kg	7.7 UJ	9.6	1.5	1.15	7.1 UJ	7.6 UJ	1.4
Arsenic	mg/kg	7.9 J	11.1	11.2	6.1	17.4 J	15.8 J	10.1
Barium	mg/kg	131	28	55.6	11.8	56	128	16.6
Beryllium	mg/kg	0.78	0.51	0.48	0.27	0.62	2	0.11
Cadmium	mg/kg	2.2	0.5	0.44	0.42	0.91	1.3	0.43
Calcium	mg/kg	5000 J	94700	129000	119000	83600	28700	154000
Chromium	mg/kg	12.5	139	10.9	7.1	49.1	22.6	5.8
Cobalt	mg/kg	9	9.1	8.4	4	6.7	9.2	5.7
Copper	mg/kg	40.1	21.9	19.5	11.7	39.2	70.4	12.2
Iron	mg/kg	11900	50700	15200	9060	28600	20200	10900
Lead	mg/kg	118	69.2	18.8	4.2	100	312	4.1
Magnesium	mg/kg	2190 J	11200	34900	55100	18000 J	7410 J	16800
Manganese	mg/kg	731 J	776	600	212	738 J	411 J	181
Mercury	mg/kg	0.24	0.065	0.055	0.055	0.21	0.15	0.055
Nickel	mg/kg	16	63.2	17.9	7.9	29.4	125	6.6
Potassium	mg/kg	1050	518	1020	580	542	1150	467
Selenium	mg/kg	0.51 J	0.33	0.18	0.24	0.34 J	1.2 J	0.42
Silver	mg/kg	0.97	0.5	0.44	0.42	0.91	0.94	0.43
Sodium	mg/kg	62.1	64.1	104	147	85.7	112	151
Thallium	mg/kg	0.32 J	0.27	0.22	0.105	0.23 UJ	0.41 J	0.11
Vanadium	mg/kg	21.5	12.1	20.4	9.5	15.7	32.3	9.9
Zinc	mg/kg	307	47.5	59.3	27.9	267	564	28.1
Cyanide	mg/kg	0.61	0.115	0.275	0.265	0.57	0.59	0.27

Table B-2
Soil and Groundwater Inorganic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:		CLSB03-1		CLSB03-2		CLSB03-2-FR		CLSB03-3		CLSB04-1		CLSB04-2		CLSB04-3		CLSB05-1	CLSB05-2	CLSB06-1	CLSB06-2	CLSB07	CLSB08	CLSB09-1	CLSB09-2	CLSB10-1
Sample Number:		MEKA40		MEKA41		MEKA42		MEKA43		MEKA27		MEKA28		MEKA29										
Date Sampled:		11-5-92		11-5-92		11-5-92		11-5-92		11-4-92		11-4-92		11-4-92										
Media:		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Metals	**Units**																							
Aluminum	mg/kg	4230		5510		6700		2920		5190		6480		1960		14900	2320	8260	6350	7140	6080	4830	6480	2860
Antimony	mg/kg	7.7	UJ	7.3	UJ	7.3	UJ	6.7	UJ	7.2	UJ	8	UJ	6.8	UJ	10	3.4	3.6	3.8	3.5	3.5	3.5	3.6	5.5
Arsenic	mg/kg	8.2	J	5.7	J	6.7	J	7.9	J	5.2	J	5.7	J	2.4	J	197	5.3	8.1	15.9	8.7	88.9	6.6	7.8	123
Barium	mg/kg	48.7		72.6		71.3		17.6		68.4		161		8.6		115	14.1	47.3	84.5	35.9	1.2	55.2	67.4	13.3
Beryllium	mg/kg	0.41		0.42		0.56		0.28		0.43		0.44		0.25		1.2	0.3	0.68	0.65	0.49	151	0.54	0.91	0.57
Cadmium	mg/kg	0.96		0.91		0.92		0.84		0.9		1		0.89		0.48	0.42	0.45	1.1	0.43	0.44	0.44	0.46	0.07
Calcium	mg/kg	125000		38800		14400		120000		97100	J	161000		236000		4460	163000	51400	71200	76200	54600	71200	103000	198000
Chromium	mg/kg	97		8.2		10.3		11		10.2		9.2		4.8		50.4	6.3	63.3	19.6	13.6	22.3	11.9	19.2	439
Cobalt	mg/kg	6.9		4.7		6.3		4.2		4.6		4.9		2.4		14.1	4.4	15.2	6.9	7.4	8.1	5.7	6.5	15.3
Copper	mg/kg	24.4		11.4		16.5		13.4		20.7		10.4		5.2		114	10.5	21	39.4	19.1	75.2	20.3	19.3	21.7
Iron	mg/kg	44900		11100		13200		8940		10000		13600		5150		161000	7700	28900	15400	12400	32900	10400	13900	143000
Lead	mg/kg	88.5		19.1	J	19.8	J	6.5	J	69.6		8.5	J	5.4	J	19.7	6	24.7	137	18.4	376	59.2	65.9	19.4
Magnesium	mg/kg	16700	J	6830	J	3730	J	38400	J	23900	J	14000	J	30600	J	3640	42200	17000	24900	24100	16000	25100	16800	605
Manganese	mg/kg	608	J	495	J	656	J	428	J	430	J	554	J	271	J	1020	382	1280	517	431	494	314	369	1080
Mercury	mg/kg	0.21		0.11		0.21		--		0.19		0.12		0.11		0.06	0.06	0.06	0.45	0.06	0.42	0.06	0.25	0.08
Nickel	mg/kg	39.6		10.6		12.6		12.7		13.7		11.7		6.5		56.5	10.3	97.2	16	173	16.1	14.5	15.7	111
Potassium	mg/kg	480		635		872		624		643		534		607		1250	475	760	948	969	786	647	1020	169
Selenium	mg/kg	2.4	UJ	0.23		0.33	J	0.35	J	0.23	UJ	0.37	J	0.23	J	0.28	0.36	0.28	0.45	0.33	0.68	0.32	0.39	3.5
Silver	mg/kg	0.96		0.91		0.92		0.84		0.9		1		0.85		1.9	0.42	0.45	0.46	0.43	0.44	0.44	0.46	2.4
Sodium	mg/kg	99.8		50.2		48		134		104		94.1		142		132	142	59.6	93.4	96.3	197	116	201	29.3
Thallium	mg/kg	0.45	J	0.25	J	0.34	J	0.21	UJ	0.23	UJ	0.25	UJ	0.21	UJ	0.12	0.21	0.12	0.12	0.11	0.11	0.11	0.12	0.36
Vanadium	mg/kg	12.8		13.3		17		11.1		14.6		15.2		7.6		88.6	9.4	21.8	20	20.2	24.7	15.6	24.2	5.3
Zinc	mg/kg	86.7		39.7		50.7		31.5		91.9		41.2		14.5		178	23.6	195	128	48.4	354	78.3	79.6	23.3
Cyanide	mg/kg	0.62		0.57		0.57		0.52		0.56		0.62		0.53		0.3	0.26	0.28	0.29	0.27	0.28	0.27	0.57	0.42

Table B-2
Soil and Groundwater Inorganic Analytical Results
Carter-Lee Lumber
November 1992

Station Location:	CLSB10-2	CLSB11	CLSB12-1	CLSB12-2	CLSB12-2-FB	CLSB12-3	CLMW01	CLMW02	CLMW03	CLMW04	CLMW05	CLGWB01	CLGWB02	CLGWB03	CLGWB04
Sample Number:		MEKA38	MEKA23	MEKA24	MEKA25	MEKA26	MEKA37	MEKA68	MEKA66	MEKA47	MEKA65	MEKA51	MEKA49	MEKA48	MEKA39
Date Sampled:		11-5-92	11-4-92	11-4-92	11-4-92	11-4-92	11-5-92	11-7-92	11-6-92	11-6-92	11-6-92	11-4-92	11-6-92	11-6-92	11-4-92
Media:	Soil	Soil	Soil	Soil	Soil	Soil	Water	Water	Water	Water	Water	Water	Water	Water	Water
Metals	**Units**														
Aluminum	mg/kg	4870	5010	2310	1750	2180	1090	12.1	<25	26.5	<25	<25	<25	16.1	29.7	11400
Antimony	mg/kg	5.5	7.1 UJ	7.2 UJ	6.7 UJ	7.1 UJ	6.9 UJ	<12	<12	<12	<12	<12	<12	<12	<12	<12
Arsenic	mg/kg	24	19.5 J	11.6 J	9.6 J	2.6 J	20.4 J	<1	1.6	1.9	1.1	1.5	<1	<1	<1	10.7
Barium	mg/kg	44.5	158	27.9	24.7	29.7	8.4	<112	67	67	44.8	68.5	85.6	68.2	88.1	251
Beryllium	mg/kg	0.5	0.57	0.29	0.21	0.22	0.22	<1	<1	1.1	<1	<1	<1	1.1	<1	1.5
Cadmium	mg/kg	0.41	0.89	0.9	0.84	0.89	0.86	<4	<4	<4	<4	<4	<4	<4	<4	<4
Calcium	mg/kg	95700	96800	158000 J	141000 J	82100 J	208000 J	131000	117000	183000	164000	197000	132000	144000	159000	247000
Chromium	mg/kg	11.1	11.2	26.1	6	5.9	5.1	<5	<5	<5	<5	<5	<5	<5	<5	31.9
Cobalt	mg/kg	5.9	5.1	5.1	2.6	2.7	2.2	<5	<5	<5	<5	<5	<5	12.2	22.9	30.8
Copper	mg/kg	28.1	17.2	18.2	4.1	4.1	1.7	<4	<4	<4	<4	<4	<4	<4	<4	99.3
Iron	mg/kg	11100	10800	6510	5050	5360	8400	16.5	<6	10.6	23.5	11.6	142	138	1790	64100
Lead	mg/kg	56.4	165	87.4	2.9 J	5.8 J	5.4 J	1.4	<1	1.2	<1	1.2	<1	<1	1	49.7
Magnesium	mg/kg	17500	15800 J	59000 J	38100 J	23000 J	42700 J	14400	12400	16800	40200	50800	35100	15500	38100	68300
Manganese	mg/kg	317	382 J	291 J	170 J	255 J	204 J	18.1	7.8	224	11.6	90.6	858	328	1010	1790
Mercury	mg/kg	0.15	0.42	0.12	0.1	0.11	0.11	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.56
Nickel	mg/kg	22.6	14.1	9.5	6.2	7.1	2.9	<5	11.4	8.9	<5	11.4	7.4	<5	11.4	65.8
Potassium	mg/kg	841	686	481	242	286	200	1840	4400	4070	4490	1940	4120	4460	4670	6160
Selenium	mg/kg	0.34	0.52 J	0.5 J	0.21 UJ	0.22 UJ	0.22 UJ	1.4	1	1.5	1.8	5.7	1.5	2.7	2.5	2.9
Silver	mg/kg	0.41	0.89	0.9	0.84	0.89	0.86	<4	<4	<4	<4	<4	<4	<4	<4	<4
Sodium	mg/kg	116	120	136	134	78.9	135	42800	51200	46100	53200	24800	43500	49400	49100	47800
Thallium	mg/kg	0.11	0.22 UJ	0.21 UJ	0.21	0.22	0.22	<1	1.4	1	<1	<1	<1	<1	<1	<1
Vanadium	mg/kg	15.8	15.2	9.1	7.6	8.4	7.5	<5	<5	<5	<5	<5	<5	<5	<5	46.6
Zinc	mg/kg	77.9	149	180	11.6	16.5	15.1	<5	<5	4.6	<5	<5	4.6	8.1	24.9	189
Cyanide	mg/kg	0.54	0.56	0.57	2.1	0.56	0.54	<10	<10	<10	<10	<10	<10	<10	<10	<10

Table B-3
Groundwater Analytical Results
June 1993
Carter-Lee Lumber

Matrix:		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Sample Collection Date:		6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93
Laboratory Sample Identification:		ESG01	ESG02	ESG03	ESG56	ESG60	ESG61	ESG62	ESG63	MERE24	MERE25	MERE26	MERE27	MERE08
Field Sample Identification:		MW-01	MW-02	MW-03	TB-01	MW-04	MW-05	FB-01	TB-02	MW-01	MW-02	MW-03	MW-04	MW-05
Volatile Organic	**Units**													
Chloromethane	µg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ					
Bromomethane	µg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ					
Vinyl Chloride	µg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ					
Chloroethane	µg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ					
Methylene Chloride	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Carbon Disulfide	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
1,1-Dichloroethene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
1,1-Dichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
1,2-dichloroethene (total)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Chloroform	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
1,2-Dichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
2-Butanone	µg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ					
1,1,1-Trichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Carbon Tetrachloride	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Bromodichloromethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
1,2-Dichloropropane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
cis-1,3-Dichloropropene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Trichloroethene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Dibromochloromethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
1,1,2-Trichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Benzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
trans-1,3-Dichloropropene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Bromoform	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
4-Methyl-2-pentanone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
2-Hexanone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Tetrachloroethene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
1,1,2,2-Tetrachloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Toluene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Chlorobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Ethylbenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Styrene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Xylene (total)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U					
Semivolatile Organic	**Units**													
Phenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
bis(2-Chloroethyl)ether	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2-Chlorophenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
1,3-Dichlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
1,4-Dichlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
1,2-Dichlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2-Methylphenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2,2'-oxybis(1-Chloropropane)	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
4-Methylphenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
N-Nitroso-di-n-propylamine	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Hexachloroethane	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Nitrobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Isophorone	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2-Nitrophenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2,4-Dimethylphenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
bis(2-Chloroethoxy)methane	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2,4-Dichlorophenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
1,2,4-Trichlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Napthalene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
4-Chloroaniline	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Hexachlorobutadiene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
4-Chloro-3-methylphenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2-Methylnaphthalene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Hexachlorocyclopentadiene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2,4,6-Trichlorophenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2,4,5-Trichlorophenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U						
2-Chloronaphthalene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2-Nitroaniline	µg/L	25 U	25 U	25 U		25 U	25 U	25 U						
Dimethylphthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Acenaphthylene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2,6-Dinsrotoluene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
3-Nitroaniline	µg/L	25 U	25 U	25 U		25 U	25 U	25 U						
Acenaphthene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2,4-Dinsrophenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U						
4-Nitrophenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U						
Dibenzofuran	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
2,4-Dinsrotoluene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
4-Chlorophenyl-phenylether	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Diethylphthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Fluorene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
4-Nitroaniline	µg/L	25 U	25 U	25 U		25 U	25 U	25 U						
4,6-Dinitro-2-Methylphenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U						
N-Nitrosodiphenylamine	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
4-Bromophenyl-phenylether	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Hexachlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Pentachlorophenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U						
Phenanthrene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Anthracene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Carbazole	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Di-n-Butylphthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Fluoranthene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Pyrene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Butylbenzylphthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
3,3'-Dichlorobenzidine	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Benzo(a)anthracene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Chrysene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
bis(2-ethylhexyl)phthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Di-n-octylphthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Benzo(b)fluoranthene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Benzo(k)fluoranthene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Benzo(a)pyrene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Indeno(1,2,3-cd)pyrene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Dibenzo(a,h)anthracene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
Benzo(g,h,i)perylene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U						
alpha-BHC	µg/L	0.05 U	0.05 U	0.05 U		0.05 UJ	0.05 U	0.05 U						
beta-BHC	µg/L	0.05 U	0.05 U	0.05 U		0.05 UJ	0.05 U	0.05 U						
delta-BHC	µg/L	0.05 U	0.05 U	0.05 U		0.05 UJ	0.05 U	0.05 U						
gamma-BHC (Lindane)	µg/L	0.05 U	0.05 U	0.05 U		0.05 UJ	0.05 U	0.05 U						

Table B-3
Groundwater Analytical Results
June 1993
Carter-Lee Lumber

Matrix:	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Sample Collection Date:	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93
Laboratory Sample Identification:	ESG40	ESG42	ESG43	ESG36	ESG40	ESG41	ESG42	ESG43	MERE24	MERE25	MERE26	MERE27	MERE48	
Field Sample Identification:	MW-01	MW-02	MW-03	TB-01	MW-04	MW-05	FB-01	TB-02	MW-01	MW-02	MW-03	MW-04	MW-05	
Nonvolatile Organics	Units													
Heptachlor	ug/L	1.25 U	1.25 U	1.25 U		0.05 UJ	0.05 U	0.05 U						
Aldrin	ug/L	1.25 U	1.25 U	1.25 U		0.05 UJ	0.05 U	0.05 U						
Heptachlor epoxide	ug/L	1.25 U	1.25 U	1.25 U		0.05 UJ	0.05 U	0.05 U						
Endosulfan I	ug/L	1.25 U	1.25 U	1.25 U		0.05 UJ	0.05 U	0.05 U						
Dieldrin	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
4,4'-DDE	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
Endrin	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
Endosulfan I	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
4,4'-DDD	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
Endosulfan sulfate	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
4,4'-DDT	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
Methoxychlor	ug/L	12.5 U	12.5 U	12.5 U		0.5 UJ	0.5 U	0.5 U						
Endrin ketone	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
Endrin aldehyde	ug/L	2.5 U	2.5 U	2.5 U		0.1 UJ	0.1 U	0.1 U						
alpha-Chlordane	ug/L	1.25 U	1.25 U	1.25 U		0.05 UJ	0.05 U	0.05 U						
gamma-Chlordane	ug/L	1.25 U	1.25 U	1.25 U		0.05 UJ	0.05 U	0.05 U						
Toxaphene	ug/L	125 U	125 U	125 U		5 UJ	5 U	5 U						
Aroclor-1016	ug/L	25 U	25 U	25 U		1 UJ	1 U	1 U						
Aroclor-1221	ug/L	50 U	50 U	50 U		2 UJ	2 U	2 U						
Aroclor-1232	ug/L	25 U	25 U	25 U		1 UJ	1 U	1 U						
Aroclor-1242	ug/L	25 U	25 U	25 U		1 UJ	1 U	1 U						
Aroclor-1248	ug/L	25 U	25 U	25 U		1 UJ	1 U	1 U						
Aroclor-1254	ug/L	25 U	25 U	25 U		1 UJ	1 U	1 U						
Aroclor-1260	ug/L	25 U	25 U	25 U		1 UJ	1 U	1 U						
Metals	Units													
Aluminum	ug/L								23.5 U	23.5 U	35.2 U	23.5 U	23.5 U	
Antimony	ug/L								17.9 U	17.9 U	17.9 U	17.9 U	17.9 U	
Arsenic	ug/L								2.3 U	2.3 U	2.3 U	4.6 U	2.3 U	
Barium	ug/L								138 J	70.3 J	57.1 J	49.8 J	55.6 J	
Beryllium	ug/L								2.8 U	2.81 U	1.6 U	1.2 U	1.6 U	
Cadmium	ug/L								1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	
Calcium	ug/L								126000	108000	194000	179000	140000	
Chromium	ug/L								5.8 U	5.8 U	5.8 U	5.8 U	5.8 U	
Cobalt	ug/L								3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	
Copper	ug/L								4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	
Iron	ug/L								23.5 U	4.8 U	4.8 U	4.8 U	11.9 U	
Lead	ug/L								5.5	2.3 J	1.9 J	3 J	2.2 J	
Magnesium	ug/L								33400	31400	59000	45000	28200	
Manganese	ug/L								122 J	1.8 U	5.7 J	1.8 U	1.8 U	
Mercury	ug/L								0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	
Nickel	ug/L								6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	
Potassium	ug/L								4160 J	4680 J	3310 J	4250 J	3170 J	
Selenium	ug/L								3.3 UJ	6.1 J	3.3 UJ	9.2 J	5 J	
Silver	ug/L								3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	
Sodium	ug/L								54000	57200	40100	40700	34000	
Thallium	ug/L								1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	
Vanadium	ug/L								3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	
Zinc	ug/L								3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	
Cyanide	ug/L								10 U	10 U	10 U	10 U	10 U	

Table B-4
Soil and Groundwater Analytical Results
September 1993
Carter-Lee Lumber

Field Sample Identification:		CMW-1	CMW-2	CMW-3	CTB01	CFB01	CMW-4	CMW-5	CMW-5-FR	CTB02	CLBK03	CLBK03-FR	CLBK06	CMW-1
Laboratory Sample Identification:		EKJ61	EKJ62	EKJ63	EKJ64	EKJ65	EKJ66	EKJ68	EKJ67	EKJ69	EKJ70	EKJ71	EKJ72	MEZ959
Matrix:		Water	Water	Water	Water	Water	Water	Water	Water	Water	Soil	Soil	Soil	Water
Sample Collection Date:		9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93
Volatile Organic	**Units**													
Chloromethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Bromomethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Vinyl chloride	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Chloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Methylene chloride	µg/L	10 U	10 U	10 U	2 J	2 J	10 U	10 U	10 U	1 J	15	12	15	
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	25 B	12 U	
Carbon disulfide	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
1,1-Dichloroethene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
1,1-Dichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
1,2-Dichloroethene (total)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Chloroform	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
1,2-Dichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
2-Butanone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	1 J	12 U	
1,1,1-Trichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4 J	3 J	2 J	
Carbon tetrachloride	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Bromodichloromethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
1,2-Dichloropropane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
cis-1,3-Dichloropropene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Trichloroethene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	6 J	
Dibromochloromethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
1,1,2-Trichloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Benzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
trans-1,3-Dichloropropene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Bromoform	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
4-Methyl-2-pentanone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
2-Hexanone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Tetrachloroethene	µg/L	10 U	10 U	10 U	1 J	1 J	10 U	10 U	10 U	1 J	11 U	11 U	12 U	
1,1,2,2-Tetrachloroethane	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Toluene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Chlorobenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Ethylbenzene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Styrene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Xylene (total)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	11 U	12 U	
Semivolatile Organic	**Units**													
Phenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
bis(2-Chloroethyl)ether	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2-Chlorophenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
1,3-Dichlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
1,4-Dichlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
1,2-Dichlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2-Methylphenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2,2'-oxybis(1-Chloropropane)	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
4-Methylphenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
N-Nitroso-di-n-propylamine	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Hexachloroethane	µg/L	10 U	10 U	10 U		1 J	10 U	10 U	10 U		390 U	360 U	390 U	
Nitrobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Isophorone	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2-Nitrophenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2,4-Dimethylphenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
bis(2-Chloroethoxy)methane	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2,4-Dichlorophenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
1,2,4-Trichlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Naphthalene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		630	260 J	270 J	
4-Chloroaniline	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Hexachlorobutadiene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
4-Chloro-3-methylphenol	µg/L	10 UJ	10 UJ	10 UJ		10 UJ	10 UJ	10 UJ	10 UJ		390 U	360 U	390 U	
2-Methylnaphthalene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		700	350 J	390 J	
Hexachlorocyclopentadiene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2,4,6-Trichlorophenol	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2,4,5-Trichlorophenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U	25 U		940 U	880 U	950 U	
2-Chloronaphthalene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
2-Nitroaniline	µg/L	25 U	25 U	25 U		25 U	25 U	25 U	25 U		940 U	880 U	950 U	
Dimethylphthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Acenaphthylene	µg/L	10 U	10 U	10 U		10 UJ	10 UJ	10 UJ	10 UJ		140 J	32 J	44 J	
2,6-Dinitrotoluene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
3-Nitroaniline	µg/L	25 U	25 U	25 U		25 U	25 U	25 U	25 U		940 U	880 U	950 U	
Acenaphthene	µg/L	10 UJ	10 UJ	10 UJ		10 UJ	10 UJ	10 UJ	10 UJ		390 U	360 U	390 U	
2,4-Dinitrophenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U	25 U		940 U	880 U	950 U	
4-Nitrophenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U	25 U		940 U	880 U	950 U	
Dibenzofuran	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		350 J	150 J	180 J	
2,4-Dinitrotoluene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Diethylphthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
4-Chlorophenyl-phenylether	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Fluorene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		48 J	35 J	23 J	
4-Nitroaniline	µg/L	25 U	25 U	25 U		25 U	25 U	25 U	25 U		940 U	880 U	950 U	
4,6-Dinitro-2-methylphenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U	25 U		940 U	880 U	950 U	
N-Nitrosodiphenylamine	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
4-Bromophenyl-phenylether	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Hexachlorobenzene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Pentachlorophenol	µg/L	25 U	25 U	25 U		25 U	25 U	25 U	25 U		260 J	220 J	950 U	
Phenanthrene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		1700	800	810	
Anthracene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		220 J	100 J	80 J	
Carbazole	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		210 J	95 J	74 J	
Di-n-butylphthalate	µg/L	10 U	1 J	10 U		10 U	10 U	10 U	10 U		300 J	91 J	49 J	
Fluoranthene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		2200	890	870	
Pyrene	µg/L	10 UJ	10 UJ	10 UJ		10 UJ	10 UJ	10 UJ	10 UJ		1500 B	620 B	640 B	
Butylbenzylphthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
3,3'-Dichlorobenzidine	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Benzo(a)anthracene	µg/L	10 U	10 U	10 U		0.4 J	10 U	10 U	10 U		1200	450	440	
Chrysene	µg/L	10 U	10 U	10 U		0.3 J	10 U	10 U	10 U		1800	740	670	
bis(2-Ethylhexyl)phthalate	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		390 U	360 U	390 U	
Di-n-Octyl phthalate	µg/L	10 U	10 U	10 U		0.3 J	10 U	10 U	10 U		29 J	360 U	390 U	
Benzo(b)fluoranthene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		4000	1400	1200	
Benzo(k)fluoranthene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		2000	820	730	
Benzo(a)pyrene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		1900	620	440	
Indeno(1,2,3-cd)pyrene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		1200	490	350 J	
Dibenzo(a,h)anthracene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		400	150 J	120 J	
Benzo(g,h,i)perylene	µg/L	10 U	10 U	10 U		10 U	10 U	10 U	10 U		990	380	390 U	

