DRAFT SITE ASSESSMENT REPORT
ECOLAB SITE
MEQUON, OZAUKEE COUNTY, WISCONSIN

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 5 Emergency Response Branch
77 West Jackson Boulevard
Chicago, IL 60604

Date Prepared:	February 13, 2004
TDD No.:	S05-0311-009
Contract No.:	68-W-00-129
Prepared by:	Tetra Tech EM Inc.
Tetra TechSTART Project Manager:	Lee Christenson
Telephone No.:	(312) 946-6457
U.S. EPA On-Scene Coordinator:	Michael Harris
Telephone No.:	(312) 886-0760

CONTENTS

1.0 INTRODUCTION

The Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START) prepared this site assessment report in accordance with the requirements of Technical Direction Document (TDD) No. S05-0311-009, which the U.S. Environmental Protection Agency (U.S. EPA) assigned to START. The scope of this TDD was to conduct a site assessment for the Ecolab site in Mequon, Ozaukee County, Wisconsin. Specifically, START was tasked to (1) develop a sampling plan for site assessment activities; (2) develop a health and safety plan for site activities; (3) collect soil samples for polychlorinated biphenyl (PCB) analysis, specifically PCB Aroclor and decachloro biphenyl (DCB) analysis, as well as volatile organic compound (VOC) analyses; (4) procure a laboratory to conduct the analyses of the soil samples; and (5) develop a report summarizing site activities and sample analytical results. Site assessment activities were conducted by START member Lee Christenson and the U.S. EPA FIELDS team.

This report discusses the background information, site assessment activities, and sample analytical results and includes a summary of the site assessment. The references cited are listed after the text. In addition, Appendix A contains a photographic log, and Appendix B contains a data validation report and validated analytical results for the samples collected at the site.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

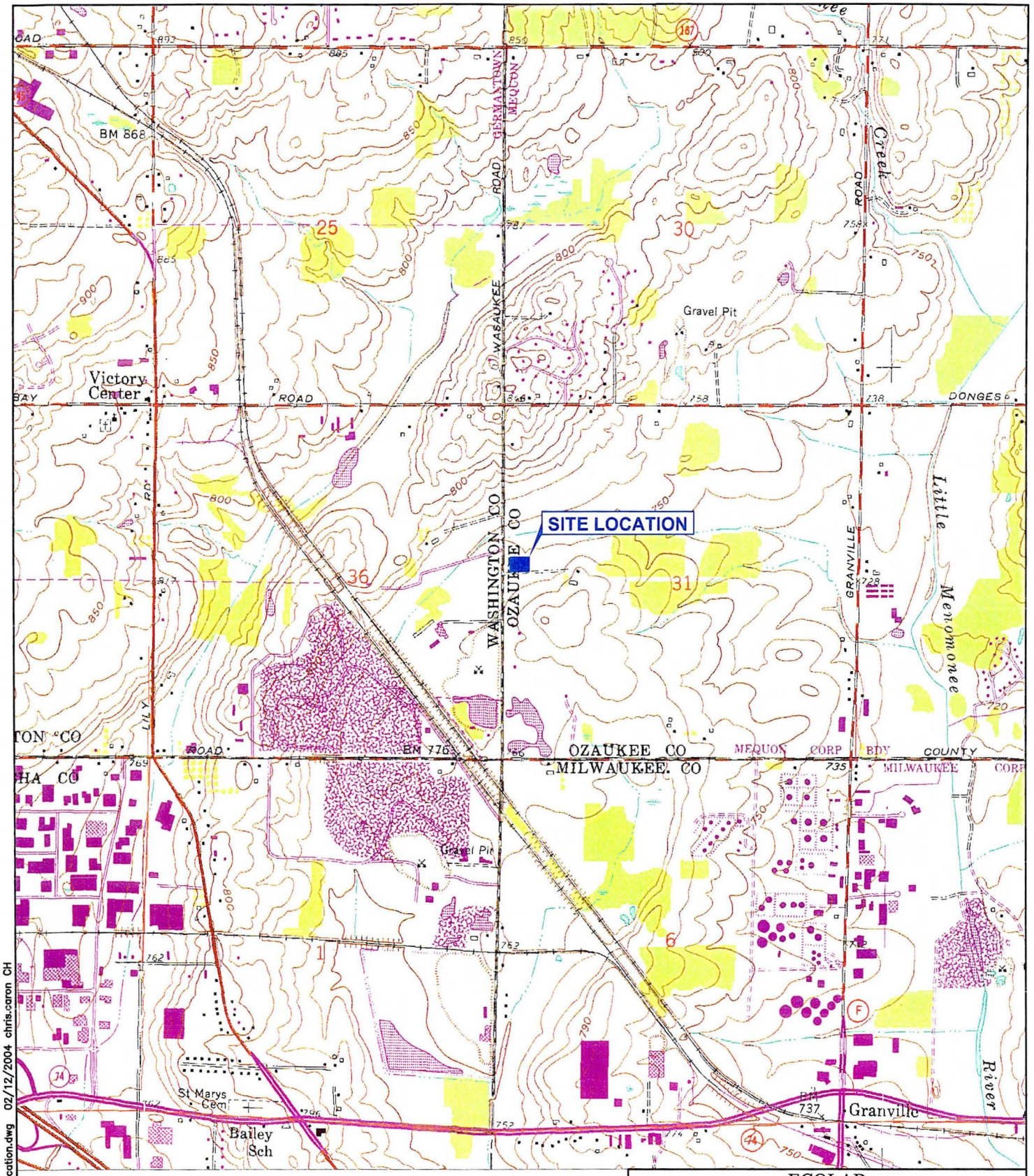
The Ecolab site is located at 10014 N. Wasaukee Road in Mequon, Ozaukee County, Wisconsin (see Figure 1). The site is surrounded by open, rural land except for an adjacent landfill lying southwest of the site. The site was operated as a wax recycling facility in the 1970s and 1980s. Facility operations ceased when portions of the site property were transferred or sold in the 1980s. Site features include the main facility building (east building) and associated concrete pad; a second, smaller building (west building); and a gravel parking lot. Residual materials left at the site included buried wax blocks and chips contaminated with PCBs, including Aroclors and DCB. Figure 2 shows the site layout.

2.2 SITE HISTORY

In June 1989, in accordance with an agreement with the Wisconsin Department of Natural Resources (WDNR), the potentially responsible parties (PRP) for the site excavated and disposed of soil containing contaminated wax material (WDNR 1989). Analytical results for soil samples collected from the base of the excavated areas indicated low levels of PCB Aroclor contamination and DCB contamination, with concentrations ranging from 2.7 to 460 milligrams per kilogram (mg/kg). However; additional sampling conducted in 1989 and 1990 indicated that elevated levels of DCB were still present in site soil.

In October 1994, the PRP group conducted a removal of approximately 75,000 pounds of additional soil from the former wax storage area and trailer area. Additional sampling activities conducted after removal included collection of 16 investigative samples and one duplicate sample from the excavated areas. Of the 16 locations sampled, only one contained a detectable level of PCB Aroclors (a concentration of 2.1 mg/kg). All the samples collected from the 16 locations contained detectable levels of DCB ranging from 0.65 to 450 mg/kg.

WDNR referred the Ecolab site to U.S. EPA and requested that additional investigative soil samples be collected beneath and along the perimeter of the east building to further identify the PCB Aroclor and DCB contamination on site.