Table B-4
Soil and Groundwater Analytical Results
September 1993
Carter-Lee Lumber

Field Sample Identification		CMW-1	CMW-2	CMW-3	CTB01	CFB01	CMW-4	CMW-5	CMW-5-FB	CTB02	CLBS03	CLBS03-FB	CLBS04	CMW-1
Laboratory Sample Identification		EKJ361	EKJ362	EKJ363	EKJ364	EKJ365	EKJ366	EKJ368	EKJ367	EKJ369	EKJ370	EKJ371	EKJ372	MEZ959
Matrix		Water	Water	Water	Water	Water	Water	Water	Water	Water	Soil	Soil	Soil	Water
Sample Collection Date		9/23/93	9/23/93	9/23/93	9/23/93	9/23/93	9/23/93	9/23/93	9/23/93	9/23/93	9/23/93	9/23/93	9/22/93	9/22/93
Organochlorine Pesticides	Units													
alpha-BHC	ug/L	1.05 U	1.303 J	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		1.9 U	1.2 B	1.1 B	
beta-BHC	ug/L	1.05 U	1.05 U	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		1.9 U	1.9 U	2 UJ	
delta-BHC	ug/L	1.30332 J	1.05 U	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		1.9 U	1.9 U	2 UJ	
gamma-BHC (Lindane)	ug/L	1.05 U	1.31 J	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		1.9 U	1.9 U	13 J	
Heptachlor	ug/L	1.05 U	1.30778 J	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		1.9 U	1.9 U	2 UJ	
Aldrin	ug/L	1.05 U	1.30083 J	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		38 J	1.9 U	2 UJ	
Heptachlor epoxide	ug/L	1.05 U	1.05 U	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		5.1 J	4.8 J	2.9 J	
Endosulfan I	ug/L	1.05 U	1.05 U	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		1.9 U	1.9 U	2 UJ	
Dieldrin	ug/L	2.1 U	1.3218 J	2.1 U		0.1 U	0.1 U	0.1 U	0.1 U		5.1 J	3.6 U	4 UJ	
4,4'-DDE	ug/L	2.1 U	2.1 U	2.1 U		0.1 U	0.1 U	0.1 U	0.1 U		3.8 U	3.6 U	4 UJ	
Endrin	ug/L	2.1 U	2.117 J	2.1 U		0.1 U	0.1 U	0.1 U	0.1 U		7.9 J	12 J	11 J	
Endosulfan II	ug/L	2.1 U	2.1 U	2.1 U		0.1 U	0.1 U	0.1 U	0.1 U		3.8 U	3.6 U	4 UJ	
4,4'-DDD	ug/L	2.1 U	2.1 U	2.1 U		0.1 U	0.1 U	0.1 U	0.1 U		3.8 U	3.6 U	7.6 J	
Endosulfan sulfate	ug/L	2.1 U	2.1 U	2.1 U		0.1 U	0.1 U	0.1 U	0.1 U		3.8 U	3.6 U	4 UJ	
4,4'-DDT	ug/L	2.1 U	2.112 J	2.1 U		0.1 U	0.1 U	0.1 U	0.00036 J		3.8 U	13 J	14 J	
Methoxychlor	ug/L	10.5 U	10.5 U	10.5 U		0.5 U	0.5 U	0.5 U	0.5 U		19 U	84 J	65 J	
Endrin ketone	ug/L	2.1 U	2.1 U	2.1 U		0.1 U	0.1 U	0.1 U	0.1 U		44 J	34 J	15 J	
Endrin aldehyde	ug/L	2.1 U	2.1 U	2.1 U		0.1 U	0.1 U	0.1 U	0.1 U		3.8 U	3.6 U	4 UJ	
alpha-Chlordane	ug/L	1.05 U	1.05 U	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		1.9 U	3.8 J	4.8 J	
gamma-Chlordane	ug/L	1.05 U	1.05 U	1.05 U		0.05 U	0.05 U	0.05 U	0.05 U		8.2 J	10 J	6.5 J	
Toxaphene	ug/L	5 U	5 U	5 U		5 U	5 U	5 U	5 U		190 U	190 U	200 UJ	
Aroclor-1016	ug/L	1 U	1 U	1 U		1 U	1 U	1 U	1 U		38 U	36 U	40 UJ	
Aroclor-1221	ug/L	2 U	2 U	2 U		2 U	2 U	2 U	2 U		77 U	73 U	80 UJ	
Aroclor-1232	ug/L	1 U	1 U	1 U		1 U	1 U	1 U	1 U		38 U	36 U	40 UJ	
Aroclor-1242	ug/L	1 U	1 U	1 U		1 U	1 U	1 U	1 U		38 U	36 U	40 UJ	
Aroclor-1248	ug/L	1 U	1 U	1 U		1 U	1 U	1 U	1 U		38 U	36 U	40 UJ	
Aroclor-1254	ug/L	1 U	1 U	1 U		1 U	1 U	1 U	1 U		38 U	36 U	40 UJ	
Aroclor-1260	ug/L	1 U	1 U	1 U		1 U	1 U	1 U	1 U		38 U	36 U	40 UJ	
Metals and Cyanide	Units													
Aluminum	ug/L													53.8 U
Antimony	ug/L													29.4 U
Arsenic	ug/L													1.2 U
Barium	ug/L													126 J
Beryllium	ug/L													1 J
Cadmium	ug/L													2.8 U
Calcium	ug/L													116000
Chromium	ug/L													3.7 U
Cobalt	ug/L													4.5 U
Copper	ug/L													5.2 J
Iron	ug/L													127
Lead	ug/L													0.5 U
Magnesium	ug/L													33400
Manganese	ug/L													27
Mercury	ug/L													0.1 U
Nickel	ug/L													13.2 U
Potassium	ug/L													4390 U
Selenium	ug/L													1 UJ
Silver	ug/L													3.4 U
Sodium	ug/L													49800
Thallium	ug/L													0.7 U
Vanadium	ug/L													4.7 U
Zinc	ug/L													11.8 J
Cyanide	ug/L													2 J
General Chemistry Parameters	Units													
Alkalinity	mg/L													
Carbon, Total Organic	mg/L													
Chemical Oxygen Demand	mg/L													
Chloride	mg/L													
Hardness, as CaCO3	mg/L													
Solids, Total Dissolved	mg/L													
Solids, Total Suspended	mg/L													

Table B-4
Soil and Groundwater Analytical Results
September 1993
Carter-Lee Lumber

Field Sample Identification:		CMW-2	CMW-3	CMW-4	CMW-5	CMW-5-FR	CLBK03	CLBK03-FR	CLBK06	CMW-1	CMW-2	CMW-3	CMW-4	CMW-5	CMW-5-FR
Laboratory Sample Identification:		MEZ960	MEZ961	MEZ962	MEZ964	MEZ963	MEZ966	MEZ965	MEZ967	20848-01	20848-02	20848-03	20848-04	20848-05	20848-06
Matrix:		Water	Water	Water	Water	Water	Soil	Soil	Soil	Water	Water	Water	Water	Water	Water
Sample Collection Date:		9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93
Volatile Organic	**Units**														
Chloromethane	µg/L														
Bromomethane	µg/L														
Vinyl chloride	µg/L														
Chloroethane	µg/L														
Methylene chloride	µg/L														
Acetone	µg/L														
Carbon disulfide	µg/L														
1,1-Dichloroethene	µg/L														
1,1-Dichloroethane	µg/L														
1,2-Dichloroethene (total)	µg/L														
Chloroform	µg/L														
1,2-Dichloroethane	µg/L														
2-Butanone	µg/L														
1,1,1-Trichloroethane	µg/L														
Carbon tetrachloride	µg/L														
Bromodichloromethane	µg/L														
1,2-Dichloropropane	µg/L														
cis-1,3-Dichloropropene	µg/L														
Trichloroethene	µg/L														
Dibromochloromethane	µg/L														
1,1,2-Trichloroethane	µg/L														
Benzene	µg/L														
trans-1,3-Dichloropropene	µg/L														
Bromoform	µg/L														
4-Methyl-2-pentanone	µg/L														
2-Hexanone	µg/L														
Tetrachloroethene	µg/L														
1,1,2,2-Tetrachloroethane	µg/L														
Toluene	µg/L														
Chlorobenzene	µg/L														
Ethylbenzene	µg/L														
Styrene	µg/L														
Xylene (total)	µg/L														
Semivolatile Organic	**Units**														
Phenol	µg/L														
bis(2-Chloroethyl)ether	µg/L														
2-Chlorophenol	µg/L														
1,3-Dichlorobenzene	µg/L														
1,4-Dichlorobenzene	µg/L														
1,2-Dichlorobenzene	µg/L														
2-Methylphenol	µg/L														
2,2'-oxybis(1-Chloropropane)	µg/L														
4-Methylphenol	µg/L														
N-Nitroso-di-n-propylamine	µg/L														
Hexachloroethane	µg/L														
Nitrobenzene	µg/L														
Isophorone	µg/L														
2-Nitrophenol	µg/L														
2,4-Dimethylphenol	µg/L														
bis(2-Chloroethoxy)methane	µg/L														
2,4-Dichlorophenol	µg/L														
1,2,4-Trichlorobenzene	µg/L														
Naphthalene	µg/L														
4-Chloroaniline	µg/L														
Hexachlorobutadiene	µg/L														
4-Chloro-3-methylphenol	µg/L														
2-Methylnaphthalene	µg/L														
Hexachlorocyclopentadiene	µg/L														
2,4,6-Trichlorophenol	µg/L														
2,4,5-Trichlorophenol	µg/L														
2-Chloronaphthalene	µg/L														
2-Nitroaniline	µg/L														
Dimethylphthalate	µg/L														
Acenaphthylene	µg/L														
2,6-Dinitrotoluene	µg/L														
3-Nitroaniline	µg/L														
Acenaphthene	µg/L														
2,4-Dinitrophenol	µg/L														
4-Nitrophenol	µg/L														
Dibenzofuran	µg/L														
2,4-Dinitrotoluene	µg/L														
Diethylphthalate	µg/L														
4-Chlorophenyl-phenylether	µg/L														
Fluorene	µg/L														
4-Nitroaniline	µg/L														
4,6-Dinitro-2-methylphenol	µg/L														
N-Nitrosodiphenylamine	µg/L														
4-Bromophenyl-phenylether	µg/L														
Hexachlorobenzene	µg/L														
Pentachlorophenol	µg/L														
Phenanthrene	µg/L														
Anthracene	µg/L														
Carbazole	µg/L														
Di-n-butylphthalate	µg/L														
Fluoranthene	µg/L														
Pyrene	µg/L														
Butylbenzylphthalate	µg/L														
3,3'-Dichlorobenzidine	µg/L														
Benzo(a)anthracene	µg/L														
Chrysene	µg/L														
bis(2-Ethylhexyl)phthalate	µg/L														
Di-n-Octyl phthalate	µg/L														
Benzo(b)fluoranthene	µg/L														
Benzo(k)fluoranthene	µg/L														
Benzo(a)pyrene	µg/L														
Indeno(1,2,3-cd)pyrene	µg/L														
Dibenzo(a,h)anthracene	µg/L														
Benzo(g,h,i)perylene	µg/L														

Table B-4
Soil and Groundwater Analytical Results
September 1993
Carter-Lee Lumber

Field Sample Identification:		CMW-2	CMW-3	CMW-4	CMW-5	CMW-5-FB	CLEE03	CLEE03-FB	CLEE06	CMW-1	CMW-2	CMW-3	CMW-4	CMW-5	CMW-5-FB
Laboratory Sample Identification:		MEE2940	MEE2941	MEE2942	MEE2944	MEE2943	MEE2946	MEE2945	MEE2947	20840-01	20840-02	20840-03	20840-04	20840-05	20840-06
Matrix:		Water	Water	Water	Water	Water	Soil	Soil	Soil	Water	Water	Water	Water	Water	Water
Sample Collection Date:		9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93	9/22/93
Organochlorine Pesticides	Units														
alpha-BHC	ug/L														
beta-BHC	ug/L														
delta-BHC	ug/L														
gamma-BHC (Lindane)	ug/L														
Heptachlor	ug/L														
Aldrin	ug/L														
Heptachlor epoxide	ug/L														
Endosulfan I	ug/L														
Dieldrin	ug/L														
4,4'-DDE	ug/L														
Endrin	ug/L														
Endosulfan II	ug/L														
4,4'-DDD	ug/L														
Endosulfan sulfate	ug/L														
4,4'-DDT	ug/L														
Methoxychlor	ug/L														
Endrin ketone	ug/L														
Endrin aldehyde	ug/L														
alpha-Chlordane	ug/L														
gamma-Chlordane	ug/L														
Toxaphene	ug/L														
Aroclor 1016	ug/L														
Aroclor 1221	ug/L														
Aroclor 1232	ug/L														
Aroclor 1242	ug/L														
Aroclor 1248	ug/L														
Aroclor 1254	ug/L														
Aroclor 1260	ug/L														
Metals and Cyanide	Units														
Aluminum	ug/L	53.8 U	53.8 U	53.8 U	53.8 U	53.8 U	3580	2740	4940						
Antimony	ug/L	29.4 U	29.4 U	29.4 U	29.4 U	29.4 U	19.7 J	10.1 J	32.9 U						
Arsenic	ug/L	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	25.7 J	70.3 J	211 J						
Barium	ug/L	56.7 J	48 J	58.4 J	59.5 J	57.3 J	76.5	47.3 J	93.4						
Beryllium	ug/L	1 U	1 U	1 U	2.3 J	1 U	0.9 J	0.54 J	1.2 J						
Cadmium	ug/L	2.8 U	2.8 U	2.8 U	4 J	2.8 U	3.6	2 J	3.9						
Calcium	ug/L	111000	174000	199000	166000	137000	26500 J	80900 J	51600 J						
Chromium	ug/L	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	22 J	10.9 J	36 J						
Cobalt	ug/L	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	8.6 J	5.8 J	7.1 J						
Copper	ug/L	3.6 U	4.6 J	3.6 U	6.3 J	3.6 U	135 J	82.1 J	117 J						
Iron	ug/L	18.8 U	18.8 U	18.8 U	122 J	18.8 U	39200 J	22900 J	30400 J						
Lead	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	267 J	146 J	227 J						
Magnesium	ug/L	12200	39900	38300	33100	13000	8940 J	34000 J	12600 J						
Manganese	ug/L	5 U	10.1 J	1.6 U	4.1 J	1.6 J	388 J	280 J	376 J						
Mercury	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.25	0.23	0.18						
Nickel	ug/L	13.2 U	13.2 U	13.2 U	13.2 U	13.2 U	39.9 J	12.2 J	30.1 J						
Potassium	ug/L	4990 U	4990 U	4990 U	4990 U	4990 U	1060 U	1050 U	1110 U						
Selenium	ug/L	1.2 U	1.2 U	1.2 U	2 J	1.2 U	1.8 J	2.1 J	4 J						
Silver	ug/L	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	0.82 U	0.81 U	0.86 U						
Sodium	ug/L	39600	44200	50300	40400	42100	157 J	188 J	222 J						
Thallium	ug/L	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	0.36 J	0.25 J	0.52 J						
Vanadium	ug/L	4.7 U	4.7 U	4.7 U	4.8 J	4.7 U	17.7	13.9	22.4						
Zinc	ug/L	4.2 U	4.2 U	6.5 J	14.3 J	5.4 J	390 J	163 J	228 J						
Cyanide	ug/L	4.4 U	5 U	5.8 J	6 J	5.2 J	0.82 J	0.27 J	0.35 J						
General Chemistry Parameters	Units														
Alkalinity	mg/L									399	395	442	406	372	373
Carbon, Total Organic	mg/L									5.54 J	5.65 J	15.1 J	9.40 J	7.24 J	7.54 J
Chemical Oxygen Demand	mg/L									127 J	49.2 J	144 J	93.7 J	98.4 J	77.8 J
Chloride	mg/L									78.9	55.1	77.8	72.3	61.9	67.7
Hardness as CaCO3	mg/L									651	532	827	569	592	636
Solids, Total Dissolved	mg/L									686	586	830	710	664	774
Solids, Total Suspended	mg/L									2430 J	2240 J	3830 J	3210 J	5510 J	3300 J

MEMORANDUM CH2MHILL

PREPARED FOR: U.S. EPA REGION V

PREPARED BY: David L. Shekoski/CH2M HILL

DATE: January 6, 1993

SUBJECT: Validation of Organic Data for Soil for the Carter-Lee Lumber Site in Indianapolis, Indiana

PROJECT: GLO65616.F0.SM

Included in this validation narrative are the analytical results for 20 soil samples submitted to Southwest Laboratories of Oklahoma under the E.P.A. Contract Laboratory Program. The samples were collected from November 4th through November 7th, 1993 from the Carter-Lee Lumber site in Indianapolis, Indiana. Analysis was performed under Case 19093.

Included in this SDG are samples **ELG01-29, ELG31, ELG33-35, ELG38** and **ELG40-45.**

Qualifiers

The analytical Data from the Carter-Lee Lumber site are reported with the following qualifiers:

U Indicates that the compound is not present above the CRDL.

J Indicates that the result is an **ESTIMATED VALUE.** The reported concentration is above the analytical detection limit but below the Contract Required Detection Limit (CRDL) for the associated compound, **OR** associated QA/QC parameters are outside the acceptable limits.

B Indicates that the reported analyte was found in an associated blank as well as in the sample. It warns the data user of the possibility/probability of contamination.

D Indicates that the associated analyte was **diluted** and reanalyzed. It warns the data user that discrepancies between concentrations reported may be due to dilution.

E Identifies the compounds whose concentrations exceeded the calibration range of the GC/MS. The presence of this qualifier in the validated data

summary indicates that the required dilution/reanalysis was not performed. Data flagged with an **E** is unsubstantiated.

No qualifier means that the data are acceptable for all intended uses.

Holding Time

All volatile samples were analyzed within the 14 day technical holding time. The semi-volatile and pesticide/PCB samples were extracted within the required 14 days and analyzed within the 40 day limit.

GC/MS Tuning

The GC/MS tuning (as reported by internal EPA initial performance review) complied with the mass list and ion abundance criteria for all samples.

The GC resolution check mixtures for the pesticide/PCB fraction were within the acceptable range.

Calibration

The response factors, changes in response factors and relative deviations were evaluated for the initial and continuing calibrations of the volatile and extractable TCL organic standards. For the volatiles and semi-volatiles, the %Relative Standard Deviation (%RSD) for the initial calibration should be less than or equal to 30%, and the continuing calibration %Difference (%D) should be less than or equal to 25%. For pesticides/PCBs, the %D between calibration factors should be 15% or less (20% for compounds being confirmed). The following calibration outliers for the associated detected compounds have been identified:

Volatiles

- The initial calibration %RSD was outside the acceptable limits for **2-Hexanone** (41%) for sample **ELG21**.
- The continuing calibration %D was outside the acceptable limits for **2-Hexanone** (33%) for samples **ELG23, ELG29, ELG31, ELG31RE.**

- The continuing calibration %D was outside the acceptable limits for **Acetone** (26%), **1,2-Dichloroethane** (30%), **2-Hexanone** (28%) and **1,1,2,2-Tetrachloroethane** (26%) for samples **ELG33, ELG35, ELG38, ELG40, ELG44, ELG45.**

- The initial calibration %RSD was outside the acceptable limits for **2-Hexanone** (41.3%) for samples **ELG11, ELG12, ELG13, ELG15, ELG16, ELG17, ELG19, ELG20.**

- The continuing calibration %D was outside the acceptable limits for **2-Hexanone** (33.3%) for samples **ELG12MS, ELG14RE, ELG15RE.**

Semi-volatiles

- The continuing calibration %D was outside the acceptable limits for **2-Nitrophenol** (28%), **2,4-Dinitrophenol** (43%) and **2-4-Dinitrotoluene** (37%), **4-Nitroaniline** (28%), **4,6-Dinitro-2-methylphenol** (72%), and **Benzo[k]fluoranthene** (36%) for samples **ELG44, ELG45.**

- The continuing calibration %D was outside the acceptable limits for **2,2'-Oxybis(chloro-propane)** (46%), **2,4,5-Trichlorophenol** and **2,4-Dinitrophenol** (42%), **4,6-Dinitro-2-methylphenol** (55%), **Di-n-octal phthalate** (34%), **Benzo[k]fluoranthene** (31%) and **2,4,6-Tribromophenol** (54%) for sample **ELG44DL.**

- The continuing calibration %D was outside the acceptable limits for **Hexachlorocyclopentadiene** (34%), **4-Nitroaniline** (33%), **Di-n-butyl phthalate** (26%), **3,3-Dichlorobenzidene** (37%), **Di-n-octyl phthalate** (60%) and **Benzo[b]fluoranthene** (38%) for samples **ELG33, ELG34, ELG35, ELG40, ELG41, ELG42, ELG43.**

- The continuing calibration %D was outside the acceptable limits for **2,2'Oxybis(1-chloro-propane)** (30%), **Butylbenzyl phthalate** (48%), **3,3'-Dichlorobenzidine** (37%), **bis(2-Ethylhexyl)phthalate** (32%) and **Di-n-octyl phthalate** (38%) for sample **ELG38.**

- The continuing calibration %D was outside the acceptable limits for **2,4-Dinitrophenol** (27%), **bis(2-Ethylhexyl)phthalate** (30%), **Di-n-octyl phthalate** (27%) and **Indeno[1,2,3-cd)pyrene** (33%) for samples **ELG21, ELG22, ELG23, ELG24, ELG25, ELG26, ELG27, ELG28, ELG29.**

- The continuing calibration %D was outside the acceptable limits for **2,2'-Oxybis(1-chloro-propane** (43.7%), and **2,4-Dinitrophenol** (33.7%) for sample **ELG03**.

- The continuing calibration %D was outside the acceptable limits for **Hexachlorocyclopentadiene** (48.8%), and **2,4-Dinitrophenol** (34.7%) for samples **ELG02MS, ELG02MSD, ELG10DL**.

- The continuing calibration %D was outside the acceptable limits for **2,4-Dimethylphenol** (33.0%), **4-Chloroaniline** (34.6%), **Hexachlorocyclopentadiene** (49.2%), **2,4-Dinitrophenol** (26.4%), **3,3-'Dichlorobenzidine** (26.5%), **Di-n-octyl phthalate** (34.2%), **Benzo[b]fluoranthene** (27.1%) and **Benzo[k]fluoranthene** (37.1%) for samples **ELG18, ELG19, ELG20, ELG03DL, ELG08DL**.

- The continuing calibration %D was outside the acceptable limits for **4-Chloroaniline** (32.7%), **2-Methylnaphthalene** (35.4%), **2,4-Dinitrophenol** (55.8%) and **4,6-Dinitro-2-methylphenol** (34.4%) for samples **ELG02, ELG11, ELG13, ELG14, ELG15RE, ELG16RE, ELG17.**

Pesticides/PCBs

- The initial calibration %RSD was outside the acceptable limits for **Alpha-BHC** (25%) and **4,4'-DDT** (28%) for samples **ELG44, ELG45**.

In samples with calibration outliers, all positively identified outlier compounds are considered ESTIMATED and flagged "**J**".

Blanks

This data group contained no field (equipment) blanks or volatile trip blanks.

For the contaminants present in blanks, the following rules were applied:

- If a compound is present in an associated blank but not in the sample, no action is taken.

- If a blank contaminant is present in a sample **below** the Contract Required Detection Limit (CRDL) **and** less than 5 times the blank contamination (10 times the blank for **Methylene chloride, Acetone, 2-Butanone, Toluene** and **common phthalates**, all common laboratory contaminants), the CRDL is reported for those compounds and flagged **"U"**. For the sake of simplicity, a listing of affected samples is not included in this narrative since the net effect is that the compound in the sample would still be treated as "not detected".

- If a blank contaminant is present in a sample **below** the CRDL **and** more than 5 times the blank contamination (10 times the blank for common laboratory contaminants), the concentration is reported for those compounds and flagged **"J"**.

- If a blank contaminant is present in a sample **above** the CRDL but is less than 5 times the blank contaminant (10 times the blank for common laboratory contaminants), the sample concentration reported by the laboratory is retained, but is flagged **"B"**.

- If a blank contaminant is present in a sample above the CRDL and greater than 5 times the blank contaminant (10 times the blank for common laboratory contaminants), the sample concentration reported by the laboratory is retained without qualifiers.

Volatiles

No volatiles were detected in any of the associated volatile method blanks.

Semi-volatiles

- **bis(2-Ethylhexyl)phthalate** was detected below the CRDL and less than 10 times the concentration found in the blank, therefore the reported concentration was replaced with the CRDL and flagged **"U"** in samples **ELG21, ELG22, ELG24, ELG27, ELG28, ELG29, ELG44, ELG44DL, ELG45.**

- **bis(2-Ethylhexyl)phthalate** was detected below the CRDL but greater than 10 times the concentration found in the blank, therefore the concentration is retained but is considered ESTIMATED and flagged "J" in sample **ELG31.**

Bis(2-Ethylhexyl)phthalate and **Di-n-octylphthalate** were detected in semi-volatile method blank **SBLK1.**

- **Bis(2-ethylhexyl)phthalate** was detected below the CRDL and less than 10 times the concentration found in the blank, therefore the reported concentration was replaced with the CRDL and flagged "U" in samples **ELG01, ELG04, ELG05, ELG06, ELG08,**

- **Bis(2-ethylhexyl)phthalate** was detected above the CRDL and more than 10 times the concentration found in the method blank. The concentrations were retained and reported without qualifiers in samples **ELG03, ELG07, ELG10.**

- **Bis(2-ethylhexyl)phthalate** was detected above the CRDL and less than 10 times the concentration found in the method blank. The concentrations were retained but are considered to be the results of contamination and flagged "B" in sample: **ELG09**

Bis(2-Ethylhexyl)phthalate and **Di-n-octylphthalate** were detected in semi-volatile method blank **SBLK3.**

- **Bis(2-ethylhexyl)phthalate** was detected below the CRDL and less than 10 times the concentration found in the blank, therefore the reported concentration was replaced with the CRDL and flagged "U" in samples **ELG03DL, ELG08DL, ELG09DL, ELG14, ELG15RE, ELG16, ELG16RE, ELG17, ELG18, ELG19, ELG20.**

- **Bis(2-ethylhexyl)phthalate** was detected above the CRDL and less than 10 times the concentration found in the method blank. The concentrations were retained but are considered to be the results of contamination and flagged "B" in samples **ELG11, ELG12, ELG13.**

Pesticides/PCBs

No pesticides/PCB method blank contamination was reported.

Surrogate Recoveries

Volatiles

For the volatile fraction, data are qualified if one or more surrogate recoveries are outside the acceptable QC range. The following samples fall into that category:

- Surrogate recovery for compound **1,2-Dichloroethane-d4** was reported below the acceptable limits (70-121) in sample **ELG33** (69).
- Surrogate compound **Toluene-d8** was reported above the acceptable limits (84-138) in sample **ELG20** (144).

All positive volatile detections in this samples are considered ESTIMATED and flagged **"J"**. All non-detects are flagged **"UJ"**.

Semi-volatiles

For the semi-volatile fraction, data are qualified if two or more surrogate recoveries are outside the acceptable QC range.

- All semi-volatile surrogate recoveries were within the acceptable QC range.

Pesticides/PCBs

- Surrogate recovery for compound **Decachlorobiphenyl** was reported below the acceptable limits (60-150) in sample **ELG25MS** (50).

High pesticide/PCB recoveries were observed for **Decachlorobiphenyl** on column DB-608 for samples **ELG15** and **ELG19**. All positive results in these samples are considered ESTIMATED and flagged **"J"** due to high bias and co-eluting interferences.

Internal Standards

Internal standard peak areas and retention times (as reported by internal EPA review) were within the acceptable range for all semi-volatile samples with the following exceptions:

Volatiles

The internal standard area counts for **1,4-Difluorobenzene** (IS1) were outside the acceptable limits in samples **ELG33, ELG33RE, ELG42, ELG44, ELG45, ELG45RE**.

The internal standard area counts for **Chlorobenzene-d5** (IS2) were outside the acceptable limits in samples **ELG31, ELG31RE, ELG33, ELG33RE, ELG38, ELG40, ELG40RE, ELG42, ELG42RE, ELG44, ELG44RE, ELG45, ELG45RE**.

The internal standard area counts for **1,4-Dichlorobenzene-d4** (IS3) were outside the acceptable limits in samples **ELG23, ELG23RE, ELG31, ELG31RE, ELG33, ELG33RE, ELG38, ELG38RE, ELG40, ELG40RE, ELG42, ELG42RE, ELG44, ELG44RE, ELG45, ELG45RE**.

The internal standard area counts for **Bromochloromethane** were outside the acceptable limits in samples **ELG20, ELG20RE**.

The internal standard area counts for **1,4-Diflourobenzene** were outside the acceptable limits in samples **ELG11, ELG14RE, ELG15, ELG19, ELG20RE**.

The internal standard area counts for **Chlorobenzene-d5** were outside the acceptable limits in samples **ELG11, ELG11RE, ELG12MS, ELG13, ELG13RE, ELG14, ELG14RE, ELG15, ELG15RE, ELG17, ELG17RE, ELG19, ELG19RE, ELG20, ELG20RE**.
All positive volatile detections are considered ESTIMATED and flagged **"J"**, and all non-detects are flagged **"UJ"** for the compounds associated with each internal standard.

Semi-volatiles

The internal standard area count for **Perylene-d12** (IS6) was outside the acceptable QC limits for sample **ELG44**.

The internal standard area counts for **Chrysene-d12** (IS5) and **Perylene-d12** (IS6) were outside the acceptable QC limits for sample **ELG44DL**.

- The internal standard area counts for **ALL INTERNAL STANDARDS** were outside the acceptable QC limits for sample **ELG15.**
- The internal standard area counts for **Chrysene-d12** (IS5) was outside the acceptable QC limits for samples **ELG03**.

- The internal standard area counts for **Perylene-d12** (IS6) was outside the acceptable QC limits for sample **ELG02MS, ELG15RE,** and **ELG16RE.**

- The internal standard area counts for **Chrysene-d12** (IS5) and **Perylene-d12** (IS6) were outside the acceptable QC limits for samples **ELG12MSD** and **ELG16.**

All positive semi-volatile detections are considered ESTIMATED and flagged **"J"**, and all non-detects are flagged **"UJ"** for the compounds associated with each internal standard.

Field Duplicates

ELG25 is a field duplicate of **ELG24**. **ELG25** is a field duplicate of **ELG24**.

All compounds reported above the detection limits agree within a %D of 12.5%.

Since there are no specific criteria for organic duplicate comparison, no action is taken based on sample/duplicate relative performance.

Matrix Spike/Matrix Spike Duplicates

Volatiles

The volatile MS/MSD spike recoveries and %RPD results were within the acceptable limits except for the %RPD for **1,1-Dichloroethene** (23%) in the matrix spike duplicate of **ELG12**, which was above the upper limit criteria (22%).

Semi-volatiles

Sample **ELG38** was used for semi-volatile matrix spike/matrix spike duplicate analyses

The semi-volatile MS/MSD spike recoveries and %RPD results were within the acceptable limits except for the %Recovery for **Pyrene** and **4-Nitrophenol** in the matrix spike AND matrix spike duplicate, which was below the %Recovery lower limit criteria for **pyrene** (3 and -43, respectively with a QC range of 35-142) and above the upper limit criteria for **4-Nitrophenol** (145 and 131 respectively with a QC range of 11-114). There is no **4-Nitrophenol** reported in this sample, so no action is taken. **Pyrene** is reported at a concentration of 4200, which is considered ESTIMATED and flagged **"J"** due to potential low bias.

For sample **ELG02**, the semi-volatile MS/MSD spike recoveries and %RPD results were within the acceptable limits except for the %Recovery for **Pyrene** (-881%) in the matrix spike and **Phenol** (101% recovery and 52%RPD), **1,4-Dichlorobenzene** (43%RPD), **N-Nitroso-di-n-propylamine** (48%RPD), **1,2,4-Trichlorobenzene** (46%RPD), **4-Chloro-3-methylphenol** (43%RPD), **Acenaphthene** (63%RPD), **4-Nitrophenol** (64%RPD), **2,4-Dinitrotoluene** (61%RPD), **Pentachlorophenol** (60%RPD) and **Pyrene** (-500% recovery and 55%RPD) in the matrix spike duplicate.

For sample **ELG12**, the semi-volatile MS/MSD spike recoveries and %RPD results were within the acceptable limits except for the %Recovery for **4-Nitrophenol** (125%) in the matrix spike and **4-Nitrophenol** (134% recovery), **2,4-Dinitrotoluene** (91% recovery) and **Pyrene** (37%RPD) in the matrix spike duplicate.

Since the results between the two matrix spikes and matrix spike duplicates do not display good correlation, it cannot be assumed that the recovery and precision problems associated with these samples are universally applied throughout this analytical group. Since pyrene is not detected in unspiked **ELG02** but sufficient evidence exists to suggest low bias, the non-detected **Pyrene** in flagged **"UJ"** in this sample.

Pesticides/PCBs

Sample **ELG25** and **ELG38** were used for the pesticide/PCB matrix spike/matrix spike duplicate analyses.

The pesticide/PCB MS/MSD spike recoveries and %RPD results were within the acceptable limits except for the relative % difference in sample **ELG25** for **Heptachlor** and **Dieldrin**, which were above the RPD upper limits for these compounds. The reported RPDs were 34 and 41, respectively, with respective upper QC limits of 31 and 38. The positive **Heptachlor** result is considered ESTIMATED and flagged **"J"** and the non-detected **Dieldrin** detection limit is flagged **"UJ"** due to poor precision in this sample.

Sample **ELG38** matrix spike results are within the acceptable QC range.

The Functional Guidelines do not provide action criteria for qualifying data based on matrix spike/Matrix spike duplicate outliers alone.

General Pesticide/PCB Performance

The difference between columns for **4,4'-DDT** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged **"J"** due

to poor precision in samples **ELG22, ELG23, ELG27, ELG31, ELG33, ELG38, ELG45.**

The difference between columns for **Heptachlor** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in samples **ELG23, ELG31, ELG40.**

The difference between columns for **alpha-Chlordane** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in samples **ELG27, ELG31DL, ELG38, ELG40DL.**

The difference between columns for **Endrin** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in samples **ELG33, ELG38, ELG40, ELG40DL.**

The difference between columns for **Heptachlor epoxide** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in sample **ELG40.**

The difference between columns for **Endrin ketone** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in samples **ELG45.**

The difference between columns for **Endrin** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in samples **ELG13, ELG17, ELG18, ELG20.**

The difference between columns for **4,4'-DDT** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in **ELG13, ELG20.**

The difference between columns for **Endosulfan II** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in samples **ELG15, ELG17, ELG19.**

The difference between columns for **Heptachlor epoxide** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "J" due to poor precision in samples **ELG17, ELG18.**

The difference between columns for **alpha-Chlordane** is greater than 25% fo[illegible] concentrations, therefore this compound is considered ESTIMATED and flagged "**J**" due to poor precision in samples **ELG17, ELG18, ELG19.**

The difference between columns for **gamma-Chlordane** is greater than 25% for detected concentrations, therefore this compound is considered ESTIMATED and flagged "**J**" due to poor precision in sample **ELG18.**

MEMORANDUM CH2M HILL

PREPARED FOR: U.S. EPA REGION V

PREPARED BY: David L. Shekoski/CH2M HILL

DATE: January 6, 1993

SUBJECT: Validation of Organic Data for Groundwater for the Carter-Lee Lumber Site in Indianapolis, Indiana.

PROJECT: GLO65616.F0.SM

Included in this validation narrative are the analytical results for 15 water samples submitted to Southwest Laboratories of Oklahoma under the E.P.A. Contract Laboratory Program. The samples were collected from November 4th through November 7th, 1993 from the Carter-Lee Lumber site in Indianapolis, Indiana. Analysis was performed under Case 19093.

Samples included in this SDG are ELG30, ELG32, ELG36-37, ELG39, ELG46-65, and ELG69-71.

Qualifiers

The analytical Data from the Carter-Lee Lumber site are reported with the following qualifiers:

U Indicates that the compound is not present above the CRDL.

J Indicates that the result is an **ESTIMATED VALUE.** The reported concentration is above the analytical detection limit but below the Contract Required Detection Limit (CRDL) for the associated compound, **OR** associated QA/QC parameters are outside the acceptable limits.

B Indicates that the reported analyte was found in an associated blank as well as in the sample. It warns the data user of the possibility/probability of contamination.

D Indicates that the associated analyte was **diluted** and reanalyzed. It warns the data user that discrepancies between concentrations reported may be due to dilution.

E Identifies the compounds whose concentrations exceeded the calibration range of the GC/MS. The presence of this qualifier in the validated data summary indicates that the required dilution/reanalysis was not performed. Data flagged with an E is unsubstantiated.

No qualifier means that the data are acceptable for all intended uses.

Holding Time

All volatile samples were analyzed within the 14 day technical holding time. The semi-volatile and pesticide/PCB samples were extracted within the required 14 days and analyzed within the 40 limit.

GC/MS Tuning

The GC/MS tuning (as reported by internal EPA initial performance review) complied with the mass list and ion abundance criteria for all samples.

The GC resolution check mixtures for the pesticide/PCB fraction were within the acceptable range.

Calibration

The response factors, changes in response factors and relative deviations were evaluated for the initial and continuing calibrations of the volatile and extractable TCL organic standards. For the volatiles and semi-volatiles, the %Relative Standard Deviation (%RSD) for the initial calibration should be less than or equal to 30%, and the continuing calibration %Difference (%D) should be less than or equal to 25%. For pesticides/PCBs, the %D between calibration factors should be 15% or less (20% for compounds being confirmed). The following calibration outliers for the associated detected compounds have been identified:

Volatiles

- The continuing calibration %D was outside the acceptable limits for **Chloromethane** (26.1%), **Bromomethane** (26.1%), **Chloroethane** (28.2%), **Carbon disulfide** (27.9%) and **2-Butanone** (31.2%) for samples **ELG68** and **ELG69**.

- The continuing calibration %D was outside the acceptable limits for **Acetone** (29.0%) and **2-Butanone** (35.3%) for sample **ELG71**.

- The continuing calibration %D was outside the acceptable limits for **Chloroethane** (36.2%) and **Acetone** (45.6%) for samples **ELG60, ELG60RE, ELG61, ELG62, ELG64, ELG64RE**.

- The continuing calibration %D was outside the acceptable limits for **Acetone** (26.2%), **1,2-Dichloroethane** (29.9%), **2-Hexanone** (26.1%) and **1,1,2,2-Trichloroethane** (25.8%) in sample **ELG53**.

Semi-Volatiles

- The continuing calibration %D was outside the acceptable limits for **4-Chloroaniline** (32.7%), **2-Methylnaphthalene** (35.4%) and **2,4-Dinitrophenol** (55.8%) for sample **ELG37RE**.

- The continuing calibration %D was outside the acceptable limits for **2-Nitrophenol** (28.1%), **2,4-Dinitrophenol** (43.0%) and **2,4-Dinitrotoluene** (37.1%) for samples **ELG46, ELG50, ELG53, ELG54**.

- The continuing calibration %D was outside the acceptable limits for **2-Nitrophenol** (27.5%), **2,4,5-Trichlorophenol** (39.3%), **2,4-Dinitrophenol** (52.3%) and **2,4-Dinitrotoluene** (29.1%) for samples **ELG55, ELG58, ELG60**.

- The continuing calibration %D was outside the acceptable limits for **2-,2'-Oxybis(1-chloro-propane)** (46.5%), **2,4,5-Trichlorophenol** (33.1%) and **2,4-Dinitrophenol** (42.1%) for samples **ELG52, ELG52RE, ELG59, ELG59RE, ELG61, ELG62, ELG63, ELG64RE.**

Pesticides/PCBs

- The initial calibration %RSD was outside the acceptable limits for **Alpha-BHC** (24.6%) and **4-4'-DDT** (27.7%) for sample **ELG46**.

- The continuing calibration %RSD was outside the acceptable limits for **4,4'-DDT** (27.0%) for samples **ELG63, ELG64DL** and **ELG50**.

In these samples, all positively identified outlier compounds are considered ESTIMATED and flagged **"J"**.

Blanks

ELG32, ELG67 and **ELG71** are volatile trip blanks, and **ELG69** is a field (equipment) blank.

For the contaminants present in blanks, the following rules were applied:

- If a compound is present in an associated blank but not in the sample, no action is taken.
- If a blank contaminant is present in a sample **below** the Contract Required Detection Limit (CRDL) **and** less than 5 times the blank contamination (10 times the blank for **Methylene chloride, Acetone, 2-Butanone, Toluene** and **common phthalates**, all common laboratory contaminants), the CRDL is reported for those compounds and flagged **"U"**. For the sake of simplicity, a listing of affected samples is not included in this narrative since the net effect is that the compound in the sample would still be treated as "not detected".
- If a blank contaminant is present in a sample **above** the CRDL but is less than 5 times the blank contaminant (10 times the blank for common laboratory contaminants), the sample concentration reported by the laboratory is retained, but is flagged **"B"**.
- If a blank contaminant is present in a sample above the CRDL and greater than 5 times the blank contaminant (10 times the blank for common laboratory contaminants), the sample concentration reported by the laboratory is retained without qualifiers.

With the application of these guidelines, the following results have been qualified:

Volatiles

- **Methylene chloride** was detected below the CRDL and less than 10 times the concentration found in associated daily trip blanks and in samples:

ELG39, ELG48, ELG49, ELG51, ELG65, ELG68. The reported concentrations were replaced with the CRDL and flagged "**U**".

- **Acetone** was detected above the CRDL but less than 10 times the concentration found in the associated trip blanks, therefore the reported concentrations are flagged "**B**".

Methylene chloride, Acetone and **2-Butanone** were detected in volatile method blank **VBLK3**.

- In samples **ELG60, ELG60RE, ELG64** and **ELG64RE, Methylene chloride** was detected above the CRDL and more than 10 times the concentration found in the blank, therefore the reported concentrations were retained and without qualifiers.

- In sample **ELG61, Methylene chloride** was detected below the CRDL and less then 10 times the concentration found in the blank, therefore the reported concentration was replaced with the CRDL and flagged "**U**".

- In sample **ELG62, Methylene chloride** was detected above the CRDL but less than 10 times the concentration reported in the blank, therefore the reported concentration is reported and flagged "**B**".

- In samples **ELG60, ELG60RE, ELG61, ELG64** and **ELG64RE, Acetone** was detected above the CRDL but less than 10 times the concentration reported in the blank, therefore the reported concentration was retained and flagged "**B**".

- In sample **ELG62, Acetone** was detected above the CRDL and more than 10 times the concentration reported in the blank, therefore the reported concentration was retained without qualifiers.

- In samples **ELG60** and **ELG61, 2-Butanone** was detected less than the CRDL and less than 10 times the concentration found in the blank, therefore the reported concentration was replaced with the CRDL and flagged "**U**".

- In samples **ELG62, ELG64** and **ELG64RE, 2-Butanone** was detected above the CRDL and less than 10 times the concentration found in the blank, therefore the reported concentration was retained and flagged "**B**".

Semi-volatiles

- **Di-n-butylphthalate** was detected below the CRDL in method blank **SBLK4** (0.7ug/l). This compound was also detected below the CRDL in samples **ELG68** and **ELG69**. The reported concentrations were replaced with the CRDL and flagged "U".

Bis(2-ethylhexyl)phthalate was detected in semi-volatile method blank SBLK1. All samples included in this SDG reported positive detections for this compound.

- **Bis(2-ethylhexyl)phthalate** was detected below the CRDL and less than 10 times the concentration found in the blank, therefore the reported concentration was replaced with the CRDL and flagged "U" in samples **ELG46, ELG50, ELG53-61, ELG61RE, ELG63, ELG63RE**.

Pesticides/PCBs

- No target analytes were found in the water method blanks, the instrument method blanks or the field blank.

Surrogate Recoveries

Volatiles

- Surrogate compound **Toluene-d8** was reported above the acceptable limits (84-138) in samples **ELG60RE** (141) and **ELG64** (143).

- Surrogate compound **1,2-Dichlorotethane-d4** was reported above the acceptable limits (70-121) in sample **ELG58RE** (124).

All volatile positive detections in the samples are considered ESTIMATED and flagged "**J**". All non-detects are flagged "**UJ**".

Semi-volatiles

For the semi-volatile fraction, data are qualified if two or more surrogate recoveries are outside the acceptable QC range.

- Surrogate compounds **2-Fluorobiphenyl** and **Terphenyl-d14** were reported above the acceptable limits (30-155 and 18-137, respectively) for samples

ELG64 (125 and 185 respectively) and **ELG64RE** (127 and 196 respectively).

Semi-volatile surrogate recovery for **2-Chlorophenol-d4** in sample **ELG37RE** (31) is outside the acceptable range for this compound (33-110).

All semi-volatile positive detections in the samples are considered ESTIMATED and flagged **"J"**. All non-detects are flagged **"UJ"**.

Pesticides/PCBs

Low pesticide/PCB recoveries were observed for **Decachlorobiphenyl** for samples **ELG30, ELG36, ELG37, ELG47, ELG48, ELG65.**

Low pesticide/PCB recoveries were also observed for **Decachlorobiphenyl** and **Tetrachloro-m-xylene** in sample **ELG66.**

Low pesticide/PCB recoveries were observed for **Decachlorobiphenyl-2** for sample **ELG52.**

High pesticide/PCB recoveries were observed for **Tetrachloro-m-xylene-2** in sample **ELG64DL.**

High pesticide/PCB recoveries were observed for **Decachlorobiphenyl-1&2 and Tetrachloro-m-xylene-1&2** for sample **ELG64.**

In the above samples, all positive detections are considered estimated and flagged **"J"**, and all non-detects are flagged **"UJ"**.

Internal Standards

Volatiles

The internal standard area counts for **Bromochloromethane** were outside the acceptable limits in samples **ELG52, ELG52RE, ELG58, ELG64RE.**

The internal standard area counts for **1,4-Diflourobenzene** were outside the acceptable limits in samples **ELG52, ELG52RE, ELG53RE, ELG58, ELG60, ELG60RE, ELG64RE.**

The internal standard area counts for **Chlorobenzene-d5** were outside the acceptable limits in samples **ELG52, ELG52RE, ELG53, ELG58, ELG58RE, ELG60, ELG60RE, ELG64, ELG64RE**.

All positive volatile detections are considered ESTIMATED and flagged **"J"**, and all non-detects are flagged **"UJ"** for the compounds associated with each internal standard.

Semi-volatiles

Internal standard peak areas and retention times (as reported by internal EPA review) were within the acceptable range for all semi-volatile samples with the following exceptions:

- **ELG37RE** where the area count was low for internal standard **IS3** (Acenaphthene-d10). Since no detections were observed in the analytes associated with this internal standard, all associated analytes are flagged **"UJ"**.

- **ELG37** and **ELG37RE** where the area counts were low for **IS4** (Phenanthrene-d10). Under this condition, all positive detects associated with this internal standard are considered ESTIMATED and flagged **"J"**, and all non-detects are flagged **"UJ"**.

The internal standard area counts for **Chrysene-d12** and **Perylene-d12** were outside the acceptable QC limits for samples **ELG52, ELG52RE, ELG59, ELG59RE, ELG60, ELG60RE, ELG61, ELG61RE, ELG62, ELG62RE, ELG63, ELG63RE, ELG64** and **ELG64RE**.

All positive semi-volatile detections are considered ESTIMATED and flagged **"J"**, and all non-detects are flagged **"UJ"** for the compounds associated with each internal standard.

Field Duplicates

ELG36 is a field duplicate of **ELG37**. No compounds were detected in either sample.

ELG53 is a field duplicate of **ELG52**.

Since there are no specific criteria for organic duplicate comparison, no action is taken based on sample/duplicate relative performance.

Matrix Spike/Matrix Spike Duplicates

Volatiles

The volatile MS/MSD spike recoveries and %RPD results were within the acceptable limits except for the %RPD for **Toluene** in the matrix spike duplicate of **ELG65**, which was below the lower limit criteria.

Semi-volatiles

The semi-volatile MS/MSD spike recoveries and %RPD results were within the acceptable limits except for the %Recovery for **4-Nitrophenol, 2,2-Dinitrotoluene** and **Pentachlorophenol** in the matrix spike and matrix spike duplicate of **ELG65** which was below the lower limit criteria.

Pesticides/PCBs

All matrix spike/matrix spike duplicate criteria are acceptable.

The Functional Guidelines do not provide action criteria for qualifying data based on matrix spike/Matrix spike duplicate outliers alone.

MEMORANDUM CH2MHILL

PREPARED FOR: U.S. EPA REGION V

PREPARED BY: David L. Shekoski/CH2M HILL

DATE: January 11, 1993

SUBJECT: Validation of Inorganic Data for Soil for the Carter-Lee Lumber Site in Indianapolis, Indiana.

PROJECT: GLO65616.F0.SM

Included in this validation narrative are the analytical results for 20 soil samples submitted to SVL Analytical, Inc. under the E.P.A. Contract Laboratory Program. The samples were collected from the Carter-Lee Lumber site in Indianapolis, Indiana. Analysis was performed under Case 19093.

This SDG contains the analytical results for samples **MEKA01-29, MEKA31, MEKA33-35, MEKA38, MEKA40-46, MEKA50, MEKA52-64.**

Qualifiers

The analytical Data from the Carter-Lee Lumber site are reported with the following qualifiers:

U Indicates that the compound is not present above the CRDL.

J Indicates that the result is an **ESTIMATED VALUE.** The reported concentration is above the analytical detection limit but below the Contract Required Detection Limit (CRDL) for the associated compound, **OR** associated QA/QC parameters are outside the acceptable limits.

No qualifier means that the data are acceptable for all intended uses.

Holding Time

No criteria for holding time in soils has been established.

Blanks

For the contaminants present in blanks, the following rules were applied:

- If a compound is present in an associated blank but not in the sample, no action is taken.