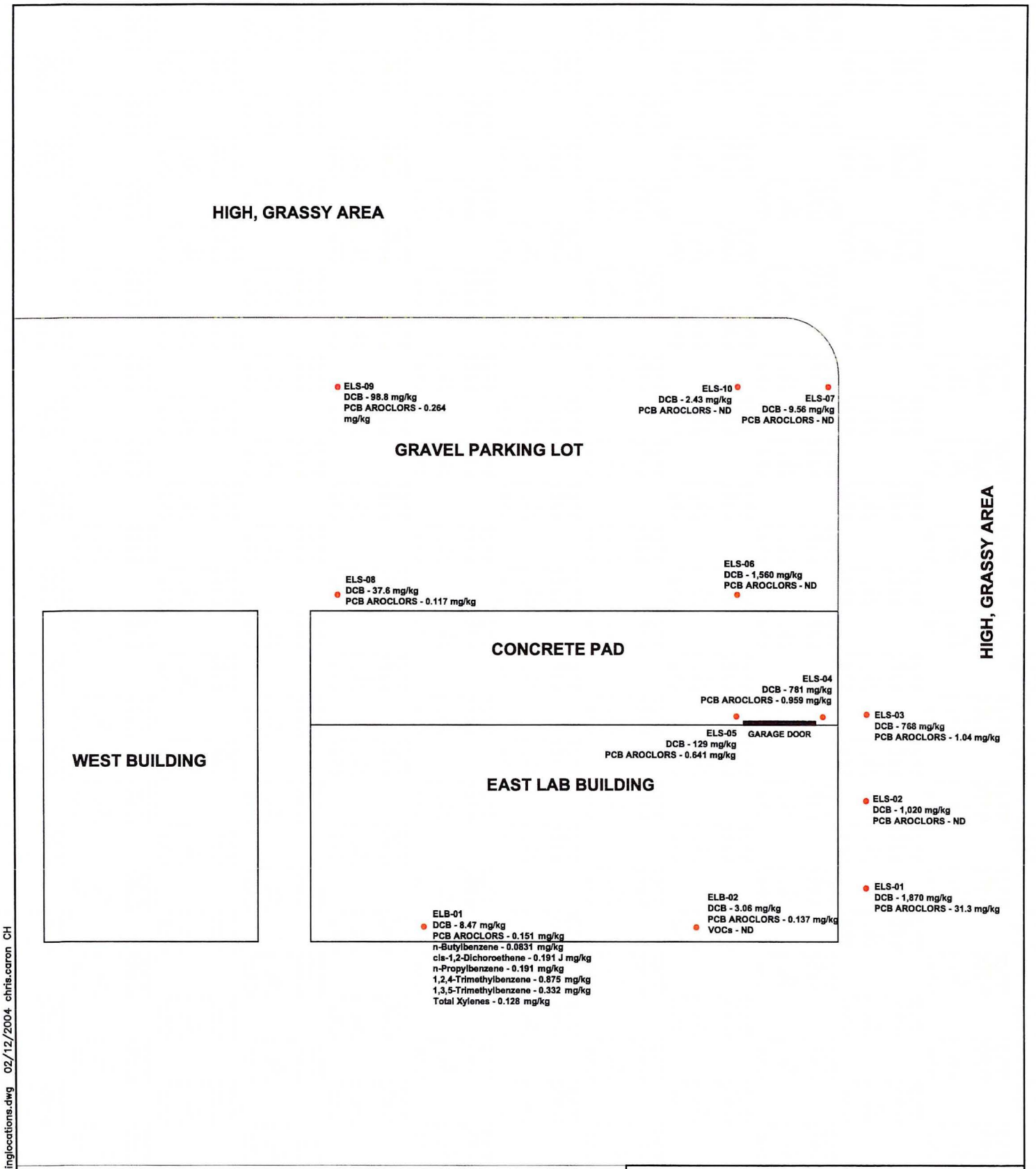
SOURCE: MODIFIED FROM U.S. GEOLOGICAL SURVEY 7.5-MINUTE SERIES MAP, MENOMONEE FALLS, WISCONSIN, QUADRANGLE, 1958, PHOTOREVISED 1994

G:\G\9009\L0311009-EcoLab\ sitelocation.dwg 02/12/2004 chris.caron CH

ECOLAB
10014 N. WASAUKEE RD.
MEQUON, WI 53097-3507

FIGURE 1
SITE LOCATION

Tetra Tech EM Inc.



NOTES:
DCB = DECACHLORO BIPHENYL
ND = NONDETECT
PCB = POLYCHLORINATED BIPHENYL
mg/kg = MILLIGRAM PER KILOGRAM
VOC = VOLATILE ORGANIC COMPOUND

N

NOT TO SCALE

ECOLAB
10014 N. WASAUKEE RD.
MEQUON, WI 53097-3507

FIGURE 2
SITE LAYOUT, SAMPLING LOCATIONS, AND ANALYTICAL RESULTS

Tetra Tech EM Inc.

G:\G\9009\L0311009-EcoLab\ samplinglocations.dwg 02/12/2004 chris.caron CH

3.0 SITE ASSESSMENT ACTIVITIES

This section describes the site assessment activities, which included soil sampling for VOC, PCB Aroclor, and DCB analyses. A direct push Geoprobe was used to collect samples beneath the east building and around its perimeter. Sampling locations and analytical results are shown on Figure 2.

On December 2, 2003, U.S. EPA On-Scene Coordinator (OSC) Michael Harris, the U.S. EPA FIELDS team, START member Lee Christenson, and Nancy Ryan of WDNR mobilized to the Ecolab site. Based on information provided by former facility employees, Ms. Ryan pointed out areas along the perimeter of the east building where it was believed that wax containing PCB Aroclors and DCB was buried. Ms. Ryan also identified one location inside the east building where it was believed that solvents had been used.

Based on the information from the former facility employees and WDNR, the U.S. EPA FIELDS team used a direct-push Geoprobe to visually identify areas of contaminated wax for sampling. Soil borings were advanced to depths up to 8 feet (ft) below ground surface (bgs) around and within the east building. A soil boring advanced outside the southeast corner of the east building contained a bright pink, wax-like material in the 1-to-3.5 ft bgs interval, which the former facility employees had verified as the contaminated wax. Sample ELS-01 was collected at this location. Samples collected from this location and other borings were grab samples from either (1) the depth at which wax was observed or (2) the depth at which it was observed in other borings. Samples were collected with gloved hands and placed in 4-ounce, glass jars. After collecting the first sample outside the east building, it was decided that the next two samples would be collected inside the building while daylight was still available.

The first sample collected inside the east building, ELB-01, was from a boring located near the southwest corner of the building. At 3.5 ft bgs, a light brown, wax-like material was observed. The soil in the 3-to-4 ft bgs interval also appeared to be stained. A photoionization detector (PID) reading from soil at a depth of 3.5 ft bgs was 13.6 parts per million (ppm). Sample ELB-01was collected from this location for VOC, PCB Aroclor, and DCB analyses. Near the interior southeast corner of the east building, a second boring was advanced. Soil in the second boring did not appear to be stained; however, light brown wax was present at 3.5 ft bgs. The PID reading taken at this location was 0.0 ppm. Sample ELB-02 was

collected from this location for VOC, PCB Aroclor, and DCB analyses. After sampling at this location, site activities were concluded for the day. All parties left the site at 1610.

On December 3, 2003, OSC Harris, the FIELDS team, and START member Christenson returned to the Ecolab site. The first two borings for the day were advanced north of location ELS-01 to the east of the east building. Brown wax was present between 3 and 5 ft bgs in both borings. Samples ELS-02 and ELS-03 were collected from the borings for PCB Aroclor and DCB analyses.

The next two borings were advanced to the north of the east building on either side of the large garage door in the northeast corner of the building. To advance these borings and collect samples, it was necessary to bore through the outdoor concrete pad along the north side of the building. At both boring locations, pink and green wax was present directly below the concrete pad at approximately 1 ft bgs. Samples ELS-04 and ELS-05 were collected at these locations for PCB Aroclor and DCB analyses.

Five more samples, ELS-06 through ELS-10, were collected from five borings advanced in the gravel parking lot north of the concrete pad. The soil core from which sample ELS-06 was collected contained a solid, light brown wax layer throughout the entire 2-to-3 ft bgs interval. Sample ELS-06 was collected from this interval for PCB Aroclor and DCB analyses. U.S. EPA decided that because the wax material had been observed above 4 ft bgs in the soil borings advanced thus far, the remaining borings would be advanced only to 4 ft bgs.