- If a blank contaminant is present in a sample **above** the CRDL but is less than 5 times the blank contaminant, the sample concentration reported by the laboratory is considered ESTIMATED and flagged **"J"**.

- If a blank contaminant is present in a sample above the CRDL and greater than 5 times the blank contaminant, the sample concentration reported by the laboratory is retained without qualifiers.

Blanks - ICP

- The preparation blank contained **Potassium** (494.5 ug/l). All positive results <5 times the concentration found in the blank are considered ESTIMATED and flagged "J" due to contamination. Samples affected by this application

- The duplicate audit RPD for **Calcium** was outside the acceptable QC limit (37.1%). This compound was detected in the following samples, therefore all reported **Calcium** is considered ESTIMATED and flagged **"J"** due to poor precision: **MEKA01-20.**

The **GFAA** duplicate audits were within the acceptable QC range with the following exceptions:

- The duplicate audit RPD for **Arsenic** is outside the acceptable QC limits (49.7%). Since all samples reported positive detections for **Arsenic**, **ALL Arsenic** results are considered ESTIMATED and flagged **"J"** due to poor precision.

- The duplicate audit RPD for **Lead** is outside the acceptable QC limits (44.5%). Since all GFAA samples reported positive detections for **Lead**, **ALL Lead** results are considered ESTIMATED and flagged **"J"** due to poor precision in the following samples: **MEKA21, MEKA22, MEKA24, MEKA25, MEKA26, MEKA28, MEKA29, MEKA33, MEKA34, MEKA35, MEKA41, MEKA42, MEKA43.**

Matrix Spike Recovery

flagged "**J**" due to high bias in the following samples: **MEKA01, MEKA03-05, MEKA07-10, MEKA15-16, MEKA18-20.**

All GFAA matrix spike recoveries are within the acceptable QC limits EXCEPT:

- **Arsenic** had a matrix spike recovery of 29.9%. All **Arsenic** results are considered ESTIMATED and flagged "**J**" due to low bias.

- The matrix spike %R for **Selenium** (70.2%) is below the lower acceptable limit (75-125%). All positive results are considered ESTIMATED and flagged "**J**" due to low bias **and interference** in the following samples: **MEKA46, MEKA50, MEKA53, MEKA54, MEKA55, MEKA56, MEKA57, MEKA58, MEKA59, MEKA60, MEKA61, MEKA62, MEKA63,** and **MEKA64.** Non-detects are flagged "**UJ**" due to possible elevation of the detection limit in sample **MEKA52.**

- The matrix spike %R for **Selenium** (60.0%) is below the lower acceptable limit (75-125%). All non-detects are flagged "**UJ**" due to possible elevation of the detection limit in samples **MEKA11, MEKA13, MEKA20.**

GFAA Interference

Positive results for **Selenium** are considered ESTIMATED and flagged "**J**" in the following samples due to interference: **MEKA21, MEKA23, MEKA28, MEKA29, MEKA31, MEKA33, MEKA35, MEKA38, MEKA42, MEKA43, MEKA44, MEKA45.**

This compound is flagged "**UJ**" in the following samples due to interference: **MEKA22, MEKA24, MEKA25, MEKA26, MEKA27. MEKA34, MEKA40, MEKA41.**

Positive results for **Thallium** are considered ESTIMATED and flagged "**J**" in the following samples due to interference: **MEKA31, MEKA33, MEKA34, MEKA35, MEKA40, MEKA41, MEKA42, MEKA45.**

This compound is flagged "**UJ**" in the following samples due to interference: **MEKA21, MEKA22, MEKA23, MEKA24, MEKA25, MEKA26, MEKA27, MEKA28, MEKA29, MEKA38, MEKA43, MEKA44.**

Arsenic results are flagged "**UJ**" in samples **MEKA03-04** due to low bias and interference.

Thallium results are flagged "**UJ**" in sample **MEKA13** due to interference.

MEMORANDUM CH2MHILL

PREPARED FOR: U.S. EPA REGION V

PREPARED BY: David L. Shekoski/CH2M HILL

DATE: January 11, 1993

SUBJECT: Validation of Inorganic Data for Groundwater for the Carter-Lee Lumber Site in Indianapolis, Indiana

PROJECT: GLO65616.F0.SM

Included in this validation narrative are the analytical results for 15 water samples submitted to SVL Analytical, Inc. under the E.P.A. Contract Laboratory Program. The samples were collected from the Carter-Lee Lumber site in Indianapolis, Indiana. Analysis was performed under Case 19093.

This SDG contains the analytical results for samples **MEKA30, MEKA36-37, MEKA47-49, MEKA51, MEKA65-66, MEKA68-69.**

Qualifiers

The analytical Data from the Carter-Lee Lumber site are reported with the following qualifiers:

U Indicates that the compound is not present above the CRDL.

J Indicates that the result is an **ESTIMATED VALUE.** The reported concentration is above the analytical detection limit but below the Contract Required Detection Limit (CRDL) for the associated compound, **OR** associated QA/QC parameters are outside the acceptable limits.

No qualifier means that the data are acceptable for all intended uses.

Holding Time

All samples met the required holding time for inorganic water sample analysis.

Blanks

For the contaminants present in blanks, the following rules were applied:

- If a compound is present in an associated blank but not in the sample, no action is taken.

- If a blank contaminant is present in a sample **above** the CRDL but is less than 5 times the blank contaminant, the sample concentration reported by the laboratory is considered ESTIMATED and flagged **"J"**.

- If a blank contaminant is present in a sample above the CRDL and greater than 5 times the blank contaminant, the sample concentration reported by the laboratory is retained without qualifiers.

With the application of these guidelines, the following results have been qualified:

Sample **MEKA69** is a field (equipment) blank. This sample contained **Barium** (1.5 ug/l), **Calcium** (110 ug/l) and **Magnesium** (57.4 ug/l). No samples were affected due to the application of the "5 times" rule.

Blanks - ICP

Aluminum was detected at 28.548 ug/l in the preparation blank. All positive results in the following samples are less than five times the concentration found in the blank, and are considered ESTIMATED and flagged "J" due to contamination: **MEKA37, MEKA48, MEKA49, MEKA66, MEKA69.**

Iron was detected at 6.975 ug/l in the preparation blank. All positive results in the following samples are less than five times the concentration found in the blank, and are considered ESTIMATED and flagged "J" due to contamination: **MEKA36, MEKA37, MEKA47, MEKA47, MEKA65, MEKA66, MEKA69.**

Sodium was detected at 77.479 ug/l in the preparation blank. The positive result in the following sample is less than five times the concentration found in the blank, and are considered ESTIMATED and flagged "J" due to contamination: **MEKA69.**

Thallium was detected at 1.4 ug/l in the continuing calibration blank. The positive results in the following samples are less than five times the concentration found in the blank, and are considered ESTIMATED and flagged "J" due to contamination: **MEKA68, MEKA69.**

Blanks - GFAA

Selenium was detected at 1.837 ug/l in the preparation blank. All positive results in the following samples are less than five times the concentration found in the blank, and are considered ESTIMATED and flagged **"J"** due to contamination: **MEKA30, MEKA36, MEKA37, MEKA47, MEKA48, MEKA49, MEKA51, MEKA65, MEKA66, MEKA68.**

ICP and GFAA Duplicate Audits

The duplicate audit acceptable QC range is:

- For sample concentrations greater than five times the CRDL, the RPD must be between 80-120% for water, and 65-135% for soil

OR

- For sample concentrations less than five times the CRDL, the duplicate concentration must be +/- the CRDL for water or two times the CRDL for soil.

All ICP and GFAA duplicate audits were within the acceptable limits.

Matrix Spike Recovery

The acceptable QC range for matrix spike recovery is 75-125%.

All matrix spike recoveries are within the acceptable QC limits EXCEPT:

GFAA matrix spike recovery

Selenium had a matrix spike recovery of 73%. This compound is considered ESTIMATED and flagged **"J"** due to low bias in the following samples: **MEKA48, MEKA51, MEKA66.** This compound is flagged **"UJ"** in the following sample due to possible elevated detection limit: **MEKA61.**

GFAA Interference

Positive results for **Lead** are considered ESTIMATED and flagged **"J"** in the following samples due to interference: **MEKA36, MEKA37, MEKA48, MEKA65, MEKA66.** This compound is flagged **"UJ"** in the following samples due to interference: **MEKA47, MEKA49, MEKA51, MEKA68.**

TECHNICAL MEMORANDUM CH2M HILL

TO: U.S. EPA Region 5

FROM: Dan MacGregor/CH2M HILL

DATE: August 26, 1993

SUBJECT: Analytical Data Assessment for the June 1993 Sampling Event, Carter-Lee Lumber, Indianapolis, Indiana

PROJECT: GLO65616.F2.SM

Introduction

The data and results from five monitoring well samples, one field blank sample, and two trip blank samples were assessed to verify the correctness and completeness of the data validation performed by Lockheed/ESAT. These samples were reviewed for volatile, semivolatile, chlorinated pesticides and PCBs, and metals analysis. These samples were analyzed through the federal Contract Laboratory Program (CLP) following their program specific analytical procedures.

The data assessment was performed by comparing the analytical data and results with the data quality limits described in U.S. EPA Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses, 1988 revision, and the U.S. EPA. Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses, 1988 revision.

Volatile Organic Analyses

The volatile organic data, generally met the functional guideline control limits, with the exception of several compounds having calibration outliers. Lockheed suggests that all compound results associated with calibration outliers be qualified as estimated in quantity. But as a result of no volatile compounds being detected at a concentration equal to or greater than their method detection limit, the only compound result qualified was 2-butanone which had a relative response (RSP) factor below control limits. 2-Butanone's reporting limit has been qualified as estimated and flagged with "UJ."

An unidentified compound was found in the field samples and corresponding laboratory blank and QA/QC samples. This peak eluted at a retention time close to that of chloromethane, bromomethane, vinyl chloride, and chloroethane. To address the potential of compound interference, the reporting limit for these four compounds has been qualified as estimated and flagged with a "UJ."

Semivolatile Organic Analyses

The semivolatile organic data, generally met the functional guideline control limits, several compounds exceeded calibration control limits. Lockheed suggests that all compound results associated with calibration outliers be qualified as estimated in quantity. But as a result of no semivolatile compounds being detected at a concentration equal to or greater than their method detection limit, and all RSP factor being within control limits data qualification was deemed unnecessary.

The validation of the semivolatile data was found to be thorough and complete. No validation discrepancies were noted.

Chlorinated Pesticide/PCB Analyses

The pesticide/PCB data contained several problem areas. Lockheed's data validation comments should be followed in all but two of the problem areas. The first was that several pesticides had calibration relative percent differences (RPDs) greater than control limits. Lockheed recommended the reporting limits for these compounds be qualified as estimated, but no compounds were detected at a concentration equal to or greater than the method reporting limit, so in this reviewers opinion data qualification was not required.

Secondly, the recoveries for the surrogate standard, decachlorobiphenyl were below control limits for all field samples, on both columns. The other surrogate, tetrachloro-m-xylene, was recovered with in control limits for all the field samples except MW-04, where it was below control limits. Lockheed suggested that all the reporting limits for these samples be qualified as estimated, but since no pesticides or PCBs were detected at a concentration equal to or greater than the method reporting limit the reporting limits for only MW-04 were qualified as estimated and flagged with "UJ."

Inorganic Metals

The inorganics data contained several problem areas. Lockheed's data validation comments should be followed in all but one of the problem areas. The continuing calibration and preparation blanks contained low concentrations of beryllium. Lockheed recommended qualifying the positive analytical results as estimated and flagging them with a "J." It is felt that a more representative way of handling this is to raise the reporting limit for beryllium to the concentration of blank contamination in each sample and qualifying the sample result as not detected, flagged "U."

Conclusion

The organic and inorganic analytical result are acceptable as reported, with qualifiers as previously discussed. Copies of the analytical results are attached.

References

1. U.S. EPA. Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses. 1988 revision.

2. U.S. EPA. Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses. 1988 revision.

CH2M HILL

TECHNICAL MEMORANDUM

PREPARED FOR: U.S. EPA Region 5

PREPARED BY: Lori Bootz/CH2M HILL
Dong-Son Pham/CH2M HILL

DATE: January 26, 1994

SUBJECT: Review of September 1993 Analytical Data
Carter-Lee Lumber

PROJECT: GLE65616.F2.SM

Introduction

Data review was performed on 9 water samples and 3 soil samples for Case Number 20848. Only summary forms and data reports were reviewed (no raw data). The EPA's data validation case narratives were reviewed and verified by checking the summary forms. Changes in data qualifiers were made in some instances. These changes and comments are noted below.

Organics Review

Water Samples Sample holding times and instrument tuning specifications were within limits for all analyses. The instrument calibrations met specified limits with the exception of the SVOC calibration which contained some outliers. However, the compounds which were out of range were not detected in any samples and no action was taken.

Method blanks showed no significant contamination problems. The SVOC method blank detected two common phthalate compounds, diethyl phthalate and bis(2-ethylhexyl) phthalate, at concentrations below their reporting limits (0.5 and 1 ug/L respectively). These compounds were detected in some samples below the reporting limit and appear to be the result of contamination. These compounds were qualified as non-detected. The VOC field and trip blank detected methylene chloride (2 ug/L) and tetrachloroethene (1 ug/L) at low concentrations. These compounds were not detected in any samples so no action was taken.

The SVOC MS/MSD showed low recoveries for 4-chloro-3-methylphenol, acenaphthene and pyrene. These compounds were not detected in any samples. The data were qualified as estimated, nondetect ("UJ").

The DCB surrogate standard recovery was below QC limits for all pesticide samples. Therefore, all samples were qualified estimated ("J") for detects or estimated, nondetect ("UJ") for all compounds below the reporting limit.

Several pesticide compounds were reported at concentrations well below the reporting limit for water samples. The sensitivity of the pesticide method may allow for the reporting of false positives at low concentration levels (i.e. less than one-tenth of the reporting limit). Inquiries were made regarding the EPA validation review process used to confirm the laboratory reported data. The EPA Task Monitor (Pat Churilla) agreed to check the raw data and chromatograms to verify whether the results can be reported with a high degree of certainty. After examination of the data, the EPA Task Monitor's opinion was that only the result for alpha-BHC in sample EKJ67 should be changed to undetected ("U") because the value is likely the result of instrument noise. All other pesticide results were considered valid.

Soil Samples Sample holding times and instrument tuning specifications were within limits for all analyses. The instrument calibrations met specified limits with the exception of some VOC and SVOC outliers. However, the compounds which were out of range were not detected in any samples and no action was taken.

The VOC method blank detected acetone at a concentration of 2 ug/L. Acetone is a common laboratory contaminant. Samples which showed concentrations for acetone less than 10X the amount measured in the blank sample were qualified as blank-contaminated ("B"). The SVOC method blank detected bis(2-ethylhexyl) phthalate (a common laboratory contaminant) as well as phenol, 1,4-dichlorobenzene, 1,2,4-trichlorobenzene, 4-chloro-3-methylphenol, acenaphthene, and pyrene. These compounds were suspected to be contamination from the matrix spike samples. Samples which showed concentrations for these compounds less than 5X the amount measured in the blank sample were qualified as blank-contaminated ("B"). The pesticide method blank detected alpha-BHC and delta-BHC at low concentrations. Samples which showed concentrations for these compounds less than 5X the amount measured in the blank sample were qualified as blank-contaminated ("B").

The pesticide MS/MSD showed low recoveries for heptachlor and aldrin. These compounds were qualified in all samples as estimated ("J") or estimated, nondetect ("UJ").

The DCB surrogate standard recovery was above QC limits for pesticide samples CLBK03, CLBK03-FR and CLBK03-FR MS/MSD. Therefore, all samples were qualified estimated ("J") for detects or estimated, nondetect ("UJ") for all compounds below the reporting limit.

Inorganics Review

A limited review was performed given the contents of the data package provided. The following were not included in the review: holding times, calibrations, serial dilution, and LCS/ICS performance. The above were reviewed as documented by the EPA data validation QC Exception Summary Report provided in the data packages.

It should be noted that the data validation performed by EPA did not include documentation of FORM 1 data sheets with the qualifiers noted in the narrative. The data sheets were marked-up accordingly in this review.

Water Samples This review concurs with the EPA data validation with the exception of qualification of Cadmium (Cd) samples. The CCB contains Cd (3.2 ug/L). The Cd result for CMW-5 was qualified as blank-contaminated ("B").

Beryllium was detected in two water samples at concentration levels approaching the method reporting limits. While beryllium was not measured and reported in the laboratory blanks associated with the samples, the source of beryllium contamination is unknown. Because of the possibility of interferences being incorrectly identified as target analytes by the atomic absorption methodology, positive identification of the beryllium cannot be made. The reported concentrations are therefore estimated ("J").

Soil Samples Lead and arsenic were detected at relatively high levels in the soil samples. Inquiries were made regarding the EPA validation review process used to confirm the laboratory reported data. According to the EPA Task Monitor the raw data was examined to verify the correct calculation of the sample results reported by the laboratory. Digestion logs, instrument printouts, strip charts, etc. were compared to the reported sample results.

The soil field duplicate analyses were reviewed for comparability. Poor field precision was noted for arsenic, calcium, chromium, copper, iron, lead, magnesium, nickel and zinc. While the EPA Region 5 SOP for validation of CLP inorganic data states field duplicates are evaluated with the same acceptance criteria as the laboratory generated duplicates, it is expected that soil duplicate results will have greater variance than water matrices due to difficulties associated with collecting identical field samples. As required, the above metals were qualified as estimated ("J") in the soil samples.

Conclusion

The data for organic and inorganic analyses were acceptable except as discussed above.

APPENDIX C
HEALTH RISK ESTIMATION TABLES

Appendix C - 1

Statistical Analyses of Data for Chemicals of Potential Concern

Section 1. Soil

Section 2. Groundwater

Footnotes to tables:

Min - minimum detected value
Max - maximum detected value
Mean - mean of natural log (ln) transformed values
Std Dev - standard deviation of ln transformed values
Ln - Natural log
H Value - Based on one sided upper confidence level of 0.95
UCL 95% - 95% upper confidence limit in normal space value
Est. Mean - Estimation of the mean of the log normal distribution in normal space value

Table C-1-1
Exposure Point Concentration
Carter-Lee Lumber
Media - Soil

Parameter	Total Analyses	Positive Detections	Detection Frequency	Log Based Mean	Minimum Detected Value	Maximum Detected Value	Log Based Standard Deviation	H Value	Corr. Factor	Mean Estimation	UCL (trans)	UCL 95% (a)	
Heptachlor	27	4	15%	0.15	0.90	4.20	0.38	1.8717	2.2E-01	1.24	3.6E-01	1.43	(b) µg/kg
PCBS (Arochlor 1254)	27	3	11%	3.01	16.00	35.00	0.21	1.7513	3.0E+00	20.71	3.1E+00	22.27	(c) µg/kg

Footnotes:

a. EPA risk assessment guidance indicates that when estimating a reasonable maximum exposure (RME) the exposure point concentration should be set equal to the upper 95th percentile confidence limit (UCL 95%) of the arithmetic mean; however; if the UCL exceeds the maximum detected value, then the exposure point concentration should be set to the maximum detected value.

b. The exposure point concentration for heptachlor is set equal to the UCL 95% because it is less than the maximum detected value of 4.2 µg/kg.

c. The exposure point concentration for Arochlor 1254 is set equal to the UCL 95% because it is less than the maximum detected value of 35 µg/kg.

Table C-1-2
Exposure Point Concentration
Media - Groundwater
Carter-Lee Lumber

Parameter	Total Analyses	Positive Detections	Detection Frequency	Log Based Mean	Minimum Detected Value	Maximum Detected Value (b)	Log Based Standard Deviation	H Value	Corr. Factor	Mean Estimation	UCL (trans)	UCL 95% (a)	
Alpha BHC	17	2	12%	-4.00	0.001	0.03	0.91	2.523	-3.6E+00	0.03	-3.0E+00	0.05	(c) µg/L
4,4-DDT	17	2	12%	-3.23	0.004	0.05	0.71	2.258	-3.0E+00	0.05	-2.6E+00	0.08	(d) µg/L

Footnotes:

a. EPA risk assessment guidance indicates that when estimating a reasonable maximum exposure (RME) the exposure point concentration should be set equal to the upper 95th percentile confidence limit (UCL 95%) of the arithmetic mean; however; if the UCL exceeds the maximum detected value, then the exposure point concentration should be set to the maximum detected value.

b. The concentrations for positive onsite detections for both chemical parameters are less than 1/2 of the detection limit; therefore the maximum detected value in this statistical table actually refers to a 1/2 detection limit value.

c. The exposure point concentration for alpha BHC is set equal to the maximum detected value of 0.003 µg/L.

d. The exposure point concentration for 4,4-DDT is set equal to the maximum detected value of 0.012 µg/L.

Appendix C - 2

Chemical Intake Estimation Methodology

Chemical Intake Estimation Methodology

Intake variables were selected to estimate the RME and were derived from EPA guidance documents except as described below. A typical adult body weight of 70 kg and a child (< 6 years) body weight of 15 kg is assumed (EPA, 1991, Standard Default Exposure Factors).

Averaging times are dependent on the assessed toxic effect. For carcinogenic health effects, the total cumulative dose of the contaminant is prorated over an averaging time of an entire life-span, which is assumed to be 70 years. For noncarcinogenic health effects, the averaging time is equal to the exposure duration. Reflecting residential parameters prescribed by EPA directive, the exposure duration for incidental ingestion of soil is equal to 6 years for a residential child exposure. For residential receptors, the exposure frequency used is 350 days per year. The exposure duration for an future occupational adult is 25 years at an exposure frequency of 250 days per year.

The incidental soil ingestion rates are 0.2 gm/day for a residential child and 0.05 gm/day for an occupational adult. The groundwater ingestion rates are 2 L/day for a residential adult and 1 L/day for an occupational adult. Inhalation contaminants in airborne particulates by an adult laborer is assessed based on an inhalation rate of 20 m^3/workday for an 8-hour workday. The inhalation rate used for the conservative evaluation of exposures for a residential child is 20 m^3/day, though estimates in the 5 to 10 m^3/day may be more accurate.

The 90th percentile of total body surface area is used as the total surface area for both adult (20,900 cm^2) and child (8,960 cm^2) exposure calculations (U.S. EPA, January 1992, Dermal Exposure Assessment: Principles and Applications). Based on estimates developed by McKone and Layton, it is assumed that soil contact-dermal exposure occurs at the hands, arms, legs, neck, and head, with approximately 26 percent (adults and trespassers) or 30 percent (children) of the total body surface area exposed (McKone and Layton. Screening the Potential Risks). The percentage of the total body surface area that is assumed to be submerged is 100 percent (15 min/day) for bathing/showering with groundwater.

The soil to skin adherence factor for all receptors is 1 mg per square centimeter of exposed skin. Soil contact-dermal absorption values (i.e., absorption efficiency factor) for most organic chemicals range from 10 to 25 percent of the soil concentration in dermal contact with the receptor. (Ryan, E. A. et al., Assessing Risk from Dermal Exposure). Because of the moderate to high volatility of the compounds assessed the lower end of the range (10 percent) was used in the exposure assessment if a chemical specific value could not be found in the literature.

The permeation rates of organic contaminants in aqueous solution are chemical-specific and are calculated based on EPA dermal exposure guidance cited above.

The particulate emission factor were calculated using standard default parameter values listed in RAGS Part B since site specific values were not available.