Borings advanced at locations ELS-08 and ELS-09 both contained small amounts of a material resembling the wax material in the 2-to-3 ft bgs intervals. Samples were collected from these intervals for PCB Aroclor and DCB analyses. A duplicate sample and matrix/spike matrix spike duplicate (ELS-09D) was collected at location ELS-09. No wax material was observed in the borings advanced at locations ELS-07 and ELS-10. However, samples were collected from the intervals at these locations because wax material had been observed at this depth in the other borings advanced in the gravel parking lot. Sample analytical results are discussed in Section 4.0.

4.0 SAMPLE ANALYTICAL RESULTS

This section discusses the analytical results for the soil samples collected at the Ecolab site on December 2 and 3, 2003. Table 1 and 2 summarize the sample analytical results for PCB Aroclors and DCB and for VOCs, respectively. Appendix B contains the data validation report and the validated analytical results.

Three of the samples collected and analyzed for PCB Aroclors had concentrations exceeding the U.S. EPA Region 9 preliminary remediation goal (PRG) of 0.74 mg/kg for PCBs (U.S. EPA 200). Samples ELS-01, ELS-03, and ELS-04 had PCB concentrations of 31.3 J, 1.04 J, and 0.959 J mg/kg, respectively. Six samples, ELB-01, ELB-02, ELS-05, ELS-08, ELS-09, and ELS-09D, contained PCB Aroclor concentrations below the Region 9 PRG. No PCB Aroclors were detected in samples ELS-02, ELS-06, ELS-07, and ELS-10.

Results for samples analyzed for DCB were also compared to the Region 9 PRG for PCBs of 0.74 mg/kg. All 13 samples contained DCB concentrations exceeding the Region 9 PRG. The DCB concentrations ranged from 2.43 J mg/kg in sample ELS-10 to 1,870 J mg/kg in sample ELS-01.

One sample, ELB-01, contained low concentrations of the VOCs n-butylbenzene; cis-1,2-dichloroethene; n-propylbenzene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; and total xylenes. However, all the VOC results were significantly below the applicable Region 9 PRGs. No VOCs were detected in sample ELB-02.

TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS AROCLOR AND DECACHLOR0 BIPHENYLS
ECOLAB SITE
MEQUON, OZAUKEE COUNTY, WISCONSIN

Sample ID	Sample Analytical Results[a] (mg/kg)		
	PCB Aroclors	DCB	Total PCBs
ELB-01	0.151 J	**8.47 J**	**8.621**
ELB-02	0.137 J	**3.06 J**	**3.197**
ELS-01	**31.3 J**	**1,870 J**	**1,901.3**
ELS-02	ND UJ	**1,020 J**	**1,020**
ELS-03	**1.04 J**	**768 J**	**769.04**
ELS-04	**0.959 J**	**781 J**	**781.959**
ELS-05	0.641 J	**129 J**	**129.641**
ELS-06	ND UJ	**1,560 J**	**1,560**
ELS-07	ND	**9.56**	**9.56**
ELS-08	0.117 J	**37.6 J**	**37.717**
ELS-09	0.264 J	**98.8**	**99.064**
ELS-09D	0.0981	**145**	**145.0981**
ELS-10	ND UJ	**2.43 J**	**2.43**

Notes:

DCB = Decachloro biphenyl
J = Estimated value
mg/kg = Milligrams per kilogram
ND = Non detect
PCB = Polychlorinated biphenyl

a Bold results exceed the U.S. Environmental Protection Agency Region 9 preliminary remediation goals for PCBs

TABLE 2
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS
ECOLAB SITE
MEQUON, OZAUKEE COUNTY, WISCONSIN

Volatile Organic Compound	Sample Analytical Results (mg/kg)	
	ELB-01	ELB-02
n-Butylbenzene	0.0831	ND
cis-1,2-Dichloroethene	0.191 J	ND
n-Propylbenzene	0.191	ND
1,2,4-Trimethylbenzene	0.875	ND
1,3,5-Trimethylbenzene	0.332	ND
Total Xylenes	0.128	ND

Notes:

J = Estimated Value
mg/kg = Milligrams per kilogram
ND = Not detected

5.0 SUMMARY

The Ecolab site is located at 10014 N. Wasaukee Road. in Mequon, Ozaukee County, Wisconsin. The site was formerly operated as a wax recycling facility. Residual materials left at the site included buried wax blocks and chips that contain PCB Aroclors and DCB. Between 1989 and 1994, site PRPs conducted two removals of wax material containing PCB Aroclors and DCB at the site. After the second removal in 1994, soil samples were collected from the excavation areas and analyzed for PCB Aroclors and DCB. Of the 16 locations sampled, only one contained a detectable level of PCB Aroclors (a concentration of 2.1 mg/kg). All the samples collected from the 16 locations contained detectable levels of DCB ranging from 0.65 to 450 mg/kg.

On December 2, 2003, U.S. EPA OSC Michael Harris, the U.S. EPA FIELDS team, START member Lee Christenson, and Nancy Ryan of WDNR mobilized to the Ecolab site in order to further identify the presence of PCB-and DCB-containing wax. A total of 12 investigative soil samples and one duplicate sample were collected in and around the east Ecolab building on site. Ten samples (plus the duplicate sample) collected around the perimeter of the building and two samples collected inside the building were analyzed for PCB Aroclors and DCB. The two samples collected inside the building, where a solvent spill may have occurred, were also analyzed for VOCs. All the samples were collected using a direct-push Geoprobe, which advanced soil borings to a maximum depth of 8 ft bgs.

The sample analytical results for PCB Aroclors and DCB, which is a type of PCB, were compared to the U.S. EPA Region 9 PRG for PCBs. Of the 13 samples analyzed for PCB Aroclors, three had concentrations exceeding the Region 9 PRG of 0.74 mg/kg. All 13 samples had DCB concentrations exceeding the PRG of 0.74 mg/kg. Neither of the two samples analyzed for VOCs contained VOC concentrations exceeding the applicable Region 9 PRGs.

U.S. Environmental Protection Agency (U.S. EPA). 2002. "EPA Region 9 PRGs 2002 Table." October 1. On-Line Address: http://www.epa.gov/region09/waste/sfund/prg/files/02table.pdf

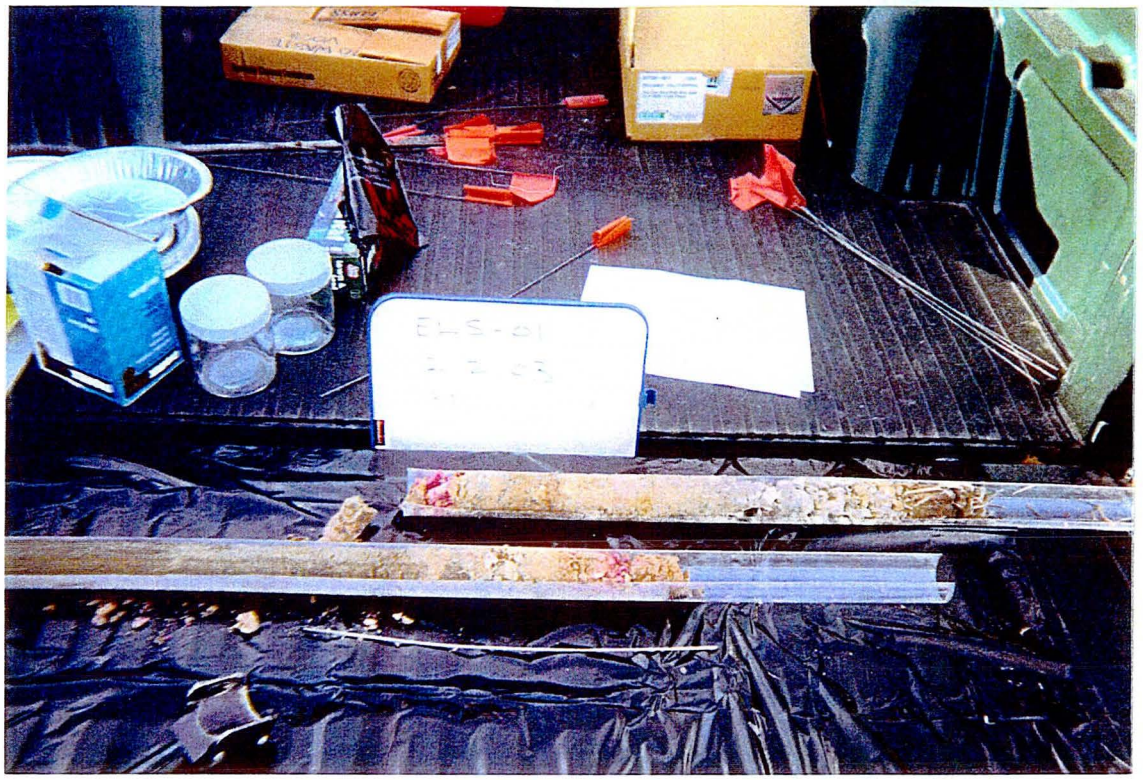
U.S. Geological Survey. 1994 7.5-Minute Series Topographic Map of Menomonee Falls, Wisconsin, Quadrangle.