The specific methodology used to estimate the contaminant intake for the exposure pathways selected for this quantitative assessment is presented as equations which are described below:

A. Groundwater Ingestion

$$I = (CW * IR * EF * ED)/(BW * AT)$$

Where:

I	=	chemical intake (mg/kg body weight-day)
CW	=	chemical concentration in water (mg/L)
IR	=	ingestion rate (L/dy)
EF	=	exposure frequency (dys/yr)
ED	=	exposure duration (yrs)
BW	=	body weight (kg)
AT	=	averaging time (dys)

B. Incidental Soil Ingestion

$$I = (CS * IR * EF * ED * CF)/(BW * AT)$$

Where:

I	=	chemical intake (mg/kg body weight-day)
CS	=	chemical concentration in soil (μg/kg soil)
IR	=	ingestion rate (gm/dy)
EF	=	exposure frequency (dy/yr)
ED	=	exposure duration (yr)
CF	=	conversion factor (1E-6)
BW	=	body weight (kg)
AT	=	averaging time (dys)

C. Dermal Absorption of Contaminants Sorbed to Soils

$$I = (CS * SA * AF * ABF * EF * ED * CF)/(BW * AT)$$

Where:

I	=	chemical intake (mg/kg body weight-day)
CS	=	chemical concentration in soil (μg/kg dry wt)
SA	=	surface area exposed (cm^2/event)
AF	=	adherence factor (g/cm^2)

ABS	=	absorption efficiency factor (%)
EF	=	exposure frequency (events/yr)
ED	=	exposure duration (yrs)
BW	=	body weight (kg)
AT	=	averaging time (dys)
C	=	conversion factor (1E-8)

D. Dermal Absorption of Contaminants in Water

$$I = (CW * SA * S * PC * ET * EF * ED * CF)/(BW * AT)$$

Where:

I	=	chemical intake (mg/kg body weight-day)
SA	=	total body surface area (cm^2)
S	=	percent surface area submerged (%)
PC	=	dermal permeability constant (cm/hr)
ET	=	exposure time (hr/dy)
EF	=	exposure frequency (dys/yr)
ED	=	exposure duration (yrs)
CF	=	volumetric conversion factor (1 L/1,000 cm^3)
BW	=	body weight (kg)
AT	=	averaging time (dys)

E. Inhalation of Contaminants Sorbed to Airborne Soils

$$I = (C * IR * ABF * EF * ED * 1/PEF)/(BW * AT)$$

Where:

I	=	chemical intake (mg/kg body weight-day)
C	=	chemical concentration in soil (mg/kg dry wt)
IR	=	inhalation rate (m^3/dy)
ABS	=	absorption efficiency factor (assumed 100%)
EF	=	exposure frequency (events/yr)
ED	=	exposure duration (yrs)
BW	=	body weight (kg)
AT	=	averaging time (dys)
PEF	=	particulate emission factor (4.63×10^9 m^3/kg)

Table C-2-1

Exposure Variables

Parameter	Value Used to Determine Reasonable Maximum Exposure
General Conditions	
Body Weight	
Adult	70 kg
Child < 6 yr.	15 kg
Ingestion of Soil	
Ingestion Rate	
Adult Occupational - Future	0.05 g/day
Child < 6 yr - Residential	0.2 g/day
Exposure Frequency (EF)	
Adult Occupational - Future	250 events/yr
Child < 6 yr - Residential	350 events/yr
Exposure Duration (ED)	
Adult Occupational - Future	25 yr
Child < 6 yr - Residential	6 yr
Averaging Time	
Noncancer Risk - Adult	25 yr
Noncancer Risk - Child < 6 yr	6 yr
Cancer Risk - All Receptors	70 yr
Inhalation of Soil Particulates	
Inhalation Rate	
Adult Occupational - Future	20 cu. meters/day
Child < 6 yr - Residential	20 cu. meters/day
Exposure Frequency (EF)	
Adult Occupational - Future	250 events/yr
Child < 6 yr - Residential	350 events/yr
Exposure Duration (ED)	
Adult Occupational - Future	25 yr
Child < 6 yr - Residential	6 yr
Averaging Time	
Noncancer Risk - Adult	25 yr
Noncancer Risk - Child < 6 yr	6 yr
Cancer Risk - All Receptors	70 yr
Dermal Absorption of Chemicals in Soil	
Total body surface area (90th percentile)	
Adult	20900 cm2
Child < 6 yr	8960 cm2
Exposed body surface area	
Adult (26% of total)	5434 cm2
Child < 6 yr (30% of total)	2688 cm2
Soil to skin adherence factor	
All receptors	1 mg/cm2
Dermal Absorption Factor	
Organics	10% (or chemical specific)
Inorganics	N/A
Exposure Frequency (EF)	
Adult Occupational - Future	250 events/yr
Child < 6 yr - Residential	350 events/yr
Exposure Duration (ED)	
Adult Occupational - Future	25 yr
Child < 6 yr - Residential	6 yr
Averaging Time	
Noncancer Risk - Adult	25 yr
Noncancer Risk - Child < 6 yr	6 yr
Cancer Risk - All Receptors	70 yr

Table C-2-1

Exposure Variables

Parameter	Value Used to Determine Reasonable Maximum Exposure
Ingestion of Chemicals in Drinking Water (Groundwater)	
Ingestion Rate	
Adult Occupational - Future	1 l/day
Adult - Residential	2 l/day
Exposure Frequency (EF)	
Adult Occupational - Future	250 events/yr
Adult - Residential	350 events/yr
Exposure Duration (ED)	
Adult Occupational - Future	25 yr
Adult - Residential	30 yr
Averaging Time	
Noncancer Risk - Adult Occupational	25 yr
Noncancer - Adult Residential	30 yr
Cancer Risk - Adult Occupational/Residential	70 yr
Dermal Absorption of Chemicals in Groundwater	
Total body surface area (90th percentile)	
Adult - Future occupational and residential	20900 cm2
Exposed body surface area (area submerged)	
Adult - Future occupational and residential (100% submerged)	20900 cm2
Dermal Permeability Constant	
Organics	Chemical Specific
Inorganics	N/A
Exposure Time	
Adult - Future occupational and residential	0.25 hr/d
Exposure Frequency (EF)	
Adult Occupational - Future	250 events/yr
Adult - Residential	350 events/yr
Exposure Duration (ED)	
Adult Occupational - Future	25 yr
Adult - Residential	30 yr
Averaging Time	
Noncancer Risk - Adult Occupational	25 yr
Noncancer - Adult Residential	30 yr
Cancer Risk - Adult Occupational/Residential	70 yr

Appendix C - 3

Health Risk Estimation Methodology

Carcinogenic Risk Estimation

For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. The cancer potency factor or slope factor (SF) converts estimated daily chemical intakes averaged over a lifetime of exposure directly to incremental risk.

To estimate risks from exposure to carcinogens, the following data is needed:

- Chronic daily intake of the chemical
- Carcinogenic potency factor

Estimating Cancer Risks Caused by Exposure to a Single Carcinogen

Where the risks are low (risk < 10^{-3}), it can generally be assumed that the dose-response relationship will be in the linear low-dose portion of the multistage model dose-response curve. Under this assumption, the slope factor is a constant and risk is related directly to intake. This can be described by:

$$\text{Risk} = \text{SF} \times \text{CDI}$$

Where:

Risk	=	Excess lifetime cancer risk as a unitless probability
SF	=	Slope factor or cancer potency factor $(\text{mg/kg/dy})^{-1}$
CDI	=	Chronic daily intake averaged over a lifetime (mg/kg/dy)

Estimating Cancer Risks Caused by Exposure to Multiple Carcinogens

Exposure situations may involve the potential exposure to more than one carcinogen. To assess the potential for carcinogenic effects posed by exposure to multiple carcinogens, it is assumed in the absence of information on synergistic or antagonistic effects that carcinogenic risks are additive. This approach is based on *Guidelines for Health Risk Assessment of Chemical Mixtures* (U.S. EPA 1986b) and *Guidelines for Cancer Risk Assessment* (U.S. EPA 1986c).

For estimating cancer risks from exposure to multiple carcinogens from a single exposure route, the following equation is used:

$$\text{Risk}_T = \sum_{i=1}^{N} \text{Risk}_i$$

Where:

$Risk_T$	=	Total cancer risk from route of exposure
$Risk_i$	=	Cancer risk for the i^{th} chemical
N	=	Number of chemicals

Noncarcinogenic Risk Estimation

Comparison of Intake to Reference Dose

The potential for noncancer health effects from exposure to a contaminant is evaluated by comparing an exposure level over a specified time period with a reference dose (RfD) for a similar time period. The reference dose is an estimate of a daily exposure to the human population that is likely to be without an appreciable risk of deleterious effects during a lifetime. This ratio of exposure to toxicity is called a hazard quotient and is described as:

$$HQ = E \div RfD$$

Where:

HQ	=	Noncancer hazard quotient
E	=	Exposure level (or intake in mg/kg/dy)
RfD	=	Reference dose (mg/kg/dy)

This comparison can be interpreted as follows:

$HQ \geq 1$	Potential for health effects
$HQ \leq 1$	*Health effects not anticipated*

Hazard Index Approach

Exposure situations may involve the exposure to more than one chemical. To assess the potential for noncarcinogenic effects posed by multiple chemicals, a "hazard index" approach can be used. This approach, which is based on *Guidelines for Health Risk Assessment of Chemical Mixtures* (U.S. EPA 1986b), assumes dose additivity and sums the hazard quotients of the individual chemicals. This sum is called the hazard index (HI):

$$HI = E_1/RfD_1 + E_2/RfD_2 + \ldots E_i/RfD_i$$

Where:

HI	=	Hazard index
E_i	=	Daily intake of the i^{th} chemical (mg/kg/dy)
RfD_i	=	Reference dose of the i^{th} chemical (mg/kg/dy)

When the hazard index exceeds 1, it indicates unacceptable exposure levels and potential health effects. If any single chemical's estimated daily intake is higher than its reference dose, the hazard index will be greater than 1.0. For multiple chemical exposures, the hazard index can exceed 1 even if no single chemical exposure exceeds the reference dose for that chemical. The assumption of additivity is most properly applied to chemicals that induce the same effect by the same mechanism or in the same target organ. If the hazard index is near or exceeds 1, the chemicals in the mixture are segregated by critical effect or target organ and separated indexes are derived for each effect or target organ. If any of these separate indexes exceed 1, then there may be a concern for potential health effects. Chemicals that are essential nutrients are excluded from the index when in the range of essentiality.

MKE10013CBC.WP5

Appendix C - 4

Health Risk Estimation Tables

Section		Table	
1	Surface Soil	C-4-1	Future Residential Ingestion and Inhalation
2	Surface Soil	C-4-2	Future Residential Dermal Absorption
3	Surface Soil	C-4-3	Future Occupational Ingestion and Inhalation
4	Surface Soil	C-4-4	Future Occupatio Dermal Absorption
5	Groundwater	C-4-5	Future Residential Ingestion
6	Groundwater	C-4-6	Future Residential Dermal Absorption
7	Groundwater	C-4-7	Future Occupational Ingestion
8	Groundwater	C-4-8	Future Occupational Dermal Absorption

Appendix C - 4

Section 1

Soil / Future Residential / Ingestion & Inhalation

Table C-4-1

Carter-Lee Lumber

Media - Soil

Land Use: Residential - Future Use

Exposure Routes: Ingestion and Inhalation of Particulates

Chemical	Exposure Point Concentration in Soil (mg/kg)	Cancer Risk	Noncancer Hazard Quotient	Oral Slope Factor (mg/kg/day)	Inhalation Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)	Inhalation RfD (mg/kg/day)
Heptachlor	1.43E-03	7.1E-09	3.7E-05	4.5	4.5	0.0005	0.0005
PCBs (Arochlor 1254)	2.23E-02	1.9E-07		7.7	7.7		
Cumulative Risk/Hazard		2.0E-07	3.7E-05				

Exposure Assumptions:	
Exposure Setting	Future Residential
Receptor	*Child*
Body Weight (kg)	15
Averaging Time - Cancer risk (yr)	70
Averaging Time - Noncancer risk (yr)	6
Exposure Frequency (d/yr)	350
Exposure Duration (yr)	6
Soil Ingestion Rate (mg/day)	200
Inhalation Rate (m3/day)	20
Particulate Emission Factor (m3/kg)	5E+09

a. Sources of Toxicity Values:

IRIS - Integrated Risk Information System. U.S. EPA .

HEAST - Health Effects Assessment Summary Tables - Quarterly Summary. U.S. EPA.

Appendix C - 4

Section 2

Soil / Future Residential / Dermal Absorption

Table C-4-2
Carter-Lee Lumber
Media - Soil

Land Use: Residential - Future Use
Exposure Route: Dermal Absorption

Chemical	Exposure Point Concentration In Soil (mg/kg)	Cancer Risk	Noncancer Hazard Quotient	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)	Oral Absorption Efficiency (%)	Adjusted Oral Slope Factor (mg/kg/day)	Adjusted Oral RfD (mg/kg/day)	Dermal Absorption Efficiency (%)	(Cancer Effects) Absorbed Dose (mg/kg/day)	(Noncancer Effects) Absorbed Dose (mg/kg/day)
Heptachlor	1.43E-03	5E-08	5E-05	4.5	0.0005	100	4.5	0.0005	10	1.06E-08	2.46E-08
PCBs (Arochlor 1254)	2.23E-02	8E-07		7.7		100	7.7		6	9.88E-08	
Cumulative Risk/Hazard		**8E-07**	**5E-05**								

Exposure Assumptions:	
Exposure Setting	Future Residential
Receptor	Child
Body weight (kg)	15
Surface area (cm2)	8960
Percent exposed (%)	30
Soil to skin adherence factor (mg/cm2)	1
Days per week exposed	7
Weeks per year exposed	50
Exposure frequency (days/yr)	350
Exposure duration (yrs)	30
Years in lifetime	70
Noncancer Averaging Time (days)	10950

a. Sources of Toxicity Values:
IRIS - Integrated Risk Information System. U.S. EPA.
HEAST - Health Effects Assessment Summary Tables - Quarterly Summary. U.S. EPA.

Appendix C - 4

Section 3

Soil / Future Occupational / Ingestion & Inhalation

Table C-4-3
Carter-Lee Lumber
Media - Soil

Land Use: Occupational/Industrial - Future Use
Exposure Routes: Ingestion and Inhalation of Particulates

Chemical	Exposure Point Concentration in Soil (mg/kg)	Cancer Risk	Noncancer Hazard Quotient	Oral Slope Factor (mg/kg/day)	Inhalation Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)	Inhalation RfD (mg/kg/day)
Heptachlor	**1.43E-03**	**1.1E-09**	**1.4E-06**	4.5	4.5	0.0005	0.0005
PCBs (Arochlor 1254)	**2.23E-02**	**3.0E-08**		7.7	7.7		
Cumulative Risk/Hazard		**3.1E-08**	**1.4E-06**				

Exposure Assumptions:	
Exposure Setting	Future Occupational
Receptor	Adult
Body Weight (kg)	70
Averaging Time - Cancer risk (yr)	70
Averaging Time - Noncancer risk (yr)	25
Exposure Frequency (d/yr)	250
Exposure Duration (yr)	25
Soil Ingestion Rate (mg/day)	50
Inhalation Rate (m3/day)	20
Particulate Emission Factor (m3/kg)	5E+09

a. Sources of Toxicity Values:

IRIS - Integrated Risk Information System. U.S. EPA .

HEAST - Health Effects Assessment Summary Tables - Quarterly Summary. U.S. EPA.

Appendix C - 4

Section 4

Soil / Future Occupational / Dermal Absorption

Table C-4-4
Carter-Lee Lumber
Media - Soil

Land Use: Occupational/Industrial - Future Use
Exposure Route: Dermal Absorption

Chemical	Exposure Point Concentration in Soil (mg/kg)	Cancer Risk	Noncancer Hazard Quotient	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)	Oral Absorption Efficiency (%)	Adjusted Oral Slope Factor (mg/kg/day)	Adjusted Oral RfD (mg/kg/day)	Dermal Absorption Efficiency (%)	(Cancer Effects) Absorbed Dose (mg/kg/day)	(Noncancer Effects) Absorbed Dose (mg/kg/day)
Heptachlor	1.43E-03	**1E-08**	**2E-05**	4.5	0.0005	100	4.5	0.0005	10	2.72E-09	7.60E-09
PCBs (Arochlor 1254)	2.23E-02	**2E-07**		7.7		100	7.7		6	2.55E-08	
Cumulative Risk/Hazard		**2E-07**	**2E-05**								

Exposure Assumptions:	
Exposure Setting	ture Occupational
Receptor	Adult
Body weight (kg)	70
Surface area (cm2)	20900
Percent exposed (%)	26
Soil to skin adherence factor (mg/cm2)	1
Days per week exposed	5
Weeks per year exposed	50
Exposure frequency (days/yr)	250
Exposure duration (yrs)	25
Years in lifetime	70
Noncancer Averaging Time (days)	9125

a. Sources of Toxicity Values:

IRIS - Integrated Risk Information System. U.S. EPA.

HEAST - Health Effects Assessment Summary Tables - Quarterly Summary. U.S. EPA.

Appendix C - 4

Section 5

Groundwater / Future Residential / Ingestion

Table C-4-5
Carter-Lee Lumber
Groundwater

Land Use: Residential Child thru Adult - FUTURE USE
Exposure Route: Ingestion

Chemical	Exposure Point Concentration in Groundwater (mg/L)	Cancer Risk	Non-cancer Hazard Quotient	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)
Alpha BHC	3.00E-06	2.2E-07		6.3	
4,4'-DDT	1.20E-05	4.8E-08	0.0007	0.34	0.0005
Cumulative Risk/Hazard		**2.7E-07**	**0.0007**		

EXPOSURE ASSUMPTIONS	
Exposure Setting	Future Residential
Receptor	Child thru Adult
Body Weight (kg) - Adult	70
Body Weight (kg) - Child	15
Averaging Time - Cancer risk (yr)	70
Averaging Time - Noncancer risk (yr)	30
Exposure Frequency (d/yr)	350
Exposure Duration (yr) - Total	30
Exposure Duration (yr) - Child	6
Exposure Duration (yr) - Adult	24
Daily Water Ingestion Rate (l/day) - Child	1
Daily Water Ingestion Rate (l/day) - Adult	2

a. Sources of Toxicity Values:
IRIS - Integrated Risk Information System. U.S. EPA
HEAST - Health Effects Assessment Summary Tables - Quarterly Summary. USEPA

Appendix C - 4

Section 6

Groundwater / Future Residential / Dermal Absorption

Table C-4-6
Carter-Lee Lumber
Groundwater

Land Use: Residential Child thru Adult - FUTURE USE
Exposure Route: Dermal Absorption

Chemical	Exposure Point Concentration in Groundwater (mg/L)	Cancer Risk	Non-cancer Hazard Quotient	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)	Oral Absorption Efficiency	Adjusted Oral Slope Factor (mg/kg/day)	Adjusted Oral RfD (mg/kg/day)	Permeability Constant (cm/hr)	Lifetime Average Media Intake (mg/kg/day)	Lifetime Average Chemical Intake (mg/kg/day)	Daily Intake (DI) (mg/kg/day)	Water Intake l/kg/day
Alpha BHC	3.00E-06	9E-12		6.3E+00		1	6.3		0.016	4.92E-04	1E-12	3E-12	1E-03
4,4'-DDT	1.20E-05	4E-11	6E-07	0.34	0.0005	1	0.34	0.0005	0.330	1.02E-02	1E-10	3E-10	2E-02
Cumulative Risk/Hazard		**5E-11**	**6E-07**										

EXPOSURE ASSUMPTIONS	
Exposure Setting	Future Residential
Receptor	Child thru Adult
Body weight (kg) - adult	70
Body weight (kg) - child	15
Surface area (cm2)	20900
Surface area (cm2)	8960
Percent submerged	100
Time in water (hrs/day)	0.25
Number of days per week	7
Number of weeks per year	50
Exposure frequency (days/yr)	350
Exposure Duration - total	30
Exposure Duration - child	6
Exposure Duration - adult	24
Years in lifetime	70
Noncancer Averaging Time (days)	10950

a. Sources of Toxicity Values:

IRIS - Integrated Risk Information System. U.S. EPA

HEAST - Health Effects Assessment Summary Tables - Quarterly Summary. USEPA

Appendix C - 4

Section 7

Groundwater / Future Occupational / Ingestion

Table C-4-7
Carter-Lee Lumber
Media - Groundwater

Land Use: Occupational/Industrial - Future Use

Exposure Route: Ingestion

Chemical	Exposure Point Concentration in Groundwater (mg/L)	Cancer Risk	Noncancer Hazard Quotient	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)
Alpha BHC	3.00E-06	6.6E-08		6.3	
4,4'-DDT	1.20E-05	1.4E-08	0.0002	0.34	0.0005
Cumulative Risk/Hazard		**8.0E-08**	**0.0002**		

Exposure Assumptions:	
Exposure Setting	Future Occupational
Receptor	Adult
Body Weight (kg)	70
Averaging Time - Cancer risk (yr)	70
Averaging Time - Noncancer risk (yr)	25
Exposure Frequency (d/yr)	250
Exposure Duration (yr)	25
Daily Water Ingestion Rate (l/day)	1

a. Sources of Toxicity Values:
IRIS - Integrated Risk Information System. U.S. EPA.
HEAST - Health Effects Assessment Summary Tables - Quarterly Summary. U.S. EPA.

Appendix C - 4

Section 8

Groundwater / Future Occupational / Dermal Absorption

Table C-4-8
Carter-Lee Lumber
Media - Groundwater

Land Use: Occupational/Industrial - Future Use
Exposure Route: Dermal Absorption

Chemical	Exposure Point Concentration in Groundwater (mg/L)	Cancer Risk	Noncancer Hazard Quotient	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)	Oral Absorption Efficiency	Adjusted Oral Slope Factor (mg/kg/day)	Adjusted Oral RfD (mg/kg/day)	Permeability Constant (cm/hr)	Lifetime Average Media Intake (mg/kg/day)	Lifetime Average Chemical Intake (mg/kg/day)	Daily Intake (DI) (mg/kg/day)	Water Intake l/kg/day
Alpha BHC	3.00E-06	6E-12		6.3E+00		1	6.3		0.016	2.93E-04	9E-13	2E-12	8E-04
4,4'-DDT	1.20E-05	2E-11	4E-07	0.34	0.0005	1	0.34	0.0005	0.330	6.04E-03	7E-11	2E-10	2E-02
Cumulative Risk/Hazard		3E-11	4E-07										

Exposure Assumptions:	
Exposure Setting	uture Occupational
Receptor	Adult
Body weight (kg)	70
Surface area (cm2)	20900
Percent submerged	100
Time in water (hrs/day)	0.25
Number of days per week	5
Number of weeks per year	50
Exposure frequency (days/yr)	250
Number of years exposed	25
Years in lifetime	70
Noncancer Averaging Time (	9125

a. Sources of Toxicity Values:
IRIS - Integrated Risk Information System. U.S. EPA.
HEAST - Health Effects Assessment Summary Tables - Quarterly Summary. U.S. EPA.

APPENDIX D
CHAIN-OF-CUSTODY/ TRAFFIC REPORTS

EPA

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703 557-2490 FTS 557-2490

Special Analytical Service

Packing List/Chain of Custody

SAS No. 7598E
SET # 2

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
913EC21		5	CH2MHILL	11/05/92	(FEX)

Regional Information	Sampler (Name)	Airbill Number
	AARON PETRI	635214B095

Non-Superfund Program	Sampler Signature	5. Ship To
	Clara Petri	AATS 1700 WEST ALBANY, SUITE N BROKEN ARROW, OK 74012 ATT: MISSY HAMBY

Site Name	3. Type of Activity	Remedial	Removal
Carter Lee Lumber	Lead / Pre-Remedial		
	SF ☒	RIFS ☒	CLEM ☐
	PRP ☐ PA ☐	RD ☐	REMA ☐
	ST ☐ SSI ☐	RA ☐	REM ☐
	FED ☐ LSI ☐	O&M ☐	OIL ☐
		NPLD ☐	UST ☐

City, State	Site Spill ID
INDIANAPOLIS	BD

6. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil
7. Waste
8. Other (Specify)

7. Preservative (Enter in Column C)
1. HCl
2. HNO3
3. $NAHSO_4$
4. H_2SO_4
5. NAOH
6. Other (SAS) (Specify)
7. Ice only
N. Not preserved

Sample Numbers	A Matrix Enter from Box 6	B Conc Low Med High	C Preservative Used from Box 7	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Designated Field QC
7598E-01										DUP
7598E-02 ~~ELG27-01~~	5	L	N	TOC	NA	5-077709	CLSB04Ø2-1	11/04/92 14:20	VAP	~~S23~~ S22
2 ~~ELG41-02~~ 02	5	L	N	TOC	NA	5-077744	CLSB03Ø2-1	11/05/92 17:00	VAP	~~S24~~ S23
7598E-03 ~~ELG43-03~~ 03	5	L	N	TOC	NA	5-077753	CLSB03Ø3-1	11/05/92 17:44	VAP	~~S25~~ S24
4										
5										
6										
7										
8										
9										
10										

Shipment for SAS complete? (Y/N) NO

CUSTODY SEAL # 3593/3594

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Clara Petri	11/04/92 14:50	Clara Petri	Clara Petri	11/05/92 19:00	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

EPA Form

DISTRIBUTION:
White - Region Copy Yellow - SMO Copy Gold - Lab Copy Pink - Lab Copy for Return to SMO

S 25115

EPA

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria VA 22313
703 557 2490 FTS 557 2490

Special Analytical Service

Packing List/Chain of Custody

SAS No. 19093 / 7598E / Set # 2

1 Project Code: 932C-21 | Account Code:
Regional Information:

Non Superfund Program

Site Name: CARTER LEE LUMBER
City, State: INDIANAPOLIS IN | Site Spill ID: 80

2 Region No: 5 | Sampling Co: CH2MHILL

Sampler (Name): AARON PETRI
Sampler Signature:

3 Type of Activity: SF (Lead) PRP (Pre Remedial) ST FED | RIFS RD RA O&M NPLD | REMEDIAL CLEM REMA REM OIL UST | REMOVAL

4 Date Shipped: 11/06/92 | Carrier: FEX
Airbill Number: 504841660

5 Ship To:
ABTS
1700 WEST ALBANY, SUITE A
BROKEN ARROW, OK 74012
ATT: Missy Humby

6 Sample Description (Enter in Column A)
1 Surface Water
2 Ground Water
3 Leachate
4 Rinsate
5 Soil/Sediment
6 Oil
7 Waste
8 Other (Specify)

7 Preservative (Enter in Column C)
1 HCl
2 HNO3
3 $NaHSO_4$
4 H_2SO_4
5 NaOH
6 Other (SAS) (Specify)
7 Ice only
N Not preserved

Sample Numbers	A Matrix Enter from Box 6	B Conc Low Med High	C Preservative Used from Box 7	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Designated Field QC
7598E-04										
1 ~~7598E-04~~	5	L	N	TOC	MS	5-077702	CLSB02Ø2-1	11/06/92 07:50	AP	S20
2 ~~7598E-05~~	5	L	N	TOC	MSD	5-077707	CLSB02Ø3-1	11/06/92 08:00	AP	MS/MSD
3										
4 7598E-06	5	L	N	TOC	NA	5-077804	CLSB01Ø2-1	11/06/92 14:10	AP	S21
5 7598E-07	5	L	N	TOC	DUP	5-077805	CLSB01Ø2FD1	11/06/92 14:30	AP	DUP/D21
6										
7										
8										
9										
10										

Shipment for SAS complete? (Y/N) YES

CUSTODY SEAL # 3547 3548

D18

D18

SEE REMARKS COLUMN

CHAIN OF CUSTODY RECORD

Relinquished by (Signature)	Date / Time	Received by (Signature)	Relinquished by (Signature)	Date / Time	Received by (Signature)
Aaron Petri	11/06/92 19:00				
Relinquished by (Signature)	Date / Time	Received by (Signature)	Relinquished by (Signature)	Date / Time	Received by (Signature)
Received by (Signature)	Date / Time	Received for Laboratory by (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)
☐ Decl

EPA Form

DISTRIBUTION:
White ... Yello ... Gold ... Copy ... for ... to S

EPA

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No. (if applicable): SET

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC20		5	CH2MHILL	10/09/1992	FEX

Regional Information	Sampler (Name)	Airbill Number
	AARON PETRI	635214919 3

Non-Superfund Program	Sampler Signature	5. Ship To
	Aaron Petri	SOUTH WEST LABS OF OKLAHOMA 1700 WEST ALBANY SUITE C BROKEN ARROW OK 74012

Site Name	3. Type of Activity						Remedial	Removal
Carter Lee Lumber		Lead	Pre-Remedial					
	SF	X		RIFS	X	CLEM		
City, State	PRP		PA	RD		REMA		
INDIANAPOLIS, IN	ST		SSI	RA		REM		
Site Spill ID: BD	FED		LSI	O&M		OIL		
				NPLD		UST		

ATTN: Missy Hamby

6. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E RAS Analysis VOA	E BNA	E Pest/ PCB	E High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
S01 ELG01	~~MEKA02~~ MS	~~N~~ 5	L	G	N		X			5-077603	CLBKS08-1	11/03/1992 09:25	AP	MEKA02	-
S02 ELG02	~~MEKA01~~ MD	5	L	G	N		X			5-077605	CLBKS09-1	11/03/1992 09:30	AP	MEKA01	-
S03 ELG03	~~MEKA03~~	5	L	G	N		X			5-077606	CLBKS10-1	11/03/92 09:40	AP	MEKA03	-
S04	ELG04	5	L	G	N		X			5-077609	CLBKS11-1	11/03/92 10:15	AP	MEKA04	-
S05	ELG05	5	L	G	N		X			5-077611	CLBKS12-1	11/03/92 10:30	AP	MEKA05	-
S06	ELG06	5	L	G	N		X			5-077613	CLBKS13-1	11/03/92 10:45	AP	MEKA06	-
S07	ELG07	5	L	G	N		X			5077614	CLBKS14-1	11/03/92 11:05	AP	MEKA07	-
S08	ELG08	5	L	G	N		X			5-077616	CLBKS15-1	11/03/92 11:18	AP	MEKA08	-
S09	ELG09	5	L	G	N		X			5-077618	CLBKS16-1	11/03/92 11:30	AP	MEKA09	-
S10	ELG10	5	L	G	N		X			5-077620	CLBKS17-1	11/03/92 11:40	AP	MEKA10	-

Shipment for Case complete? (Y/N)	Page 1 of 2	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
				3543 / 3544

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/03/92 1700			11/04/92 17:00	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No. (if applicable): SET

Case No: 19693

1. Project Code: 732C20 | Account Code:
Regional Information:
Non-Superfund Program:

2. Region No: 5 | Sampling Co: CH2MHILL
Sampler (Name): AARON PETRI
Sampler Signature:

4. Date Shipped: 11/03/92 | Carrier: (FEX)
Airbill Number: 635214919 3

5. Ship To: SOUTHWEST LABS OF OKLAHOMA
1700 WEST ALBANY, SUITE C
BROKEN ARROW OK 74012
ATTN: Missy Hamby

Site Name: Carter Lee Lumber
City, State: Indianapolis, IN | Site Spill ID: BOARD

3. Type of Activity

	Lead	Pre Remedial	Remedial	Removal
SF	X		RIFS	X CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis VOA	E BNA	E Pest/ PCB	E High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform Eval, — = Not a QC Sample)
S11	ELG11	5	L	G	N	X	X	X		S-071622-4	CLBKS02-1	11/03/92 13:15	AP	MEKA11	—
D11	ELG12	5	L	G	N	X	X	X		S-077626-8	CLBKS02-FR-1	11/03/92 13:15	AP	MEKA12	DUP

Shipment for Case complete? (Y/N)

Page 1 of 2

Sample used for a spike and/or duplicate: ELG12 (CLBKS02-FR-1 DUP)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3543/3544

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/03/92 17:00		Aaron Petri	11/04/92 1700	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples: ☐ Accepted (Signature)
☐ D[illegible]ed

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Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No. (if applicable):

Case No.: 14093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93EC20		5	CH2MHILL	11/04/92	(FEX)

Regional Information	Sampler (Name)	Airbill Number
	AARON PETRI	635214919 3

Non-Superfund Program	Sampler Signature	5. Ship To
	Aaron Petri	SOUTHWEST LABS OF OKLAHOMA 1700 WEST 17L BANY SUITE C BROKEN ARROW OK, 74012

Site Name	3. Type of Activity			Remedial	Removal
Carter Lee Lumber		Lead	Pre-Remedial		
	SF	X		RIFS X	CLEM
	PRP		PA	RD	REMA
	ST		SSI	RA	REM
	FED		LSI	O&M	OIL
				NPLD	UST

City, State	Site Spill ID
Indianapolis IN	BD

ATTN: Missy Hamby

6. Preservative (Enter in Column D)
1. HCl
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E RAS Analysis VOA	E BNA	E Pest/ PCB	E High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
S12	ELG13	5	L	G	N	X	X	X		5-077631-3	CLBKSØ7-1	11/03/92 13:40	AP	MEKA13	—
S13	ELG14	5	L	G	N	X	X	X		5-077634-6	CLBKSØ4-1	11/03/92 14:05	AP	MEKA14	—
S14	ELG15	5	L	G	N	X	X	X		5-077639-41	CLBKSØ5-1	11/03/92 14:10	AP	MEKA15	—
S15	ELG16	5	L	G	N	X	X	X		5-077643-5	CLSSØ3B-1	11/03/92 14:05	AP	MEKA16	—
S16	ELG17	5	L	G	N	X	X	X		5-077647-9	CLSSØ3A-1	11/03/92 14:40	AP	MEKA17	—
S17	ELG18	5	L	G	N	X	X	X		5-077651-3	CLSSØ1A-1	11/03/92 15:20	AP	MEKA18	—
S18	ELG19	5	L	G	N	X	X	X		5-077655-7	CLSSØ1B-1	11/03/92 15:30	AP	MEKA19	MS,MSD
D18	ELG20	5	L	G	N	X	X	X		5-077659-61	CLSSØ1FR-1	11/03/92 16:10	AP	MEKA20	Dup
S19	ELG21	5	L	G	N	X	X	X		5-077663-65	CLSSØ2A-1	11/03/92 16:00	AP	MEKA21	—
S20	ELG22	5	L	G	N	X	X	X		5-077667-9	CLSSØ2B-1	11/03/92 16:20	AP	MEKA22	—

Shipment for Case complete? (Y/N)	Page 1 of 1	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
		(ELG19 MS,MSD) (ELG 20 - DUP)		3541 / 3542

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/03/92 17:00	Aaron Petri	Aaron Petri	11/04/92 1700	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

SAS No. (if applicable)

Case No. 19093

1. Project Code 93EC20 | Account Code
Regional Information
Non-Superfund Program

2. Region No 5 | Sampling Co. CH2MHILL
Sampler (Name) AARON PETRI
Sampler Signature

4. Date Shipped 11/04/92 | Carrier (FEX)
Airbill Number 635214919 3

5. Ship To: SOUTH WEST LABS OF OKLAHOMA
1700 WEST ALBANY SUITE C
BROKEN ARROW, OK 74012
ATTN: MISSY HAMBY

Site Name: Carterhee Lumber
City, State: INDIANAPOLIS, IN | Site Spill ID: BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Other (Specify)
6. Ice only
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis VOA	BNA	Pest/ PCB	High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform Eval, — = Not a QC Sample)
														MEKA23	
S 21	ELG23	5	L	G	N	X	X	X		5-077670-2	~~CLSB1201-1~~	11/04/92 10:40	AP	~~MEKA23~~	—
S 22	ELG24	5	L	G	N	X	X	X		5-077674-6	CLSB1202-1	11/04/92 11:00	AP	MEKA24	—
D 22	ELG25	5	L	G	N	X	X	X		5077678-80	CLSB1202FR-1	11/04/92 11:00	AP	MEKA25	Dup
S 23	ELG26	5	L	G	N	X	X	X		5076B3-5	CLSB1203-1	11/04/92 11:15	AP	MEKA26	—
S 24	ELG27	5	L	G	N	X	X	X		5-077686-8	CLSB0401-1	11/04/92 14:00	AP	MEKA27	—
S 25	ELG28	5	L	G	N	X	X	X		5-077691-3	CLSB0402-1	11/04/92 14:20	AP	MEKA28	—
S 26	ELG29	5	L	G	N	X	X	X		5-077695-7	CLSB0403-1	11/04/92 14:30	AP	MEKA29	—
S 27	ELG30	2	L	G	1	X	X	X		5-077700-3	~~CLSB~~ CLGRB04-1	11/04/92 1700	AP	MEKA30	—
S 28	ELG31	5	L	G	N	X	X	X		5-077705-7	CLSB04-1	11/04/92 1700	AP	MEKA31	—
RB1	ELG32	2	L	G	1	X				5-077708	CLBLK-01-1	11/04/92 1720	AP	NA	B

Shipment for Case complete? (Y/N)

Page 1 of ___

Sample used for a spike and/or duplicate: (ELG25 DUP)

Additional Sampler Signatures

Chain of Custody Seal Number: 3594 / 3600

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/04/92 18:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)
☐ Declined

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Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No. (if applicable) SET # 2: 7598E

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93EC20		5	CH2MHILL	11/05/92	(FEX)

Regional Information	Sampler (Name)	Airbill Number
	AARON PETRI	635214807 3

Non-Superfund Program	Sampler Signature	5. Ship To
	Aaron Petri	SOUTH WEST LABS OF OKLAHOMA 1700 WEST ALBANY SUITE C BROKEN ARROW OK 74012 ATTN: Missy Hamby

Site Name: Carter Lee Lumber

City, State: INDIANAPOLIS, IN

Site Spill ID: BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Other (Specify) 6. Ice only N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E RAS Analysis VOA	E BNA	E Pest/ PCB	E High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
29	ELG 33	5	L	G	N	X	X	X		5-077711-3	CLBKØ1Ø1-1	11/05/92 09145	AP	MEKA 33	—
30	ELG 34	5	L	G	N	X	X	X		5-077716-7	CLBKØ1Ø2-1	11/05/92 10135	AP	MEKA 34	—
31	ELG 35	5	L	G	N	X	X	X		5-077719-21	CLBKØ1Ø3-1	11/05/92 10145	AP	MEKA 35	—
32	ELG 36	2	L	G	1	X	X	X		5-077724-7	CLGWØ1-FR-1	11/05/92 15:20	AP	MEKA 36	DUP
32	ELG 37	2	L	G	1	X	X	X		5-077730-3	CLGWØ1-1	11/05/92 15:20	AP	MEKA 37	—
33	ELG 38	5	L	G	N	X	X	X		5-077735-7	CLSB11-1	11/05/92 16:30	AP	MEKA 38	MS/MSD
2Ø2	ELG 39	2	L	G	1	X				5-077738-9	CLBLK-02-1	11/05/92 17:00	AP	NA	B
34	ELG 40	5	L	G	N	X	X	X		5-077741-3	CLSBØ3Ø1-1	11/05/92 17:00	AP	MEKA 40	—
35	ELG 41	5	L	G	N	X	X	X		5-077746-8	CLSBØ3Ø2-1	11/05/92 17:20	AP	MEKA 41	—
35	ELG 42	5	L	G	N	X	X	X		5-077749-51	CLSBØ3Ø2-FR1	11/05/92 17:25	AP	MEKA 42	DUP

Shipment for Case complete? (Y/N)

Page 1 of 2

Sample used for a spike and/or duplicate: (ELG 36 - DUP) (ELG 38 MS/MSD) (ELG 42 - DUP)

Additional Sampler Signatures

Chain of Custody Seal Number: 3598 / 3597

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/05/92 19:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature) ☐ Declined

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(For Organic CLP Analysis)

SAS No. (if applicable): 7598E SET #2

Case No.: 17093

1. Project Code: 93EC20 | Account Code:
Regional Information:
Non-Superfund Program

2. Region No: 5 | Sampling Co.: CH2M HILL
Sampler (Name): Aaron Petri
Sampler Signature: Aaron Petri

4. Date Shipped: 11/05/92 | Carrier: FEX
Airbill Number: 635214807 5

5. Ship To: Southwest Labs of Oklahoma, 1700 West Albany Suite C, Broken Arrow, OK 74012
ATTN: Missy Hamby

Site Name: Carter-Lee Lumber
City, State: Indianapolis, IN | Site Spill ID: BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D): 1. HCl; 2. HNO3; 3. $NaHSO_4$; 4. H_2SO_4; 5. Other (Specify); 6. Ice only; N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil/Sediment; 6. Oil (High only); 7. Waste (High only); 8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High only: ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform. Eval, — = Not a QC Sample)
536	ELG43	5	L	G	N	X	X	X		5-077754-6	CLS0030 3-1	11/05/92 17:40	AV	MEIM43	—

Shipment for Case complete? (Y/N)

Page 1 of 2

Sample used for a spike and/or duplicate

Additional Sampler Signatures

Chain of Custody Seal Number

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/05/92 19:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

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Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No. (if applicable): 759BE

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC20		5	CH2MHILL	11/06/92	FEX

Regional Information	Sampler (Name)	Airbill Number
	AARON PETRI	635214810 6

Non-Superfund Program	Sampler Signature	5. Ship To
	Aaron Petri	SOUTH WEST LABS of OKLAHOMA 1700 WEST ALBANY, SUITE C BROKEN ARROW, OK 74017 ATTN: Missy Hamby

Site Name	City, State	Site Spill ID
Carter Lee Lemmon	INDIANOLA, IN	BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RA	REM
ST		SSI	O&M	OIL
FED		LSI	NPLD	UST
			RD	REMA

6. Preservative (Enter in Column D)
1. HCl
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E RAS Analysis VOA	E BNA	E Pest/ PCB	E High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
S37	ELG 44	5	L	G	N	X	X	X		5-077759-61	CLSB02Ø1-1	11/06/92 07:45	AP	MEKA44	—
S38	ELG 45	5	L	G	N	X	X	X		5077764-6	CLSB02Ø2-1	11/06/92 07:50	AP	MEKA45	—
S39	ELG 46	5	L	G	N	X	X	X		5-077769-71	CLSB02Ø3-1	11/06/92 08:00	AP	MEKA46	MS/MSD
S40	ELG 47	2	L	G	1/	X	X	X		5077774-7	CLGW04-1	11/06/92 09:40	AP	MEKA47	—
S41	ELG 48	2	L	G	1	X	X	X		5-077780-3	CLGRBØ3-1	08:20	AP	MEKA48	—
S42	ELG 49	2	L	G	1	X	X	X		5-077786-9	CLGRBØ2-1	09:00	AP	MEKA49	—
S43	ELG 50	5	L	G	N	X	X	X		5-077790-2	CLSBØ1Ø1-1	12:30	AP	MEKA50	—
S44	ELG 51	2	L	G	1	X	X	X		5-077796-9	~~CLSB~~CLGRBØ1-1	14:30	AP	MEKA51	—

Shipment for Case complete? (Y/N): NO

Page 1 of ___

Sample used for a spike and/or duplicate: ELG-MS/MSD (46)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3545 / 3546

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/06/92 19:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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EPA — Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703 557 2490 FTS 557 2490

SAS No. (if applicable): 7598E

Case No: 19093

1. Project Code: 932C.20 | Account Code:

Regional Information:

Non-Superfund Program:

2. Region No: 5 | Sampling Co: CH2MHILL

Sampler (Name): AARON PETRI

Sampler Signature:

4. Date Shipped: 11/06/92 | Carrier: FEX

Airbill Number: 635214810 6

5. Ship To: SOUTHWEST LABS OF OKLAHOMA
1700 WEST ALBANY, SUITE C
BROKEN ARROW, OK 74017

ATTN: MISSY HAMBY

Site Name: Carter Lee Lumber

City, State: INDIANAPOLIS IN | Site Spill ID: BO

3. Type of Activity: SF (Lead) PRP ST FED; Pre-Remedial: PA SSI LSI; Remedial: RIFS RD RA O&M NPLD; Removal: CLEM REMA REM OIL UST

6. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Other (Specify) 6. Ice only N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High only: ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Performance Eval, — = Not a QC Sample)
S45	ELG 52	5	L	G	N	X	X	X		5-077801-3	CLSB01-1	11/06/92 14:00	AP	MEKA 52	—
D45	ELG 53	5	L	G	N	X	X	X		5-077807-9	CLSB02FR-1	14:10	AP	MEKA 53	Dup
S46	ELG 54	5	L	G	N	X	X	X		5-077811-3	CLSB03-1	14:30	AP	MEKA 54	MS/MSD
S47	ELG 55	5	L	G	N	X	X	X		5-077815-11	CLSB05-1	14:25	AP	MEKA 55	—
S48	ELG 56	5	L	G	N	X	X	X		5-077818-20	CLSB05D-1	15:00	AP	MEKA 56	—
S49	ELG 57	5	L	G	N	X	X	X		5-077823-5	CLSB06D-1	15:10	AP	MEKA 57	—
S50	ELG 58	5	L	G	N	X	X	X		5-077826-8	CLSB06-1	15:05	AP	MEKA 58	—
S51	ELG 59	5	L	G	N	X	X	X		5-077830-2	CLSB07-1	14:40	AP	MEKA 59	—
S52	ELG 60	5	L	G	N	X	X	X		5-077834-6	CLSB08-1	15:00	AP	MEKA 60	—
S53	ELG 61	5	L	G	N	X	X	X		5-077838-4	CLSB09-1	15:20	AP	MEKA 61	—

Shipment for Case complete? (Y/N): NO

Page 1 of 2

Sample used for a spike and/or duplicate: (ELG 53 - DUP) (ELG 54 - MS/MSD)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3551 / 3552

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/06/92 19:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples: ☐ Accepted (Signature)

☐ Dec ed

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Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No. (If applicable): 7598E

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC20		5	CH2M HILL	11/06/92	FEX

Regional Information

Sampler (Name): AARON PETRI

Airbill Number: 635214816

Non-Superfund Program

Sampler Signature:

5. Ship To: Southwest Labs of Oklahoma, 1700 West Albany, Suite C, Broken Arrow, OK 74017

ATTN: Missy Hamby

Site Name: Cater Lee Lumber

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RA	REM
ST		SSI	O&M	OIL
FED		LSI	NPLD	UST
			RD	REMA

City, State: Indianapolis, IN

Site Spill ID: BD

6. Preservative (Enter in Column D)
1. HCl
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E RAS Analysis VOA	BNA	Pest/ PCB	High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform. Eval., — = Not a QC Sample)
S54	ELG62	5	L	G	N	X	X	X		5-077842-4	CLSB090-1	11/06/92 15:25	RP	MEKA62	—
S55	ELG63	5	L	G	N	X	X	X		5-077846-8	CLSB00-1	11/06/92 15:30	RP	MEKA63	—
S56	ELG64	5	L	G	N	X	X	X		5-077850-2	CLSB100-1	11/06/92 15:27	RP	MEKA64	—
S57	ELG65	2	L	G	1	X	X	X		5-077858-6	CLMW05-MS-1	14:00	RP	MEKA65	MS/MSD
S58	ELG66	2	L	G	1	X	X	X		5-077868-7	CLMW03-1	15:10	RP	MEKA66	—
R03	ELG67	2	L	G	1	X				5-077874-5	CLBLK03-1	18:00	RP	MEKA	B

Shipment for Case complete? (Y/N): NO

Page 1 of 2

Sample used for a spike and/or duplicate: (ELG65-MS/MSD) (ELG67 BLANK)

Additional Sampler Signatures

Chain of Custody Seal Number: 3551/3552

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	11/06/92 19:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Split Samples: ☐ Accepted (Signature) ☐ Declined

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Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No. (if applicable): 7598E

Case No: 19093

1. Project Code: T3EC20 | Account Code:
Regional Information:
Non-Superfund Program:

2. Region No: 5 | Sampling Co: CH2MHILL
Sampler (Name): MARON PETRI
Sampler Signature:

4. Date Shipped: 11/07/92 | Carrier: (FEX)
Airbill Number: 5048 388236

5. Ship To: SOUTH WEST LABS OF OKLAHOMA
1700 WEST ALBANY, SUITE C.
BROKEN ARROW, OK 74012
ATTN: Missy Hamby

Site Name: Carter Lee Lumber
City, State: INDIANAPOLIS, IN | Site Spill ID: BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	X CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Other (Specify) 6. Ice only N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis VOA	BNA	Pest/ PCB	High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, Pf = Perform Eval, — = Not a QC Sample)
ELG 68	2	L	G	1	X	X	X		5-077976-9	CLMW02-1	11/07/92 8:30	AP	MEKA 68	—
ELG 69	2	L	G	1	X	X	X		5-077984-7	CLFIELDBLK-1	11/07/92 09:00	AP	MEKA 69	EQ BLANKS
ELG 70	2	L	G	1	X	X	X		~~5-077978-8~~	~~CLMW05-1~~	~~11/07/92 10:00~~	~~AP~~	~~MEKA 70~~	— WS TRIP BLANK
ELG 71	2	L	G	1	X				5-07782-3	CLBLK04-1	11/07/92 1005	AP	~~MEKA 71~~ NA	

Shipment for Case complete? (Y/N): ~~no~~ yes

Page 1 of 1

Sample used for a spike and/or duplicate: (ELG 71-TBLANK)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3590 / 3589

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Clara Petri	11/07/92 10:00	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Date / Time | Remarks: Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)
☐ Declined

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(For Inorganic CLP Analysis)

SAS No. (if applicable): SET

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC20		5	CH2MHILL	11/04/92	(FEX)

Regional Information	Sampler (Name)	Airbill Number
	AARON PETRI	6352149182

Non-Superfund Program	Sampler Signature	5. Ship To
	Aara Petri	SILVER VALLY LABORATORIES, INC ONE GOVERNMENT GULCH KELLOGG, ID 83837 ATTN: KEVIN BOOTH

Site Name: CARTER Lee Lumber

City, State: INDIANOPLIS, IN — Site Spill ID: RB BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D): 1. HCl; 2. HNO_3; 3. NaOH; 4. H_2SO_4; 5. $K_2CR_2O_7$; 6. Ice only; 7. Other (Specify); N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil/Sediment; 6. Oil (High only); 7. Waste (High only); 8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only: Nitrate/ Nitrite	Low Conc. only: Fluoride	High only: pH	High only: Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC
	MBKA02																	
S60	EW605 MP	5	L	G	N	X							5-077601	CLBKS08-1	11/03/92 09:25	AP	ELG01	-
S61	MEKA01	5	L	G	N	X							5-077604	CLBKS09-1	11/03/92 09:30	AP	ELG02	-
S62	MEKA03	5	L	G	N	X							5-077607	CLBKS10-1	11/03/92 09:40	AP	ELG03	-
S63	MEKA04	5	L	G	N	X							5-077608	CLBKS11-1	11/03/92 10:15	AP	ELG04	-
S64	MEKA05	5	L	G	N	X							5-077610	CLBKS12-1	11/03/92 10:30	AP	ELG05	-
S65	MEKA06	5	L	G	N	X							5-077612	CLBKS13-1	11/03/92 10:45	AP	ELG06	-
S66	MEKA07	5	L	G	N	X							5-077615	CLBKS14-1	11/03/92 10:05	AP	ELG07	-
S67	MEKA08	5	L	G	N	X							5-077617	CLBKS15-1	11/03/92 11:18	AP	ELG08	-
S68	MEKA09	5	L	G	N	X							5077619	CLBKS16-1	11/03/92 11:30	AP	ELG09	-
S69	MEKA09 MS	5	L	G	N	X							5-077621	CLBKS17-1	11/03/92 11:40	AP	ELG10	-

Shipment for Case complete? (Y/N)	Page 1 of 2	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
				3399 / 3400

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aara Petri	11/03/92 17:00	Aara Petri	Aara Petri	11/04/92 15:00	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Split Samples: ☐ Accepted (Signature) ☐ Declined

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Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No. (if applicable): SAT

Case No.: 19093

1. Project Code: 92EC20 | Account Code:

Regional Information:

Non-Superfund Program: CLP

Site Name: Carter Lee Lumber

City, State: Indianapolis IN | Site Spill ID: BB BD

2. Region No.: 5 | Sampling Co.: CH2MHILL

Sampler (Name): AARON PETRI

Sampler Signature:

3. Type of Activity

	Lead	Pre-Remedial	Remedial		Removal
SF	X		RIFS	X	CLEM
PRP		PA	RD		REMA
ST		SSI	RA		REM
FED		LSI	O&M		OIL
			NPLD		UST

4. Date Shipped: 11/04/92 | Carrier: (FEX)

Airbill Number: 635214 9182

5. Ship To: SILVER VALLY LABORATORIES INC
ONE GOVERNMENT GULCH
KELLOGG IN 83837
ATTN: KEVIN BOOTH

6. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (Specify)
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp / Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only Nitrate/Nitrite	Fluoride	High only pH	Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform. Eval, — = Not a QC Sample)
S70	MEKA11	5	L	G	N	X							5-077625	CLBKS02	11/03/92 13:15	AP	ELG11	—
D70	MEKA12	5	L	G	N	X							5-077629	CLBKS02-FR-1	11/03/92 13:15	AP	ELG12	DUP

Shipment for Case complete? (Y/N):

Page 1 of 2

Sample used for a spike and/or duplicate: (MEKA12 DUP)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3399 / 3400

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Alara Petri	11/03/92 17:00	Alara Petri	Alara Petri	11/04/92 15:00	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Split Samples: ☐ Accepted (Signature) ☐ Decline

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EPA Inorganic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
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PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

(For Inorganic CLP Analysis)

SAS No. (if applicable): SET-

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC20		5	CH2MHILL	11/04/92	(FEX)

Regional Information	Sampler (Name)	Airbill Number
	AARON PETRI	635214918 2

Non-Superfund Program	Sampler Signature	5. Ship To
	Aaron Petri	SILVER VALLY LABORTIES, INC ONE GOVERNMENT GULCH KELLOGG, IN 83837 ATTN: Kevin Booth

Site Name: Carter Lee Lumber

City, State: Indianapolis IN

Site Spill ID: BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter In Column D)
1. HCl
2. HNO_3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (Specify)
N. Not preserved

7. Sample Description (Enter In Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp/ Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Low Conc. only Cyanide	Low Conc. only Nitrate/ Nitrite	Low Conc. only Fluoride	High only pH	High only Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
S71	MEKA13	5	L	G	N	X							5-077630	CLBKSØ7-1	11/03/92 13:40	AP	ELG13	—
S72	MEKA14	5	L	G	N	X							5-077637	CLBKSØ4-1	11/03/92 14:05	AP	ELG14	—
S73	MEKA15	5	L	G	N	X							5-077638	CLBKSØ5-1	11/03/92 14:10	AP	ELG15	—
S74	MEKA16	5	L	G	N	X							5077642	CLSSØ3B-1	11/03/92 14:05	AP	ELG16	—
S75	MEKA17	5	L	G	N	X							5-077646	CLSSØ3A-1	11/03/92 14:40	AP	ELG17	—
S76	MEKA18	5	L	G	N	X							5-077650	CLSSØ1A-1	11/03/92 15:20	AP	ELG18	—
S77	MEKA19	5	L	G	N	X							5077654	CLSSØ1B-1	11/03/92 15:30	AP	ELG19	(MS, MSD)
D78	MEKA20	5	L	G	N	X							5-077658	CLSSØ2A-FR1	11/03/92 16:10	AP	ELG20	DUP
S78	MEKA21	5	L	G	N	X							5-077662	CLSSØ2A-1	11/03/92 16:00	AP	ELG21	—
S79	MEKA22	5	L	G	N	X							5-077666	CLSSØ2B-1	11/03/92 16:20	AP	ELG22	—

Shipment for Case complete? (Y/N)

Page 1 of 1

Sample used for a spike and/or duplicate: (MEKA19 MS, MSD) (MEKA20 DUP)

Additional Sampler Signatures

Chain of Custody Seal Number: 3398 / 3397

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/03/92 17:00	Aaron Petri	Aaron Petri	11/04/92 17:00	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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Contract Laboratory Program Sample Management Office
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703 557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No. (If applicable):

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC20		5	CH2M HILL	11/04/92	(FED-EX)

Regional Information

Sampler (Name): AARON PETRI

Airbill Number: 635214918 2

Non-Superfund Program

Sampler Signature:

5. Ship To: SILVER VALLY LABORATORIES, INC.
ONE GOUVERNMENT GULCH
KELLOGG, ID 83837
ATTN: KEVIN BOOTH

Site Name: Carter Lee Lumber

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF			RIFS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

City, State: INDIANAPOLIS, IN

Site Spill ID: BD

6. Preservative (Enter in Column D)
1. HCl
2. HNO_3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (Specify)
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp/ Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only: Mercury/ Hydride	Low Conc. only: Furnace	High only: pH	High only: Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform. Eval, — = Not a QC Sample)
SB0	MEKA23	5	L	G	N	X		X					5-077673	CLSB1201-1	11/04/92 10:40	AP	ELG23	—
SB1	MEKA24	5	L	G	N	X		X					5-077677	CLSB1202-1	11/04/92 11:00	AP	ELG24	—
DB1	MEKA25	5	L	G	N	X		X					5-077681	CLSB1202FR-1	11/04/92 11:00	AP	ELG25	Dup
SB2	MEKA26	5	L	G	N	X		X					5-077682	CLSB1203-1	11/04/92 11:15	AP	ELG26	—
SB3	MEKA27	5	L	G	N	X		X					5-077689	CLSB04B1-1	11/04/92 14:00	AP	ELG27	—
SB4	MEKA28	5	L	G	N	X		X					5-077690	CLSB04B2-1	11/04/92 14:20	AP	ELG28	—
SB5	MEKA29	5	L	G	N	X		X					5-077694	CLSB04B3-1	11/04/92 14:30	AP	ELG29	—
SB6	MEKA30	2	L	G	2/3	X		X					5-077698-9	CLGRB04-1	11/04/92 17:00	AP	ELG30	—
SB7	MEKA31	5	L	G	N	X		X					5-077704	CLSS04-1	11/04/92 17:00	AP	ELG31	—

Shipment for Case complete? (Y/N): N

Page 1 of ___

Sample used for a spike and/or duplicate: (MEKA25 DUP)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3395 / 3396

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/04/92 18:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Split Samples: ☐ Accepted (Signature)
☐ Declined

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Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

EPA — United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

SAS No. (if applicable): SET #2 7598E

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
937C20		5	CH2MHILL	11/05/92	(FEX)

Regional Information

Sampler (Name): AARON PETRI

Airbill Number: 635214808 4

Non-Superfund Program

Sampler Signature: Aaron Petri

5. Ship To: SILVER VALLY LABORATORIES, INC
ONE GOVERNMENT GULCH
KELLOGG, IN 83837
ATTN: KEVIN BOOTH

Site Name: CARTER Lee Lumber

City, State: IDAHANOPLIS, IN

Site Spill ID: BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	☒		RIFS ☒	CLEM ☐
PRP	☐	PA ☐	RD ☐	REMA ☐
ST	☐	SSI ☐	RA ☐	REM ☐
FED	☐	LSI ☐	O&M ☐	OIL ☐
			NPLD ☐	UST ☐

6. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (Specify) N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Metals Cyanide	Low Conc. only Nitrate/ Nitrite	Low Conc. only Fluoride	High only pH	High only Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
SBB	MEKA33	5	L	G	N	X		X					5-077710	CLBK01-1	11/05/92 0945	AP	ELG33	—
S89	MEKA34	5	L	G	N	X		X					5-077714	CLBK02-1	11/05/92 10:35	AP	ELG34	—
S90	MEKA35	5	L	G	N	X		X					5-077718	CLBK03-1	11/05/92 10:45	AP	ELG35	—
D91	MEKA36	2	L	G	2/3	X		X					5-077722-3	CLGW01-FR-1	11/05/92 15:20	AP	ELG36	DUP
S91	MEKA37	2	L	G	2/3	X		X					5-077728-9	CLGW0-1	11/05/92 15:20	AP	ELG37	—
S92	MEKA38	5	L	G	N	X		X					5-077729	CLSB11-1	11/05/92 16:30	AP	ELG38	MS/MSD
S93	MEKA40	5	L	G	N	X		X					5-077740	CLSB03A1-1	11/05/92 17:00	AP	ELG40	—
S94	MEKA41	5	L	G	N	X		X					5-077745	CLSB0302-1	11/05/92 17:20	AP	ELG-41	—
D94	MEKA42	5	L	G	N	X		X					5-077752	CLSB03-02FR-1	11/05/92 17:25	AP	ELG-42	DUP
S95	MEKA43	5	L	G	N	X		X					5-077757	CLSB03-03-1	11/05/92 17:40	AP	ELG-43	-

Shipment for Case complete? (Y/N)

Page 1 of ___

Sample used for a spike and/or duplicate: (MEKA 36 - DUP) (MEKA 38 MS/MSD) (MEKA 42 - DUP)

Additional Sampler Signatures

Chain of Custody Seal Number: 3595 / 3596

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/05/92 18:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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EPA

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703 557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No. (If applicable): 7598E

Case No.: 19093

1. Project Code: 937C20 | Account Code:

2. Region No.: 5 | Sampling Co.: CH2M HILL

4. Date Shipped: 11/06/92 | Carrier: (Fex)

Regional Information:

Sampler (Name): Aaron Petri

Airbill Number: ~~6552148084~~ 504841667l

Non-Superfund Program:

Sampler Signature: Aaron Petri

5. Ship To: Silver Valley Laboratories, Inc
One Government Gulch
Kellogg, IN 83837
ATTN: Kevin Booth

Site Name: Carter Lee Lumber

3. Type of Activity: SF (Lead) [X], PRP, ST, FED; Pre-Remedial: PA, SSI, LSI; Remedial: RIFS [X], RD, RA, O&M, NPLD; Removal: CLEM, REMA, REM, OIL, UST

City, State: Indianapolis, IN | Site Spill ID: BD

6. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (Specify) N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc only: Mercury Hydride	Low Conc only: Fluoride	High only: pH	High only: Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform. Eval, – = Not a QC Sample)
S96	MEKA44	5	L	G	N	X		X					5077758	CLSB02Ø1-1	11/06/92 07:45	AP	ELG44	–
S97	MEKA45	5	L	G	N	X		X					5-077963	CLSB02Ø2-1	07:50	AP	ELG45	–
S98	MEKA46	5	L	G	N	X		X					5-077768	CLSB02Ø3-1	08:00	AP	ELG46	MS/MSD
S99	MEKA47	2	L	G	3/2	X		X					5-077772-3	CLGW1Ø4-1	09:40	AP	ELG47	–
SØ1	MEKA48	2	L	G	3/2	X		X					5-077778-9	CLGRBØ3-1	08:20	AP	ELG48	–
SØ2	MEKA49	2	L	G	3/2	X		X					5-077784-5	CLGRB02-1	09:00	AP	ELG49	–
SØ3	MEKA50	5	L	G	N	X		X					5-077793	CLSBØ1Ø1-1	12:30	AP	ELG50	–
SØ4	MEKA51	2	L	G	3/2	X		X					5-077794-5	GLGRBØ1-1	14:30	AP	ELG51	

Shipment for Case complete? (Y/N): N

Page 1 of ___

Sample used for a spike and/or duplicate: (MEKA46 - MS/MSD)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3549 / 3550

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/06/92 19:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

EPA Form 9110-1 (Rev. 5-91) Replaces EPA Form (2075-6), previous edition which may be used

DISTRIBUTION: Orig. - [illegible] Pink - [illegible] Cor. White - [illegible] Copy [illegible] return to [illegible] Yellow - Lab

Split Samples: ☐ Accepted (Signature) ☐ Decline

hard-1

EPA — Inorganic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

(For Inorganic CLP Analysis)

SAS No. (if applicable): 7598E

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC21		5	CH2MHILL	11/05/92	FEX

Regional Information	Sampler (Name)	Airbill Number
	AARON PETRI	504841667 1

Non-Superfund Program	Sampler Signature	5. Ship To
		SILVER VALLEY LABORTORIES, INC One GOUERNMENT GULCH Kellogg IN 83837 ATTN: KEVIN BOOTH

Site Name	City, State	Site Spill ID
Canter Lee Lumber	Indianapolis IN	BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (Specify) N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only: Nitrate/ Nitrite	Low Conc. only: Fluoride	High only: pH	High only: Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
S05	MEKA 52	5	L	G	N	X		X					5-077800	CLSB01-2-1	11/06/92 14:20	AP	ELG 52	—
D05	MEKA 53	5	L	G	N	X		X					5-077806	CLSB01-2FR-1	14:30	AP	ELG 53	DUP
S06	MEKA54	5	L	G	N	X		X					5-077810	CLSB03-1	14:30	AP	ELG 54	(MS/MSD)
S07	MEKA55	5	L	G	N	X		X					5-077814	CLSB05-1	14:35	AP	ELG 55	—
S08	MEKA56	5	L	G	N	X		X					5-077821	CL SB05D-1	15:00	AP	ELG 56	—
S09	MEKA57	5	L	G	N	X		X					5-077822	CL SB06D-1	15:10	AP	ELG 57	—
S10	MEKA 58	5	L	G	N	X		X					5-077829	CL SB06-1	15:05	AP	ELG 58	—
S11	MEKA59	5	L	G	N	X		X					5-077833	CL SB07-1	14:40	AP	ELG 59	—
S12	MEKA 60	5	L	G	N	X		X					5-077837	CL SB08-1	15:00	AP	ELG 60	—
S13	MEKA61	5	L	G	N	X		X					5-077841	CL SB09-1	15:20	AP	ELG 61	—

Shipment for Case complete? (Y/N)	Page 1 of 2	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
N		(MEKA 53-DUP) (MEKA 54-MS/MSD)		3553 / 3554

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/06/92 19:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

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Split Samples ☐ Accepted (Signature)
☐ Declined

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS

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United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703 557 2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No. (if applicable): 7598E

Case No.: 19093

1. Project Code: 922C21 | Account Code:

2. Region No.: 5 | Sampling Co.: CH2M HILL

4. Date Shipped: 11/06/92 | Carrier: FEX

Regional Information:

Sampler (Name): AARON PETRI

Airbill Number: 504841671

Non-Superfund Program:

Sampler Signature:

5. Ship To: Silver Valley Laboratories, INC
ONE Government Gluch
Kellogg, IN 83837
ATTN: KEVIN BOOTH

Site Name: Carter Lee Lumber

City, State: Indianapolis, IN | Site Spill ID: BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (Specify)
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp / Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only Mercury Hydride	Low Conc. only Fluoride	High only pH	High only Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC
S14	MEKA62	5	L	G	N	X		X					5-077845	CLSB090-1	11/06/92 15:25	AP	ELG62	—
S15	MEKA63	5	L	G	N	X		X					5-077849	CLSB10-1	11/06/92 15:27	AP	ELG63	—
S16	MEKA64	5	L	G	N	X		X					5-077853	CLSB10D-1	11/06/92 15:27	AP	ELG64	—
S17	MEKA65	3	L	G	2/3	X		X					5-077854-1	CLMW05M3-1	14:00	AP	ELG65	MS/MSD
S18	MEKA66	2	L	G	2/3	X		X					5-077872-3	CLMW03-1	15:10	AP	ELG66	—

Shipment for Case complete? (Y/N): N

Page 1 of 2

Sample used for a spike and/or duplicate: (MEKA 65 MS/MSD)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3553/3554

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	11/06/92 19:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)
☐ Declined

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United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

(For Inorganic CLP Analysis)

SAS No. (if applicable): 7598E

Case No.: 19093

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93EC21		5	CH2MHILL	11/07/92	(FEX)

Regional Information

Sampler (Name): AARON PETRI

Airbill Number: 504838825 225

Non-Superfund Program

Sampler Signature:

5. Ship To: SILVER VALLY LABORATORIES, INC
ONE GOVERNMENT GULCH
KELLOGG, ID 83837
ATTN: KEVIN BOOTH

Site Name: Carter Lee Lumber

City, State: INDIANAPOLIS, IN

Site Spill ID: BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter In Column D)
1. HCl
2. HNO_3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (Specify)
N. Not preserved

7. Sample Description (Enter In Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only Nitrate/ Nitrite	Low Conc. only Fluoride	High only pH	High only Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC
S19 → MEKA68	2	L	G		X		X					5-077980-1	CLMW02-1	11/07/92 8:30	AP	~~ELG 68~~ EGL10	—
R06 MEKA69	2	L	G		X		X					5-077982-3	CLEBLK-1	11/07/92 9:00	AP	ELG 69	EQ BLANK
~~MEKA70~~	2	L	G		X		X					5-077876-9	CLMW05-1	11/07/92 10:00	AP	ELG 70	— 1225

Shipment for Case complete? (Y/N): YES

Page 1 of 1

Sample used for a spike and/or duplicate

Additional Sampler Signatures

Chain of Custody Seal Number: 3591 / 3592

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Aaron Petri	11/07/92 10:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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Incg-1

EPA

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
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703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No (if applicable)

Case No 20160

1 Project Code 1370.22 | Account Code

Regional Information

2 Region No Region V | Sampling Co Cillam Hill

Sampler (Name) Laura Peterson

3 Date Shipped 6-7-93 | Carrier Fed Ex

Airbill Number 732470323 4

Non Superfund Program

Sampler Signature L Peterson

5 Ship To
Skinner + Sherman Labs, Inc.
300 Second Ave.
Waltham, Mass. 02254
ATTN: Richard Purdy

Site Name Carter Lee Lumber

4 Type of Activity

	Lead	Pre Remedial	Remedial	Removal
SI	X		RI/FS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

City, State Indianapolis, IN | Site Spill ID BD

6 Preservative (Enter in Column D)
1 HCl
2 HNO3
3 NaOH
4 H_2SO_4
5 $K_2CR_2O_7$
6 Ice only
7 Other (SAS) (Specify)
N Not preserved

7 Sample Description (Enter in Column A)
1 Surface Water
2 Ground Water
3 Leachate
4 Blank
5 Soil/Sediment
6 Oil (SAS)
7 Waste (SAS)
8 Other (SAS) (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp/ Grab	D Preservative from Box 6	E RAS Analysis: Metals Cyanide	E RAS Analysis: Low Conc Nitrate Nitrite	E RAS Analysis: High pH	E RAS Analysis: High Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp CLP Org Samp No	K Designated Field QC
(a) (b)	MERE24	2	Low	Grab	3		X			5-178978	CMW01	6-7-93 1300	lp	ESG01	
(a) (b)	MERE24	2	Low	Grab	2	X				5-178977	CMW01	↓	lp	↓	
(a)	MERE25	2	Low	Grab	3		X			5-178988	CMW02	6-7-93 1345	lp	ESG02	
(a)	MERE25	2	Low	Grab	2	X				5-178987	CMW02	↓	lp	↓	
(a)	MERE26	2	Low	Grab	2	X				5-178999	CMW03	6-7-93 1500	lp	ESG03	MS/MSD
(a)	MERE26	2	Low	Grab	3		X			5-122840	CMW03	↓	lp	↓	↓
(a)	MERE27	2	Low	Grab	2	X				5-122845	CMW04	6-7-93 1615	lp	ESG60	
(a)	MERE27	2	Low	Grab	3		X			5-122846 (LOW)	CMW04	↓	lp	↓	
(a)	MERE08	2	Low	Grab	3		X			5-122857-SK (LOW)	CMW05FR	6-7-93 1715	lp	ESG61	Duplicate
(a)	MERE08	2	Low	Grab	2	X				5-122855-SK (LOW)	CMW05FR	↓	lp	↓	↓

Shipment for Case complete? (Y/N) Y | Page 1 of 1 | Sample used for a spike and/or duplicate: MERE26 (MS/MSD); MERE08 (Dupe) | Additional Sampler Signatures | Chain of Custody Seal Number 3805, 3806

CHAIN OF CUSTODY RECORD

Relinquished by (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by (Signature)
L Peterson	6/7/93 1900				
Relinquished by (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by (Signature)
Received by (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

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Split Samples ☐ Accepted (Signature)
☐ Declined

EPA Inorganic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703 557 2490 FTS 557 2490

(For Inorganic CLP Analysis)

SAS No. (if applicable):

Case No: 20160

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC22		5	CH2M HILL	6-7-93	FED. EX

Regional Information

Sampler (Name): Laura Peterson

Airbill Number: 7324703234

Non-Superfund Program

Sampler Signature: Laura Peterson

5. Ship To: Skinner & Sherman Labs Inc.
300 Second Ave.
Waltham, Mass. 02254
Attn: Richard Purdy

Site Name: Carter-Lee Lumber

City, State: Indianapolis, IN

Site Spill ID: BD

4. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D)
1. HCl
2. HNO_3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (SAS) (Specify)
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (SAS)
7. Waste (SAS)
8. Other (SAS) (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E · RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. Nitrate/Nitrite	Low Conc. Fluoride	High pH	High Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Designated Field QC
MERE08	2	Low	GRAB	3			X					5-122858	CMW05	6-7-93 1715	lp	ESG61	
↓	2	Low	GRAB	2		X						5-122856	CMW05	↓	lp	↓	

Shipment for Case complete? (Y)N

Page 1 of 1

Sample used for a spike and/or duplicate

Additional Sampler Signatures

Chain of Custody Seal Number: 3805, 3806

CHAIN OF CUSTODY RECORD

Relinquished by (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Laura Peterson	6/7/93 1900				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

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☐ Declined

1 011118

EPA — Organic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria VA 22313
703 557 2490 FTS 557 2490

(For Organic CLP Analysis)

1. Project Code	Account Code	2. Region No	Sampling Co	4. Date Shipped	Carrier
1370.00		Region V	CHOM HILL	6/7/93	Fed Ex

Regional Information

Non Superfund Program

Sampler (Name): Laura Peterson

Sampler Signature: Laura Peterson

Airbill Number: 732470324 5

Site Name: Carter Lee Lumber

City, State: Indianapolis, IN

Site Spill ID: BD

3. Type of Activity: SF (Lead) X; PRP; ST; FED; PA (Pre Remedial); SSI; LSI; RIFS (Remedial) X; RD; RA; O&M; NPLD; CLEM (Removal); REMA; REM; OIL; UST

5. Ship To:
Pace Laboratories
9608 Loiret Blvd.
Lenexa, Kansas 66219
ATTN: Duane Boline

SAS No (if applicable):

6. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

Case No: 20160

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, FB = Perform Field Blank, N = Not a QC Sample)
ESG01	2	Low	Grab	1	X				5-178980-81	CMW01	6-7-93 1300	lp	MERE24	
LSG01	2	Low	Grab	N		X			5-178982	CMW01	6/7/93 1300	lp	↓	
ESG01	2	Low	Grab	N			X		5-178983	CMW01	6-7-93 1300	lp	↓	
ESG02	2	Low	Grab	1	X				5-178985-86	CMW02	6/7/93 1345	lp	MERE25	
ESG02	2	Low	Grab	N		X			5-178979	CMW02	6-7-93 1345	lp	↓	
ESG02	2	Low	Grab	N			X		5-178984	CMW02	6-7-93 1345	lp	↓	
ESG03	2	Low	Grab	1	X				5-178993-98	CMW03	6-7-93 1500	lp	MERE26	MS/MSD
ESG03	2	Low	Grab	N		X			5-178989-90	CMW03	6-7-93 1500	lp	↓	MS/MSD
ESG03	2	Low	Grab	N			X		5-178991-92	CMW03	6-7-93 1500	lp	↓	MS/MSD
ESG56	8	Low		1	X				5-077324	CTB01	6-7-93 1530	lp		Trip Blank

Shipment for Case complete? (Y/N): Y

Page 1 of 1

Sample used for a spike and/or duplicate: ESG03 (MS/MSD)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3801, 3802

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Laura Peterson	6/7/93 1900				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

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☐ Dec...