Wisconsin Department of Natural Resources (WDNR). 1989. "Resource Conservation and Recovery Act Facility Assessment for Cermatics."

APPENDIX A

PHOTOGRAPHIC LOG

(Eight Pages)



Photograph No.: 1 **Orientation:** West
TDD No.: S05-0311-009 **Date:** December 2, 2003
Location: Ecolab Site
Subject: Soil core with pink wax from sampling location ELS-01

Photograph No.: 2 **Orientation:** West
TDD No.: S05-0311-009 **Date:** December 2, 2003
Location: Ecolab Site
Subject: Soil core from sampling location ELB-01 inside east building

Photograph No.: 3 **Orientation:** West
TDD No.: S05-0311-009 **Date:** December 2, 2003
Location: Ecolab Site
Subject: Soil core from sampling location ELB-02 inside east building

Photograph No.: 4 **Orientation:** North
TDD No.: S05-0311-009 **Date:** December 3, 2003
Location: Ecolab Site
Subject: FIELDS team using Geoprobe at location ELS-02

Photograph No.: 5
TDD No.: S05-0311-009
Location: Ecolab Site
Subject: Soil sample from location ELS-02

Orientation: West
Date: December 3, 2003

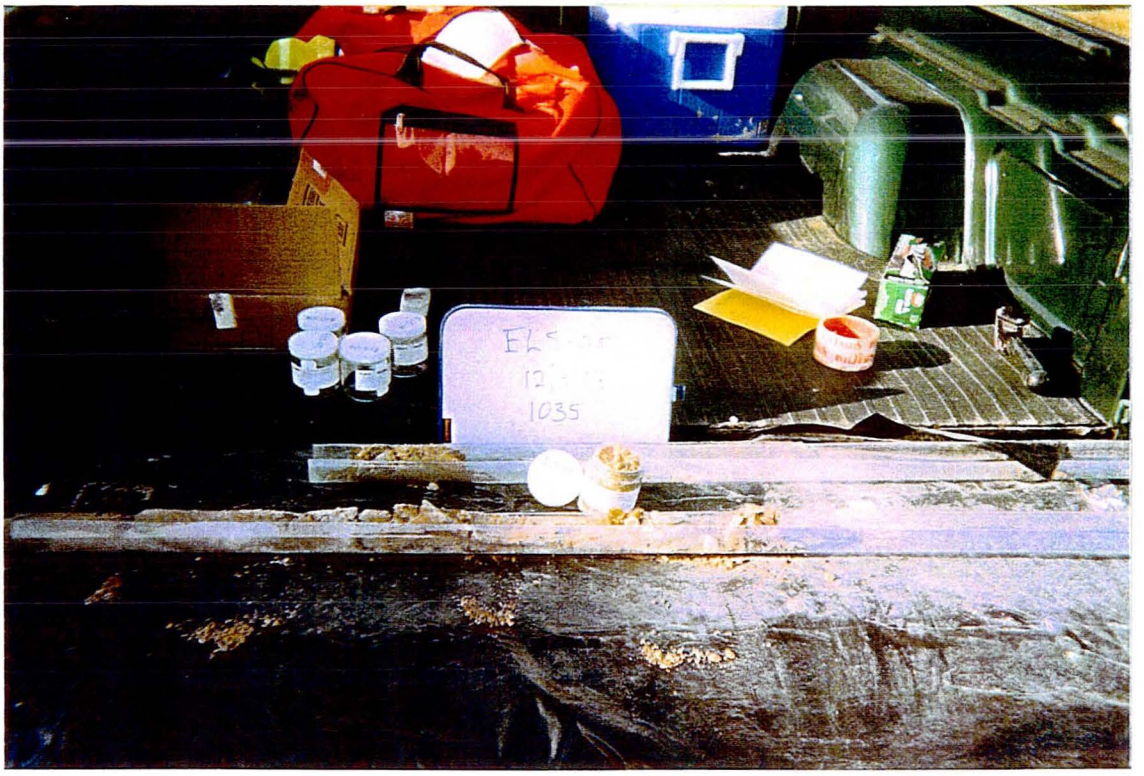
Photograph No.: 6
TDD No.: S05-0311-009
Location: Ecolab Site
Subject: Soil sample from location ELS-03

Orientation: West
Date: December 3, 2003

Photograph No.: 7 **Orientation:** Southeast
TDD No.: S05-0311-009 **Date:** December 3, 2003
Location: Ecolab Site
Subject: FIELDS team using Geoprobe at location ELS-04

Photograph No.: 8 **Orientation:** West
TDD No.: S05-0311-009 **Date:** December 3, 2003
Location: Ecolab Site
Subject: Soil sample from location ELS-04

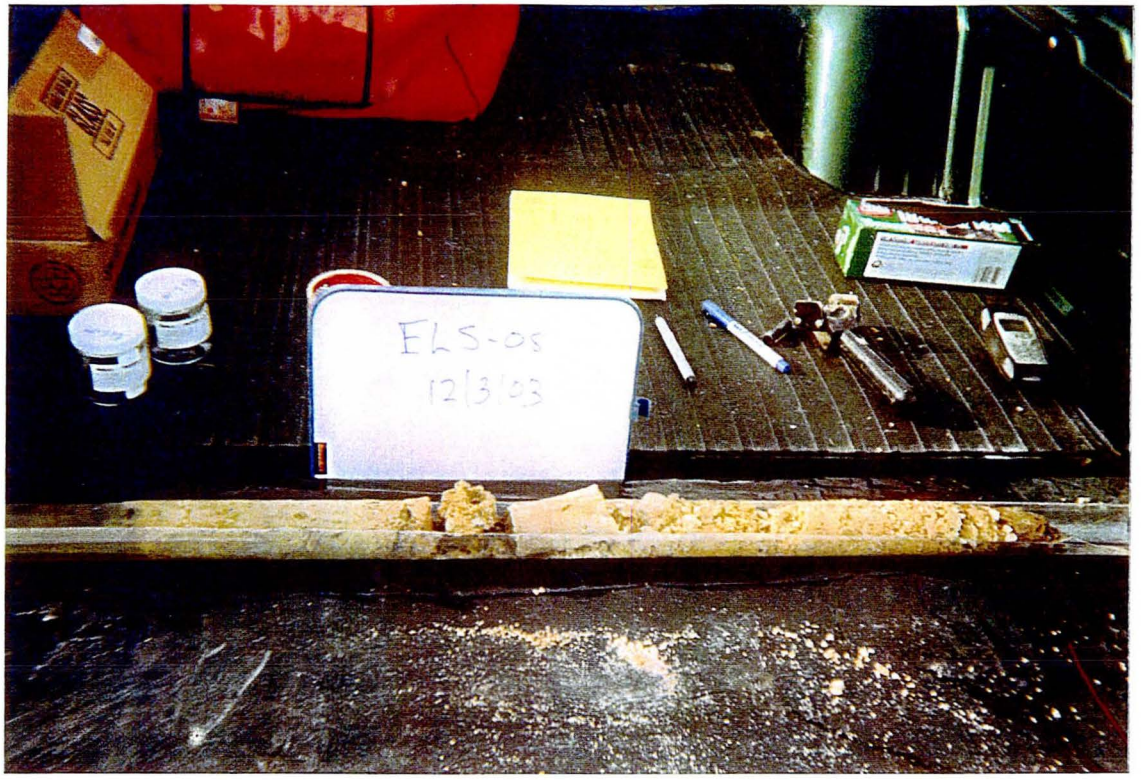
Photograph No.: 9
TDD No.: S05-0311-009
Location: Ecolab Site
Subject: FIELDS team using Geoprobe at location ELS-05
Orientation: Southeast
Date: December 3, 2003



Photograph No.: 10
TDD No.: S05-0311-009
Location: Ecolab Site
Subject: Soil sample from location ELS-05
Orientation: West
Date: December 3, 2003

Photograph No.: 11 **Orientation:** West
TDD No.: S05-0311-009 **Date:** December 3, 2003
Location: Ecolab Site
Subject: Light brown wax in soil core from sampling location ELS-06

Photograph No.: 12 **Orientation:** West
TDD No.: S05-0311-009 **Date:** December 3, 2003
Location: Ecolab Site
Subject: Soil sample from location ELS-06



Photograph No.: 13
TDD No.: S05-0311-009
Location: Ecolab Site
Subject: Soil sample from location ELS-08
Orientation: West
Date: December 3, 2003

Photograph No.: 14
TDD No.: S05-0311-009
Location: Ecolab Site
Subject: Soil sample from location ELS-09 with duplicate sample and matrix spike/matrix spike duplicate
Orientation: West
Date: December 3, 2003

Photograph No.: 15 **Orientation:** West
TDD No.: S05-0311-009 **Date:** December 3, 2003
Location: Ecolab Site
Subject: Soil sample from location ELS-10

Photograph No.: 16 **Orientation:** South
TDD No.: S05-0311-009 **Date:** December 3, 2003
Location: Ecolab site
Subject: View of sampling locations ELS-08 and ELS-09

APPENDIX B

DATA VALIDATION REPORT AND VALIDATED ANALYTICAL RESULTS

(Seven Pages)

MEMORANDUM

Date: January 20, 2004

To: Lee Christenson, Project Manager, Tetra Tech EM Inc. (Tetra Tech)
Superfund Technical Assessment and Response Team (START) for Region 5

From: Harry Ellis, Chemist, Tetra Tech START for Region 5

Subject: Data Validation for
Ecolab Site
Mequon, Wisconsin
Analytical Technical Direction Document (TDD) No. S05-0311-010
Project TDD No. S05-0311-009

Great Lakes Analytical (GLA), Buffalo Grove, Illinois
Work Order No. B312074
Volatile Organic Compound (VOC) and Polychlorinated Biphenyl (PCB) Analysis of 12 Soil Samples

1.0 INTRODUCTION

The Tetra Tech START for Region 5 validated VOC and PCB analytical data for 12 soil samples (and one field duplicate soil sample) collected on December 2 and 3, 2003, at the Ecolab site in Mequon, Wisconsin, during a site assessment. The samples were analyzed under the above-referenced work order by GLA using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Method 8260B for VOC analyses and SW-846 Method 8082 for PCB analyses. All samples were analyzed for PCBs, but only two were analyzed for VOCs.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated October 1999. Organic data validation consisted of a review of the following quality control (QC) parameters: holding times, an instrument performance check, initial and continuing calibrations, blank results, surrogate recovery results, matrix spike and matrix spike duplicate (MS/MSD) results, laboratory control sample (LCS) results, internal standard (IS)

area counts, and target compound identification and quantitation.

Section 2.0 discusses the results of the organic data validation, and Section 3.0 presents an overall assessment of the data. The attachment to this memorandum contains GLA's summaries of analytical results as well as START's handwritten data qualifications where warranted.

2.0 ORGANIC DATA VALIDATION RESULTS

The results of START's organic data validation are summarized below in terms of the QC parameters reviewed. The data qualifiers below were applied to the sample analytical results where warranted (see the attachment).

- J - The analyte was detected. The reported numerical value is considered estimated for QC reasons.
- UJ - The analyte was not detected. The reported sample quantitation limit is considered estimated for QC reasons.

2.1 HOLDING TIMES

The samples were analyzed within the holding time limits of (1) 14 days to analysis for VOCs and (2) 14 days to extraction and 40 days from extraction to analysis for PCBs. The initial extractions of samples ELS-01, ELS-02, ELS-04, and ELS-06 produced a waxy mixture that did not concentrate properly. GLA re-extracted the samples using a different ratio of soil to solvent and used the latter extract (denoted by an "-RE " suffix on the laboratory identification number shown in the attachment for the reported analyses.

2.2 INSTRUMENT PERFORMANCE CHECK

The bromofluorobenzene instrument performance check was performed as required for the VOC analyses

and yielded acceptable results. The chromatographic resolution was adequate for PCB analyses.

2.3 INITIAL AND CONTINUING CALIBRATIONS

All VOC initial calibration results were within the QC limits, which required a relative standard deviation (RSD) of 30 percent or less or a correlation coefficient of 0.99 or more for the response factors (RF). Most continuing calibration results were within the QC limit of a 25 percent difference of the RF from the average initial RF. The exceptions were the continuing calibration results for bromodichloromethane; carbon tetrachloride; chlorodibromomethane; 1,2-dibromo-3-chloropropane; 1,1,2-trichloroethane; and trichloroethene. Results for these analytes were flagged "UJ" to indicate that the sample quantitation limits are considered estimated.

All initial calibration results for the PCB analyses (four initial calibrations were used) were within the QC limits, which required an RSD of 20 percent or less for the calibration factors (CF) of each peak of Aroclors 1016 and 1260. Most results for the continuing calibration standards were within the QC limit of less than or equal to 15 percent difference between the mean CF of the initial calibration curve and the CF of the continuing calibration. For some of the seven analytical runs, the closing continuing calibration result for Aroclor 1260, decachloro biphenyl (DCB), or both was somewhat outside the QC limits of 85 to 115 percent recovery. Quantitative results associated with such irregular continuing calibrations were flagged "J" or "UJ", as appropriate, to indicate that they are considered estimated.

2.4 BLANK RESULTS

The laboratory method blanks did not contain VOCs or PCBs at detectable concentrations.

2.5 SURROGATE RECOVERY RESULTS

All surrogate recoveries for the VOC analyses were within their QC limits.

GLA normally uses both DCB and tetrachloro-m-xylene (TCMX) as surrogates for PCB analyses. Because DCB was a target analyte for these samples, only TCMX was added as a surrogate. Surrogate recoveries cannot be reliably determined at dilution factors over 20, and all samples were analyzed three to six times at dilutions ranging from 1 (no dilution) to 50,000-fold. When the TCMX recovery was measurable, recoveries were below the laboratory-specific QC limits of 10 to 125 percent recovery because of sample matrix interference. All results associated with such low surrogate recoveries (when the TCMX recovery was measurable) were flagged "J" or "UJ", as appropriate, to indicate that they are considered estimated and biased low because of interference. Specifically, samples ELB-01, ELB-02, ELS-02, and ELS-10 were qualified.

2.6 MS/MSD RESULTS

No VOC MS or MSD analysis was performed. No qualifications are warranted for this data gap because the duplicate LCS analyses provided evidence of precision and accuracy.

The PCB MS and MSD analysis was performed on sample ELB-09. DCB recovery could not be determined because the native (unspiked) DCB concentration was 100 times the amount in the spike. Aroclor 1016 recoveries were within QC limits for both accuracy and precision. The unspiked sample concentration of Aroclor 1260 was somewhat less than the spike; however, the MS sample had a negative spike recovery (the spiked sample contained less than the unspiked sample) and the MSD sample yielded less than 1 percent spike recovery. This unusual effect is probably due to both matrix interference and heterogeneity of the distribution of Aroclor 1260 within the sample matrix. The Aroclor 1260 result in the unspiked sample was flagged "J" to indicate that it is considered estimated. Similar interference and heterogeneity may exist in other samples from the site.