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

EPA — United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

SAS No. (if applicable):

Case No.: 20160

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
937C22		Region V	Cham Hill	6/7/93	Fed. Ex

Regional Information

Sampler (Name): Laura Peterson

Airbill Number: 732470345

Non-Superfund Program

Sampler Signature: Peterson

Site Name: Carter-Lee Lumber

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

5. Ship To:
Pace Laboratories
9608 Loiret Blvd.
Lenexa, Kansas 66219
ATTN: Duane Boline

City, State: Indianapolis, IN

Site Spill ID: BD

6. Preservative (Enter in Column D)
1. HCl
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval — = Not a QC Sample)
TA														
SO4 ESG60	2	Low	Grab	1	X				5-122843-44	CMW04	6/7/93 1615	lp	MERE27	
SO4 ESG60	2	Low	Grab	N			X		5-122842	CMW04	6/7/93 1615	lp	↓	
SO4 ESG60	2	Low	Grab	N		X			5-122841	CMW04	6/7/93 1615	lp	↓	
DO5 ESG61	2	Low	Grab	1	X				5-122851-52	CMW05FR	6-7-93 1715	lp	MERE08	Dupe
DO5 ESG61	2	Low	Grab	N		X			5-122847-48	CMW05FR	6-7-93 1715	lp	↓	Dupe
DO5 ESG61	2	Low	Grab				X		5-122849-50	CMW05FR	6-7-93 1715	lp	↓	Dupe
RO2 ESG62	8	Low		1	X				5-122861-62	CFB01	6-7-93 1730	lp		Field Blank
RO2 ESG62	8	Low		N		X			5-122859	CFB01	6-7-93 1730	lp		↓
RO2 ESG62	8	Low		N			X		5-122860	CFB01	6-7-93 1730	lp		↓
RO3 ESG63	8	Low		1	X				5-122865	CTB02	6-7-93 1730	lp		Trip Blank

Shipment for Case complete? (Y/N): Y

Page 1 of 1

Sample used for a spike and/or duplicate: ESG61 (Duplicate)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3803, 3804

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Peterson	6/7/93 1900				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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EPA — Organic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703 557 2490 FTS 557 2490

(For Organic CLP Analysis)

SAS No (if applicable):

Case No: 20160

1 Project Code: 137C02 | Account Code:
Regional Information:
Non Superfund Program

2 Region No: 5 | Sampling Co: CH2M HILL
Sampler (Name): LAURA PETERSON
Sampler Signature:

3 Type of Activity: SF (Lead, Pre-Remedial) PRP (PA) ST (SSI) FED (LSI) | Remedial: RIFS, RD, RA, O&M, NPLD | Removal: CLEM, REMA, REM, OIL, UST

4 Date Shipped: 6/7/93 | Carrier: FED. EX.
Airbill Number: 7324703245

5. Ship To:
PACE LABORATORIES
9608 LOIRET BLVD.
LENEXA, KANSAS 66219
ATTN: DUANE BOLINE

Site Name: CARTER-LEE LUMBER
City, State: INDIANAPOLIS, IN | Site Spill ID: BD

6 Preservative (Enter in Column D):
1. HCl
2. HNO3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

7 Sample Description (Enter in Column A):
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform Eval, -- = Not a QC Sample)
ESG61	2	LOW	GRAB	1	X				5-122853	CMW05 ~~ER~~ OW	6-7-93 1715	LP	MERE08	
ESG61	2	LOW	GRAB	1	X				5-122854	CMW05	↓	LP	↓	
ESG61	2	LOW	GRAB	N		X			5-122848	CMW05	6-7-93 1715	LP	MERE08	
ESG61	2	LOW	GRAB				X		5-122850	CMW05	6-7-93 1715	LP	↓	

Shipment for Case complete? (Y/N)

Page 1 of 1

Sample used for a spike and/or duplicate

Additional Sampler Signatures

Chain of Custody Seal Number: 3803, 3804

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/7/93 1900	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Date / Time | Remarks | Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)
☐ Decly

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Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No. (if applicable):

Case No.: 20848

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93EC23		Region V	CHam Hill	9/22/93	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
TGB102	Laura Peterson	773132737G

Non-Superfund Program	Sampler Signature	5. Ship To
	Laura Peterson	ITMO St. Louis Laboratory 13715 Rider Trail North Earth City, MO 63045 ATTN: Bob Cowart

Site Name	3. Type of Activity	Remedial	Removal
Carter-Lee Lumber	SF (Lead) ☒	Pre-Remedial: RIFS ☒	CLEM ☐
	PRP ☐	PA ☐	RD ☐	REMA ☐
	ST ☐	SSI ☐	RA ☐	REM ☐
	FED ☐	LSI ☐	O&M ☐	OIL ☐
			NPLD ☐	UST ☐

City, State	Site Spill ID
Indianapolis, IN	BD

6. Preservative (Enter in Column D): 1. HCl; 2. HNO_3; 3. NaOH; 4. H_2SO_4; 5. $K_2CR_2O_7$; 6. Ice only; 7. Other (Specify); N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil/Sediment; 6. Oil (High only); 7. Waste (High only); 8. Other (Specify)

STA NO.	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only: Nitrate/ Nitrite	Low Conc. only: Fluoride	High only: pH	High only: Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
501	MEZ959	2	Low	Grab	2		X						5-191026	CMW-1	9/22/93 1345	lp	EKJ61	
501	MEZ959	2	Low	Grab	3			X					5-191027	CMW-1	1345	lp	EKJ61	
502	MEZ960	2	Low	Grab	2		X						5-191036	CMW-2	1825	lp	EKJ62	
502	MEZ960	2	Low	Grab	3			X					5-191037	CMW-2	↓	lp	EKJ62	
503	MEZ961	2	Low	Grab	2		X						5-191038	CMW-3	1440	lp	EKJ63	
503	MEZ961	2	Low	Grab	3			X					5-191039	CMW-3	1440	lp	EKJ63	
504	MEZ962	2	Low	Grab	2		X						5-191048-50	CMW-4	1925	lp	EKJ66	Extra Volume for MS/MSD
504	MEZ962	2	Low	Grab	3			X					5-191051-52	CMW-4	↓	lp	EKJ66	Extra Volume for MS/MSD
505	MEZ963	2	Low	Grab	2		X						5-191053	CMW-5-FR	1705	lp	EKJ67	Duplicate of MEZ964
505	MEZ963	2	Low	Grab	3			X					5-191054	CMW-5-FR	↓ ↓	lp	EKJ67	Duplicate of MEZ964

Shipment for Case complete? (Y/N)	Page 1 of 2	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
		MEZ962 (MS/MSD) ~~MEZ963 (Duplicate)~~ CW 9/30/93		3885, 3886

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Laura Peterson	9/22/93 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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1 240170

EPA — Inorganic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703 557 2490 FTS 557 2490

(For Inorganic CLP Analysis)

SAS No (if applicable):

Case No.: 20848

1. Project Code: 937C23 | Account Code:
Regional Information: TGB10.2
Non-Superfund Program

2. Region No.: Region V | Sampling Co.: CHAIN HILL
Sampler (Name): Laura Peterson
Sampler Signature: Laura Peterson

4. Date Shipped: 9/22/93 | Carrier: Fed Ex
Airbill Number: 773132737376

5. Ship To: JTMO St Louis Laboratory
13715 Rider Trail North
Earth City, MO 63045
ATTN: Bob Cowart

Site Name: Carter-Lee Lumber
City, State: Indianapolis, IN | Site Spill ID: BD

3. Type of Activity

	Lead	Pre Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (Specify)
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Low Conc only Cyanide	Low Conc only Metals Name	Low Conc only Fluoride	High only pH	High only Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Perform Eval, — = Not a QC Sample)
ME2964	2	Low	Grab	2		X						5-191055	CMW-5	9/22/93 1705	lp	EKJ368	
ME2964	2	Low	Grab	3			X					5-191056	CMW-5	↓	lp	EKJ368	
ME2966	5	L	Comp	N	X							5-191079	CLBK03	1210	lp	EKJ370	
ME2966	5	L	Comp	N			X					5-191080	CLBK03	↓	lp	EKJ370	
ME2965	5	L	Comp	N	X							5-191084	CLBK03-FR	↓	lp	EKJ371	DUP OF ME2966
ME2965	5	L	Comp	N			X					5-191085	CLBK03-FR	↓	lp	EKJ371	DUP OF ME2966
ME2967	5	L	Comp	N	X							5-191089	CLBK06	1135	lp	EKJ372	
ME2967	5	L	Comp	N			X					5-191090	CLBK06	↓	lp	EKJ372	

Shipment for Case complete? (Y/N)

~~Page 1 of~~ Page 2 of 2

Sample used for a spike and/or duplicate: CLBK03-FR (ME2965) CW 9/30/93

Additional Sampler Signatures

Chain of Custody Seal Number: 3885, 3886

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Laura Peterson	9/22/93 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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Special Analytical Service

Packing List/Chain of Custody

SAS No: 20848

1. Project Code	Account Code	2. Region No	Sampling Co	4. Date Shipped	Carrier
93ZC23		Region V	CHam #112	9/22/93	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
TGB102	Laura Peterson	773132734 3

Non-Superfund Program	Sampler Signature	5. Ship To
	Laura Peterson	SVL Analytical, Inc. One Government Gulch Kellogg, ID 83837 Attn: Blake Johnson

Site Name	City, State	Site Spill ID
Carter-Lee Lumber	Indianapolis, IN	BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	CLEM
PRP			RD	REMA
ST		PA	RA	REM
FED		SSI	O&M	OIL
		LSI	NPLD	UST

6. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil
7. Waste
8. Other (Specify)

7. Preservative (Enter in Column C)
1 HCl
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5 NaOH
6. Other (SAS) (Specify)
7. Ice only
N. Not preserved

	Sample Numbers	A Matrix Enter from Box 6	B Conc Low Med High	C Preserv-ative Used from Box 7	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Designated Field QC
SIS	1 20848-01	2	L-M	4	TOC, COD		5-191091	CMW-1	9/22/93 1345	LP	
	2			N	Alkalinity		5-191092			LP	
	3			N	Chloride		5-191093			LP	
	4			N	TDS, TSS		5-191095			LP	
SIS	5 20848-02			4	TOC, COD		5-191096	CMW-2	1825	LP	
	6			N	Alkalinity		5-191097			LP	
	7			N	Chloride		5-191098			LP	
	8			N	TDS, TSS		5-191100			LP	
SIT	9 20848-03			4	TOC, COD		5-191101	CMW-3	1440	LP	
	10			N	Alkalinity		5-191102			LP	

Shipment for SAS complete? (Y/N)

Custody Seals: 3893, 3894

CHAIN OF CUSTODY RECORD

Relinquished by (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Laura Peterson	9/22/93 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

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Special Analytical Service

Packing List/Chain of Custody

SAS No. 20848

1 Project Code: C5C03 | Account Code:
Regional Information: 16B1C2
Non Superfund Program

2 Region No: 10 | Sampling Co: Ecology & Env
Sampler (Name): Jessica Peterson
Sampler Signature: Jessica Peterson

3 Type of Activity (Remedial / Removal)

	Lead	Pre Remedial	RIFS	CLEM
SF	X			
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

4 Date Shipped: 9/22/93 | Carrier: Fed Ex
Airbill Number: 7731327343

5 Ship To:
SVL Analytical, Inc
One Government Gulch
Kellogg, ID 83837
Attn: Blake Johnson

Site Name: Carter-Lee Lumber
City, State: Indianapolis, IN | Site Spill ID: B5

6 Sample Description (Enter in Column A)
1 Surface Water
2 Ground Water
3 Leachate
4 Rinsate
5 Soil/Sediment
6 Oil
7 Waste
8 Other (Specify)

7 Preservative (Enter in Column C)
1 HCl
2 HNO3
3 NaHSO4
4 H2SO4
5 NaOH
6 Other (SA's) (Specify)
7 Ice only
N Not preserved

Sample Numbers	A Matrix Enter from Box 6	B Conc Low Med High	C Preservative Used from Box 7	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Designated Field QC
1 20848-03	2	L-m	N	Chloride		5-19110 3	CMW 3	9/22/93 1440	JP	
2	2	L-m	N	TDS, TSS		5-19110 5			JP	
3 20848-04			4	TOC, COD		5-19110 6	CMW-4	1925	JP	
4			N	Alkalinity		5-19110 7			JP2	
5			N	Chloride		5-19110 8			JP	
6			N	TDS, TSS		5-19110			JP2	
7 20848-05			4	TOC, COD		5-19111	CMW-5	9/22/93 1705	JP	
8			N	Alkalinity		5-19111 2				
9			N	Chloride		5-19111 3				
10			N	TDS, TSS		5-19111 5				

Shipment for SAS complete? (Y/N)

Custody Seals: 3893, 3894

CHAIN OF CUSTODY RECORD

Relinquished by (Signature)	Date / Time	Received by (Signature)	Relinquished by (Signature)	Date / Time	Received by (Signature)
[signature]	9/23/93 1700				
Relinquished by (Signature)	Date / Time	Received by (Signature)	Relinquished by (Signature)	Date / Time	Received by (Signature)
Received by (Signature)	Date / Time	Received for Laboratory by (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)
☐ Declined

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Special Analytical Service

Packing List/Chain of Custody

SAS No. 20848

1 Project Code	Account Code	2. Region No	Sampling Co	4. Date Shipped	Carrier
93ZC23		Region V	CHam HILL	9/22/93	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
TGB102	Laura Peterson	7731327343

Non-Superfund Program	Sampler Signature	5. Ship To
	Laura Peterson	SVL Analytical, Inc One Government Gulch Kellogg, ID 83837 Attn: Blake Johnson

Site Name	3. Type of Activity	Remedial	Removal
Carter Lee Lumber	Lead Remedial / Pre-Remedial		
	SF [X] PRP [ ] ST [ ] FED [ ]	RIFS [X] RD [ ] RA [ ] O&M [ ] NPLD [ ]	CLEM [ ] REMA [ ] REM [ ] OIL [ ] UST [ ]
	PA [ ] SSI [ ] LSI [ ]		

City, State	Site Spill ID
Indianapolis, IN	BD

6 Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil
7. Waste
8. Other (Specify)

7. Preservative (Enter in Column C)
1 HCl
2 HNO_3
3 $NAHSO_4$
4 H_2SO_4
5 NAOH
6 Other (SAS) (Specify)
7 Ice only
N Not preserved

Sample Numbers	A Matrix Enter from Box 6	B Conc Low Med High	C Preservative Used from Box 7	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Designated Field QC
1 20845-06	2	Lm	4	TOC, COD	~~Dupe~~ CMW 9/22/93	5-191116	CMW-5-FR	9/22/93 1705	lp	Duplicate of 20848
2			N	Alkalinity		5-191117			lp	
3			N	Chloride		5-191118			lp	
4			N	TDS, TSS		5-191120			lp	
5										
6										
7										
8										
9										
10										

Shipment for SAS complete? (Y/N)

Custody Seals: 3893, 3894

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	9/22/93 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples [ ] Accepted (Signature)
[ ] Declined

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Special Analytical Service

Packing List/Chain of Custody

SAS No

1 Project Code: 93C23 | Account Code:

Regional Information: TGB10.2

Non Superfund Program

Site Name: Carter Lee Lumber

City State: Thomasville NC | Site Spill ID: BD

2 Region No: Region IV | Sampling Co: Comm Hist

Sampler (Name): Lauren Peterson

Sampler Signature: Lauren Peterson

3 Type of Activity (Remedial / Removal)

	Lead	Pre Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

4 Date Shipped: 9/22/93 | Carrier: Fed Ex

Airbill Number: 7731327336 2

5 Ship To:
VEGAS ANALYTICAL LABS
3814 SCHIFF DRIVE
LAS VEGAS, NEVADA 89103
ATTN: DR JOSHI

6 Sample Description (Enter in Column A)
1 Surface Water
2 Ground Water
3 Leachate
4 Rinsate
5 Soil/Sediment
6 Oil
7 Waste
8 Other (Specify)

7 Preservative (Enter in Column C)
1 HCl
2 HNO3
3 NaHSO4
4 H2SO4
5 NaOH
6 Other (SAS) (Specify)
7 Ice only
N Not preserved

Sample Numbers	A Matrix Enter from Box 6	B Conc Low Med High	C Preservative Used from Box 7	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Designated Field QC
1	5	L	2	Hardness		5-191121	CMW-1	9/22/93 1345	LP	
2	2	L	2	Hardness		5-191099	CMW-2	1825	LP	
3	2	L	2	Hardness		5-191104	CMW-3	1440	LP	
4	2	L	2	Hardness		5-191109	CMW-4	1915	LP	
5	2	L	2	Hardness		5-191114	CMW-5	1705	LP	
6	2	L	2	Hardness		5-191119	CMWS-FR	↓	LP	Duplicate of CMW-4
7										
8										
9										
10										

Shipment for SAS complete? (Y/N)

Custody Seals: 3887, 3888 / RESHIPPED WITH CUSTODY SEALS 3887, 3888

SEALS INTACT

CHAIN OF CUSTODY RECORD

Relinquished by (Signature)	Date / Time	Received by (Signature)
[signature]	9/22/93 1700	[signature]
Relinquished by (Signature)	Date / Time	Received by (Signature)
Received by (Signature)	Date / Time	Received for Laboratory by: (Signature)

Relinquished by (Signature)	Date / Time	Received by (Signature)
[signature]	9/23/93 0815	
Relinquished by (Signature)	Date / Time	Received by (Signature)

Date / Time | Remarks | Is custody seal intact? Y/N/none

Split Samples [ ] Accepted (Signature)

[ ] Declined

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EPA Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

SAS No. (if applicable):

Case No.: 20848

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC23		Region V	CHAM HILL	9/22/93	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
TGB102	Laura Peterson	7731327380

Non-Superfund Program	Sampler Signature	5. Ship To
	Laura Peterson	Ross Analytical Services, Inc 16433 Foltz Industrial Pkwy Strongsville, OH 44136 ATTN: Craig Caldwell

Site Name	3. Type of Activity	Remedial	Removal
Carter-Lee Lumber	Lead / Pre-Remedial		
	SF [X]	RIFS [X]	CLEM [ ]
	PRP [ ] PA [ ]	RD [ ]	REMA [ ]
	ST [ ] SSI [ ]	RA [ ]	REM [ ]
	FED [ ] LSI [ ]	O&M [ ]	OIL [ ]
		NPLD [ ]	UST [ ]

City, State	Site Spill ID
Indianapolis, IN	BD

6. Preservative (Enter in Column D): 1. HCl; 2. HNO_3; 3. $NaHSO_4$; 4. H_2SO_4; 5. Other (Specify); 6. Ice only; N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil/Sediment; 6. Oil (High only); 7. Waste (High only); 8. Other (Specify)

STA NO	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis VOA	E BNA	E Pest/PCB	E High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
SC8	EKJW1	2	Low	Grab	1	X				5-191028-29	CMW-1	9/22/93 1345	lp	ME2959	
SC8	EKJW1	2	Low	Grab	N		X			5-191030	CMW-1		lp	ME2959	
SC8	EKJW1	2	Low	Grab	N			X		5-191031	CMW-1		lp	ME2959	
SC9	EKJW2	2	Low	Grab	1	X				5-191032-33	CMW-2	1825	lp	ME2960	
SC9	EKJW2	2	Low	Grab	N		X			5-191034	CMW-2		lp	ME2960	
SC9	EKJW2	2	Low	Grab	N			X		5-191035	CMW-2		lp	ME2960	
SC10	EKJW3	2	Low	Grab	1	X				5-191040-41	CMW-3	1440	lp	ME2961	
SC10	EKJW3	2	Low	Grab	N		X			5-191042	CMW-3		lp	ME2961	
SC10	EKJW3	2	Low	Grab	N			X		5-191043	CMW-3		lp	ME2961	
RC1	EKJW4	2	Low		1	X				5-191044	CTB01		lp		Trip Blank

Shipment for Case complete? (Y/N)	Page 1 of 2	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
Y		—		3889, 3890

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Peterson	9/22/93 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples [ ] Accepted (Signature)
[ ] Declined

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703 557 2490 FTS 557 2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No (if applicable)

Case No: 20348

1 Project Code: 1320.03 | Account Code:

Regional Information: TG B10c2

Non Superfund Program

2 Region No: Region V | Sampling Co: Chem Hill

Sampler (Name): Laura Peterson

Sampler Signature: Laura Peterson

4 Date Shipped: 9/22/93 | Carrier: Fed Ex

Airbill Number: 7731327380

5. Ship To: Ross Analytical Services
16433 Foltz Industrial Pkwy
Strongsville, OH 44136
ATTN: Craig Caldwell

Site Name: Curtis Lee Lumber

City, State: Bridgeport, IN | Site Spill ID: BD

3. Type of Activity

	Lead	Pre Remedial	Remedial	Removal
SF	X		RIFS	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D)
1 HCl
2 HNO3
3 $NaHSO_4$
4 H_2SO_4
5 Other (Specify)
6. Ice only
N Not preserved

7. Sample Description (Enter in Column A)
1 Surface Water
2 Ground Water
3 Leachate
4 Rinsate
5 Soil/Sediment
6 Oil (High only)
7 Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg Samp. No	K Enter Appropriate Qualifier for Designated Field QC (B = Blank, S = Spike, D = Duplicate, PE = Performance Eval, MS = Matrix QC Sample)
FKJG5	8	Low		1	X				5-191045-46	CFB01	9/22/93 2100	LP		Field Blank
FKJG5	8	Low		N		X			5 191047	CFB01	↓	LP		Field Blank
FKJG5	8	Low		N			X		5-191048	CFB01	↓	LP		Field Blank

Shipment for Case complete? (Y/N)

Page 1 of Page 2 of 2

Sample used for a spike and/or duplicate: ----

Additional Sampler Signatures

Chain of Custody Seal Number: 3885, 3890

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Laura Peterson	9/22/93 1700	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)

Relinquished by: (Signature)	Date / Time	Received by (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Date / Time | Remarks: Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)

☐ Declined

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Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No. (if applicable):

Case No.: 20848

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
93ZC23		Region V	CHarn HILL	9/22/93	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
TG-B102	Laura Peterson	7731327380

Non-Superfund Program	Sampler Signature	5. Ship To
	Laura Peterson	Ross Analytical Services, INC. 16433 Foltz Industrial PKwy Strongsville, OH 44136 ATTN: Craig Caldwell

Site Name	City, State	Site Spill ID
Carter-Lee Lumber	Indianapolis, IN	BD

3. Type of Activity

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS X	CLEM
PRP		PA	RD	REMA
ST		SSI	RA	REM
FED		LSI	O&M	OIL
			NPLD	UST

6. Preservative (Enter in Column D): 1. HCl; 2. HNO3; 3. $NaHSO_4$; 4. H_2SO_4; 5. Other (Specify); 6. Ice only; N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil/Sediment; 6. Oil (High only); 7. Waste (High only); 8. Other (Specify)

	CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis VOA	E BNA	E Pest/PCB	E High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
S11	EKJ66	2	Low	Grab	1	X				5-191057-62	Cmw-4	9/22/93 1925	lp	MEZ962	Extra Volume for MS/MSD
S11	EKJ64	2	Low	Grab	N		X			5-191063-64	Cmw-4		lp	MEZ962	
S11	EKJ66	2	Low	Grab	N			X		5-191065-66	Cmw-4		lp	MEZ962	
S12	EKJ68	2	Low	Grab	1	X				5-191067-68	Cmw-5	1705	lp	MEZ964	
S12	EKJ68	2	Low	Grab	N		X			5-191069	Cmw-5		lp	MEZ964	
S12	EKJ68	2	Low	Grab	N			X		5-191070	Cmw-5		lp	MEZ964	
D12	EKJ67	2	Low	Grab	1	X				5-191071-72	Cmw-5-FR		lp	MEZ963	Duplicate of EKJ65
D12	EKJ67	2	Low	Grab	N		X			5-191073	Cmw-5-FR		lp	MEZ963	
D12	EKJ67	2	Low	Grab	N			X		5-191074	Cmw-5-FR		lp	MEZ963	
R03	EKJ69	8	Low		1	X				5-191075	CTB02		lp		Trip Blank

Shipment for Case complete? (Y/N)

Page 1 of 2

Sample used for a spike and/or duplicate: EKJ66 (MS/MSD) ~~EKJ67 (Duplicate)~~ CW 9/30/93

Additional Sampler Signatures:

Chain of Custody Seal Number: 3891, 3892

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Laura Peterson	9/22/93 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)

☐ Declined

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Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

EPA — United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria VA 22313
703 557 2490 FTS 557 2490

SAS No (if applicable):

Case No: 20848

1 Project Code: 1370.23 | Account Code:

Regional Information: TGB102

Non Superfund Program:

2 Region No: Region V | Sampling Co: Cliff Hill

Sampler (Name): Laura Peterson

Sampler Signature: Laura Peterson

4 Date Shipped: 9/22/93 | Carrier: Fed Ex

Airbill Number: 7731327380

5 Ship To: Ross Analytical Services, Inc
16433 Foltz Industrial Pkwy
Strongsville, OH 44136
ATTN: Craig Caldwell

Site Name: Carter Lee Lumber

City, State: Indianapolis, IN | Site Spill ID: BD

3 Type of Activity:

	Lead	Rem		Remedial		Removal
SF	X		RIFS	X	CLEM	
PRP		PA	RD		REMA	
ST		SSI	RA		REM	
FED		LSI	O&M		OIL	
			NPLD		UST	

6 Preservative (Enter in Column D):
1. HCl
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. Other (Specify)
6. Ice only
N. Not preserved

7 Sample Description (Enter in Column A):
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from Labels)	A Enter # from Box 7	B Conc Low Med High	C Sample Type Comp / Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High only ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC
EKJ70	5	L	Comp	N	X				5-191076-77	CLBK03	9/22/93 1210	lp	ME2966	
EKJ70	5	L	Comp	N		X	X		5-191078	CLBK03	1210	lp	ME2966	
EKJ71	5	L	Comp	N	X				5-191081-82	CLBK03-FR	1210	lp	ME2965	Dup of EKJ70
EKJ71	5	L	Comp	N		X	X		5-191083	CLBK03-FR	1210	lp	ME2965	Dup of EKJ70
EKJ72	5	L	Comp	N	X				5-191086-87	CLBK06	1135	lp	ME2967	
EKJ72	5	L	Comp	N		X	X		5-191088	CLBK06	1135	lp	ME2967	

Shipment for Case complete? (Y/N)

Page 2 of 2

Sample used for a spike and/or duplicate: EKJ71 (CLBK03-FR)

Additional Sampler Signatures:

Chain of Custody Seal Number: 3891, 3892

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Laura Peterson	9/22/93 1700	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Date / Time | Remarks: Is custody seal intact? Y/N/none

Split Samples: ☐ Accepted (Signature)
☐ Declined

EPA Form 9110-2 (Rev. 5-91) Replaces EPA Form (2075-7), previous edition which may be used

DISTRIBUTION:
Blue - Region Copy Pink - SMO Copy White - Lab Copy for Return [illegible] Yellow - Lab