2.7 LCS RESULTS

LCS and LCS duplicate samples were analyzed for both the VOC and PCB analyses. For the VOC analyses, all results for accuracy were within the compound-specific QC limits for recovery; however, a few compounds had relatively high differences between the LCS and LCS duplicate recoveries. The only compound detected in a sample that yielded an irregular result for precision was cis-1,2-dichloroethene, which had a relative percent difference (RPD) between the LCS and LCS duplicate result of 46 percent versus a compound-specific QC limit of 27 percent. The positive result for cis-1,2-dichloroethene was flagged "J" to indicate that it is considered estimated because of irregular analytical instrument response.

For the PCB analyses, all LCS results for accuracy and precision were within QC limits. These results confirm that the MS/MSD irregularities discussed above are due to the sample matrix.

2.8 IS AREA COUNTS

All VOC IS area counts and retention times were within their QC limits. ISs are not used for PCB analysis.

2.9 TARGET COMPOUND IDENTIFICATION AND QUANTITATION

The calculations were spot-checked, and those checked were found to be accurate. For the VOC analyses, identifications were performed correctly. A number of peaks appeared in the retention time windows for analytes but had mass spectra that showed little resemblance to the standard peaks. Specifically, these mass spectra generally showed a series of peaks at intervals of 13 or 14 mass units, indicating the presence of hydrocarbons. GLA checked all mass spectra and properly ruled such irregular results as nondetected.

All positive PCB results were identified as Aroclor 1260 or as the fully chlorinated PCB congener DCB. In many cases, the Aroclor peaks were poor matches to the unweathered standards, as indicated by the quantitative results from one peak being much greater than those from another peak. These results were

flagged "J" to indicate the poor match. For both Aroclor 1260 and DCB, several samples had major differences in quantitative results between the primary analysis (used for quantitation) and the secondary analysis (used for confirmation). These variations indicate the presence of nontarget compounds in the peaks of one or both analyses. The affected results were flagged "J" to indicate the uncertainties in quantitation. It was also notable that chromatograms for many samples contained several peaks that eluted after DCB (the heaviest PCB congener and the last to elute), indicating the presence of heavier, non-PCB compounds that reacted with the detector of the analytical system. These unknown compounds may be related to PCB, such as polychlorinated terphenyls and quaterphenyls, or may be quite different in chemical structure. In addition, the results for Aroclor 1260 in sample ESL-09D was not qualified because the quantitative results between different peaks were within a factor of three.

3.0 OVERALL ASSESSMENT OF DATA

Overall, the sample analytical data generated by GLA are acceptable for use as qualified. The laboratory seems to have performed as well as possible based on the nature of the samples.

Most of the samples are quite highly contaminated, requiring dilutions up to 10,000-fold to bring DCB concentrations within calibration range. Furthermore, nontarget compounds were often present at concentrations greater than target compound concentrations. For the PCB analysis, the obvious nontarget compounds eluted after the DCB peak, and some peaks may have overlapped with the Aroclor 1260 and DCB peaks. The analytical methods used here were optimized for detecting very low concentrations of contaminants in a relatively "clean" matrices (with minimal interferences from similar chemical substances). A considerable amount of uncertainty was therefore created in the analysis by the actual sample matrices and is reflected by the fact that so many positive results are qualified as estimated. In addition, the one set of field duplicates analyzed showed significant heterogeneity in the distribution of PCB within the soil at one sampling point. The RPDs between the primary sample and its duplicate are 38 percent for DCB and 92 percent for Aroclor 1260. The quantitative results should be used with care, especially with regard to defining representative concentrations. Either SW-846 Method 8270C with calibration standards containing the more chlorinated PCB congeners or EPA Method 1668A could

provide confirmation of the identities of the contaminants.

ATTACHMENT

GLA SUMMARIES OF ANALYTICAL RESULTS

(11 Sheets)

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

WDNR Volatile Organic Compounds by Method 8260B

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELB-01 (B312074-02) Soil Sampled: 12/02/03 14:40 Received: 12/04/03 16:40									**QC**
Benzene	ND	25.0	ug/kg dry	50	3120224	12/08/03	12/08/03	EPA 8260B	
Bromobenzene	ND	25.0	"	"	"	"	"	"	
Bromodichloromethane	ND UJ	25.0	"	"	"	"	"	"	
n-Butylbenzene	**83.1**	25.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	25.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	25.0	"	"	"	"	"	"	
Carbon tetrachloride	ND UJ	25.0	"	"	"	"	"	"	
Chlorobenzene	ND	25.0	"	"	"	"	"	"	
Chlorodibromomethane	ND UJ	250	"	"	"	"	"	"	
Chloroethane	ND	25.0	"	"	"	"	"	"	
Chloroform	ND	25.0	"	"	"	"	"	"	
Chloromethane	ND	25.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	25.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	25.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND UJ	25.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	25.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	25.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**191** J	25.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	25.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	25.0	"	"	"	"	"	"	
Ethylbenzene	ND	25.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	25.0	"	"	"	"	"	"	
Isopropylbenzene	ND	25.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	25.0	"	"	"	"	"	"	
Methylene chloride	ND	100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	25.0	"	"	"	"	"	"	
Naphthalene	ND	25.0	"	"	"	"	"	"	
n-Propylbenzene	**191**	25.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
Tetrachloroethene	ND	25.0	"	"	"	"	"	"	
Toluene	ND	25.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	25.0	"	"	"	"	"	"	

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson 14 JG
13 Jan 04

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

WDNR Volatile Organic Compounds by Method 8260B

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELB-01 (B312074-02) Soil Sampled: 12/02/03 14:40 Received: 12/04/03 16:40									**QC**
1,1,1-Trichloroethane	ND	25.0	ug/kg dry	50	3120224	12/08/03	12/08/03	EPA 8260B	
1,1,2-Trichloroethane	ND UJ	25.0	"	"	"	"	"	"	
Trichloroethene	ND UJ	25.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	25.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	**875**	25.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	**332**	25.0	"	"	"	"	"	"	
Vinyl chloride	ND	25.0	"	"	"	"	"	"	
Total Xylenes	**128**	25.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*85.9 %*	*32-179*		"	"	"	"	
Surrogate: Dibromofluoromethane		*82.2 %*	*23.1-173*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.8 %*	*29.2-152*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*32.1-175*		"	"	"	"	
ELB-02 (B312074-03) Soil Sampled: 12/02/03 15:30 Received: 12/04/03 16:40									**QC**
Benzene	ND	25.0	ug/kg dry	50	3120224	12/08/03	12/11/03	EPA 8260B	
Bromobenzene	ND	25.0	"	"	"	"	"	"	
Bromodichloromethane	ND UJ	25.0	"	"	"	"	"	"	
n-Butylbenzene	ND	25.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	25.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	25.0	"	"	"	"	"	"	
Carbon tetrachloride	ND UJ	25.0	"	"	"	"	"	"	
Chlorobenzene	ND	25.0	"	"	"	"	"	"	
Chlorodibromomethane	ND UJ	250	"	"	"	"	"	"	
Chloroethane	ND	25.0	"	"	"	"	"	"	
Chloroform	ND	25.0	"	"	"	"	"	"	
Chloromethane	ND	25.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	25.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	25.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND UJ	25.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	25.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	25.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	25.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson 1+JG 13Jan04

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL
1380 Busch Parkway
Buffalo Grove, Illinois 60089
Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

WDNR Volatile Organic Compounds by Method 8260B

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELB-02 (B312074-03) Soil	**Sampled: 12/02/03 15:30**	**Received: 12/04/03 16:40**							**QC**
Di-isopropyl ether	ND	25.0	ug/kg dry	50	3120224	12/08/03	12/11/03	EPA 8260B	
Ethylbenzene	ND	25.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	25.0	"	"	"	"	"	"	
Isopropylbenzene	ND	25.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	25.0	"	"	"	"	"	"	
Methylene chloride	ND	100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	25.0	"	"	"	"	"	"	
Naphthalene	ND	25.0	"	"	"	"	"	"	
n-Propylbenzene	ND	25.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
Tetrachloroethene	ND	25.0	"	"	"	"	"	"	
Toluene	ND	25.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	25.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND WJ	25.0	"	"	"	"	"	"	
Trichloroethene	ND WJ	25.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	25.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	25.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	25.0	"	"	"	"	"	"	
Vinyl chloride	ND	25.0	"	"	"	"	"	"	
Total Xylenes	ND	25.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*56.0 %*	*32-179*		"	"	"	"	
Surrogate: Dibromofluoromethane		*57.4 %*	*23.1-173*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*76.1 %*	*29.2-152*		"	"	"	"	
Surrogate: Toluene-d8		*68.5 %*	*32.1-175*		"	"	"	"	

HJE

13 Jan 04

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL
1380 Busch Parkway
Buffalo Grove, Illinois 60089
Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELS-01 (B312074-01RE1) Soil Sampled: 12/02/03 13:50 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**1870000 J**	1560000	ug/kg dry	10000	3120192	12/08/03	12/12/03	EPA 8082	A-01, O11
PCB-1016	ND	156	"	1	"	"	12/10/03	"	
PCB-1221	ND	156	"	"	"	"	"	"	
PCB-1232	ND	156	"	"	"	"	"	"	
PCB-1242	ND	156	"	"	"	"	"	"	
PCB-1248	ND	156	"	"	"	"	"	"	
PCB-1254	ND	156	"	"	"	"	"	"	
PCB-1260	**31300 J**	15600	"	100	"	"	12/17/03	"	O11
Surrogate: Tetrachloro-meta-xylene		*14.0 %*		*10-125*	"	"	*12/10/03*	"	
ELB-01 (B312074-02) Soil Sampled: 12/02/03 14:40 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**8470 J**	6340	ug/kg dry	1000	3120192	12/08/03	12/10/03	EPA 8082	A-01
PCB-1016	ND UJ	31.7	"	1	"	"	12/09/03	"	
PCB-1221	ND UJ	31.7	"	"	"	"	"	"	
PCB-1232	ND UJ	31.7	"	"	"	"	"	"	
PCB-1242	ND UJ	31.7	"	"	"	"	"	"	
PCB-1248	ND UJ	31.7	"	"	"	"	"	"	
PCB-1254	ND UJ	31.7	"	"	"	"	"	"	
PCB-1260	**151 J**	31.7	"	"	"	"	12/09/03	"	O10, O11
Surrogate: Tetrachloro-meta-xylene		*4.73 %*		*10-125*	"	"	*12/09/03*	"	L
ELB-02 (B312074-03) Soil Sampled: 12/02/03 15:30 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**3060 J**	2510	ug/kg dry	100	3120192	12/08/03	12/10/03	EPA 8082	A-01
PCB-1016	ND UJ	31.4	"	1	"	"	12/24/03	"	
PCB-1221	ND UJ	31.4	"	"	"	"	"	"	
PCB-1232	ND UJ	31.4	"	"	"	"	"	"	
PCB-1242	ND UJ	31.4	"	"	"	"	"	"	
PCB-1248	ND UJ	31.4	"	"	"	"	"	"	
PCB-1254	ND UJ	31.4	"	"	"	"	"	"	
PCB-1260	**137 J**	31.4	"	"	"	"	"	"	O11
Surrogate: Tetrachloro-meta-xylene		*2.78 %*		*10-125*	"	"	"	"	L

HJG
13 JAN 04

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELS-02 (B312074-04RE1) Soil Sampled: 12/03/03 09:50 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**1020000 J**	686000	ug/kg dry	10000	3120192	12/08/03	12/12/03	EPA 8082	A-01, O11
PCB-1016	ND UJ	171	"	1	"	"	12/10/03	"	
PCB-1221	ND UJ	171	"	"	"	"	"	"	
PCB-1232	ND UJ	171	"	"	"	"	"	"	
PCB-1242	ND UJ	171	"	"	"	"	"	"	
PCB-1248	ND UJ	171	"	"	"	"	"	"	
PCB-1254	ND UJ	171	"	"	"	"	"	"	
PCB-1260	ND UJ	171	"	"	"	"	"	"	O11
Surrogate: Tetrachloro-meta-xylene		*9.87 %*	*10-125*		"	"	"	"	L
ELS-03 (B312074-05) Soil Sampled: 12/03/03 10:05 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**768000 J**	536000	ug/kg dry	50000	3120192	12/08/03	12/12/03	EPA 8082	A-01, O11
PCB-1016	ND	26.8	"	1	"	"	12/09/03	"	
PCB-1221	ND	26.8	"	"	"	"	"	"	
PCB-1232	ND	26.8	"	"	"	"	"	"	
PCB-1242	ND	26.8	"	"	"	"	"	"	
PCB-1248	ND	26.8	"	"	"	"	"	"	
PCB-1254	ND	26.8	"	"	"	"	"	"	
PCB-1260	**1040 J**	536	"	100	"	"	12/17/03	"	O11
Surrogate: Tetrachloro-meta-xylene		*26.9 %*	*10-125*		"	"	*12/09/03*	"	
ELS-04 (B312074-06RE1) Soil Sampled: 12/03/03 10:20 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**781000 J**	660000	ug/kg dry	10000	3120192	12/08/03	12/12/03	EPA 8082	A-01, O11
PCB-1016	ND	165	"	1	"	"	12/10/03	"	
PCB-1221	ND	165	"	"	"	"	"	"	
PCB-1232	ND	165	"	"	"	"	"	"	
PCB-1242	ND	165	"	"	"	"	"	"	
PCB-1248	ND	165	"	"	"	"	"	"	
PCB-1254	ND	165	"	"	"	"	"	"	
PCB-1260	**959 J**	660	"	10	"	"	12/17/03	"	O11
Surrogate: Tetrachloro-meta-xylene		*19.4 %*	*10-125*		"	"	*12/10/03*	"	

H VG
13 Jan 04

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL
1380 Busch Parkway
Buffalo Grove, Illinois 60089
Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELS-05 (B312074-07) Soil Sampled: 12/03/03 10:35 Received: 12/04/03 16:40									QC
Decachloro Biphenyl	**129000** J	106000	ug/kg dry	5000	3120192	12/08/03	12/11/03	EPA 8082	A-01
PCB-1016	ND	26.6	"	1	"	"	12/09/03	"	
PCB-1221	ND	26.6	"	"	"	"	"	"	
PCB-1232	ND	26.6	"	"	"	"	"	"	
PCB-1242	ND	26.6	"	"	"	"	"	"	
PCB-1248	ND	26.6	"	"	"	"	"	"	
PCB-1254	ND	26.6	"	"	"	"	"	"	
PCB-1260	**641** J	532	"	50	"	"	12/17/03	"	
Surrogate: Tetrachloro-meta-xylene		*30.3 %*		*10-125*		"	*12/09/03*	"	
ELS-06 (B312074-08RE1) Soil Sampled: 12/03/03 11:05 Received: 12/04/03 16:40									QC
Decachloro Biphenyl	**1560000** J	765000	ug/kg dry	1000	3120192	12/08/03	12/17/03	EPA 8082	A-01, O11
PCB-1016	ND	765	"	1	"	"	12/10/03	"	
PCB-1221	ND	765	"	"	"	"	"	"	
PCB-1232	ND	765	"	"	"	"	"	"	
PCB-1242	ND	765	"	"	"	"	"	"	
PCB-1248	ND	765	"	"	"	"	"	"	
PCB-1254	ND	765	"	"	"	"	"	"	
PCB-1260	ND UJ	765	"	"	"	"	"	"	O11
Surrogate: Tetrachloro-meta-xylene		*11.5 %*		*10-125*		"	"	"	
ELS-07 (B312074-09) Soil Sampled: 12/03/03 11:27 Received: 12/04/03 16:40									QC
Decachloro Biphenyl	**9560**	5960	ug/kg dry	1000	3120192	12/08/03	12/11/03	EPA 8082	A-01
PCB-1016	ND	2980	"	100	"	"	12/09/03	"	
PCB-1221	ND	2980	"	"	"	"	"	"	
PCB-1232	ND	2980	"	"	"	"	"	"	
PCB-1242	ND	2980	"	"	"	"	"	"	
PCB-1248	ND	2980	"	"	"	"	"	"	
PCB-1254	ND	2980	"	"	"	"	"	"	
PCB-1260	ND	2980	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*%*		*10-125*		"	"	"	L

AVG
13 Jan 04

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL
1380 Busch Parkway
Buffalo Grove, Illinois 60089
Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELS-08 (B312074-10) Soil Sampled: 12/03/03 11:42 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**37600** J	26100	ug/kg dry	5000	3120192	12/08/03	12/11/03	EPA 8082	A-01
PCB-1016	ND	13100	"	500	"	"	12/20/03	"	
PCB-1221	ND	13100	"	"	"	"	"	"	
PCB-1232	ND	13100	"	"	"	"	"	"	
PCB-1242	ND	13100	"	"	"	"	"	"	
PCB-1248	ND	13100	"	"	"	"	"	"	
PCB-1254	ND	13100	"	"	"	"	"	"	
PCB-1260	**117** J	26.1	"	1	"	"	12/09/03	"	O11
Surrogate: Tetrachloro-meta-xylene		*4.23 %*	*10-125*		"	"	"	"	L
ELS-09 (B312074-11) Soil Sampled: 12/03/03 11:55 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**98800**	92700	ug/kg dry	5000	3120192	12/08/03	12/11/03	EPA 8082	A-01
PCB-1016	ND	15500	"	500	"	"	12/09/03	"	
PCB-1221	ND	15500	"	"	"	"	"	"	
PCB-1232	ND	15500	"	"	"	"	"	"	
PCB-1242	ND	15500	"	"	"	"	"	"	
PCB-1248	ND	15500	"	"	"	"	"	"	
PCB-1254	ND	15500	"	"	"	"	"	"	
PCB-1260	**264** J	155	"	5	"	"	12/17/03	"	O11
Surrogate: Tetrachloro-meta-xylene		*23.0 %*	*10-125*		"	"	*12/09/03*	"	
ELS-09D (B312074-12) Soil Sampled: 12/03/03 11:55 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**145000**	128000	ug/kg dry	5000	3120192	12/08/03	12/10/03	EPA 8082	A-01
PCB-1016	ND	32.1	"	1	"	"	12/19/03	"	
PCB-1221	ND	32.1	"	"	"	"	"	"	
PCB-1232	ND	32.1	"	"	"	"	"	"	
PCB-1242	ND	32.1	"	"	"	"	"	"	
PCB-1248	ND	32.1	"	"	"	"	"	"	
PCB-1254	ND	32.1	"	"	"	"	"	"	
PCB-1260	**98.1**	32.1	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*20.6 %*	*10-125*		"	"	"	"	

HUG
13 Jan 04

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELS-10 (B312074-13) Soil Sampled: 12/03/03 12:10 Received: 12/04/03 16:40									**QC**
Decachloro Biphenyl	**2430** J	2370	ug/kg dry	100	3120192	12/08/03	12/10/03	EPA 8082	A-01
PCB-1016	ND UJ	29.7	"	1	"	"	12/09/03	"	
PCB-1221	ND UJ	29.7	"	"	"	"	"	"	
PCB-1232	ND UJ	29.7	"	"	"	"	"	"	
PCB-1242	ND UJ	29.7	"	"	"	"	"	"	
PCB-1248	ND UJ	29.7	"	"	"	"	"	"	
PCB-1254	ND UJ	29.7	"	"	"	"	"	"	
PCB-1260	ND UJ	29.7	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*2.96 %*	*10-125*		"	"	"	"	L

HOG
13Jan04

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL
1380 Busch Parkway
Buffalo Grove, Illinois 60089
Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

Percent Solids

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELS-01 (B312074-01) Soil	**Sampled: 12/02/03 13:50**	**Received: 12/04/03 16:40**							
% Solids	**94.1**	0.200	%	1	3120145	12/05/03	12/08/03	EPA 5035 7.5	
ELB-01 (B312074-02) Soil	**Sampled: 12/02/03 14:40**	**Received: 12/04/03 16:40**							
% Solids	**78.8**	0.200	%	1	3120145	12/05/03	12/08/03	EPA 5035 7.5	
ELB-02 (B312074-03) Soil	**Sampled: 12/02/03 15:30**	**Received: 12/04/03 16:40**							
% Solids	**79.7**	0.200	%	1	3120145	12/05/03	12/08/03	EPA 5035 7.5	
ELS-02 (B312074-04) Soil	**Sampled: 12/03/03 09:50**	**Received: 12/04/03 16:40**							
% Solids	**87.5**	0.200	%	1	3120145	12/05/03	12/08/03	EPA 5035 7.5	
ELS-03 (B312074-05) Soil	**Sampled: 12/03/03 10:05**	**Received: 12/04/03 16:40**							
% Solids	**93.3**	0.200	%	1	3120145	12/05/03	12/08/03	EPA 5035 7.5	
ELS-04 (B312074-06) Soil	**Sampled: 12/03/03 10:20**	**Received: 12/04/03 16:40**							
% Solids	**92.2**	0.200	%	1	3120145	12/05/03	12/08/03	EPA 5035 7.5	
ELS-05 (B312074-07) Soil	**Sampled: 12/03/03 10:35**	**Received: 12/04/03 16:40**							
% Solids	**94.1**	0.200	%	1	3120145	12/05/03	12/08/03	EPA 5035 7.5	
ELS-06 (B312074-08) Soil	**Sampled: 12/03/03 11:05**	**Received: 12/04/03 16:40**							
% Solids	**93.4**	0.200	%	1	3120146	12/05/03	12/08/03	EPA 5035 7.5	
ELS-07 (B312074-09) Soil	**Sampled: 12/03/03 11:27**	**Received: 12/04/03 16:40**							
% Solids	**83.9**	0.200	%	1	3120146	12/05/03	12/08/03	EPA 5035 7.5	

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

Percent Solids

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ELS-08 (B312074-10) Soil Sampled: 12/03/03 11:42 Received: 12/04/03 16:40									
% Solids	**95.7**	0.200	%	1	3120146	12/05/03	12/08/03	EPA 5035 7.5	
ELS-09 (B312074-11) Soil Sampled: 12/03/03 11:55 Received: 12/04/03 16:40									
% Solids	**80.9**	0.200	%	1	3120146	12/05/03	12/08/03	EPA 5035 7.5	
ELS-09D (B312074-12) Soil Sampled: 12/03/03 11:55 Received: 12/04/03 16:40									
% Solids	**78.0**	0.200	%	1	3120146	12/05/03	12/08/03	EPA 5035 7.5	
ELS-10 (B312074-13) Soil Sampled: 12/03/03 12:10 Received: 12/04/03 16:40									
% Solids	**84.3**	0.200	%	1	3120146	12/05/03	12/08/03	EPA 5035 7.5	

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: G9009L0311009	
200 E. Randolph Suite 4700	Project Number: 505-0311-009	**Reported:**
Chicago, IL 60601	Project Manager: Lisa Graczyk	01/12/04 16:17

Notes and Definitions

A-01	Currently, there is no NELAP accreditation offered for this analyte.
O10	The check standard that corresponds to this sample met the SW846 method requirements. However, it should be noted that the recovery for this individual compound in the check standard was above 115%.
O11	The check standard that corresponds to this sample met the SW846 method requirements. However, it should be noted that the recovery for this individual compound in the check standard was below 85%.
QC	The result for one or more quality control measurements associated with this sample did not meet the laboratory and/or source method acceptance criteria.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
L	This quality control measurement is below the laboratory established limit.
H	This quality control measurement is above the laboratory established limit.

Great Lakes Analytical--Buffalo Grove Wisconsin DNR Certification Lab ID: 999917160

Great Lakes Analytical--Buffalo Grove NELAP Primary Accreditation: Illinois #100261

Great Lakes Analytical--Buffalo Grove NELAP Secondary Accreditation: New Jersey #IL001

Great Lakes Analytical--Oak Creek, WI Wisconsin DNR Certification Lab ID: 341000330

Great Lakes Analytical--Oak Creek, WI NELAP Primary Accreditation: Illinois #100307

Note: All analytes, by matrix and method, are accredited following current NELAP standards unless specifically noted by way of a qualifier listed above.