PHASE II ENVIRONMENTAL SITE ASSESSMENT

FID#

FOR 241975030

FORMER MOBILE BLASTING SITE
1604 S. 43rd STREET
WEST MILWAUKEE, WI

April 8, 1997

from Tim Freitag, Village Administrator
West Milwaukee

6-18-97
6-22-97 back taxes $60,000
demo $50,000

Phase II Environmental Assessment Report

for

Former Mobile Blasting Site
1604 S. 43rd Street
West Milwaukee, WI

April 8, 1997

Kimberly White 4/8/97
Kimberly A. White Date
Hydrogeologist, Project Manager
Brownfields Environmental Assessment Pilot
Wisconsin Department of Natural Resources
101 S. Webster St., P.O. Box 7921, Madison, WI 53707

Table of Contents

Don Ogilvie (847) 295-7800 x226

fax x 0068

FIGURES

TABLES

APPENDICES

Executive Summary

A Phase II Environmental Site Assessment (ESA) of the Mobile Blasting property was conducted by the Wisconsin Department of Natural Resources (WDNR) as part of the 1996 Brownfield Environmental Assessment Pilot program. The conclusion of the Phase I ESA conducted by the WDNR in August 1996 recommended a Phase II ESA be conducted to investigate the soil and groundwater at the Mobile Blasting property. This recommendation was based on the uncertainty surrounding much of the site's history and property use, including any waste or other contamination which may have been generated on the property.

The Mobile Blasting property is located at 1604 S. 43rd Street, West Milwaukee, Wisconsin. The site, located in an industrial area of the Village of West Milwaukee, has been occupied by a boiler company, steel casting operation, and most recently by a sand blasting and painting operation. Mobile Blasting and Painting operated on the property from April 1985 until August 1988. The main objects which were blasted on the site were rail cars, automobiles, trucks, and steel beams. During the period of operation, there were many complaints from nearby businesses and residents, as well as Village ordinance violations, regarding sandblasting activities and the associated smoke emissions and offensive odors outside the building. Much less is known about the site history and activities for the southern part of the property, formerly occupied by Sivyer Steel Casting Company, at 1650 S. 43rd Street. Records indicate that this part of the property has not been utilized since the Sivyer Steel facility was razed in 1985.

According to the available records, there have been no soil or groundwater investigations or cleanups conducted at the site. Soil and groundwater contamination was documented on the property during the sampling and investigation for the Phase II. However, further investigation will be necessary to further determine the degree and extent of contamination on the northern part of the site, the portion formerly occupied by Mobile Blasting. Additionally, investigative data may be combined with the existing data to accomplish the goals in Wisconsin Administrative Code Chapters NR716 Site Investigation and 722 Standards for Selecting Remedial Actions.

1.0 INTRODUCTION

1.1 Site Description

The Former Mobile Painting and Blasting site (Mobile Blasting) at 1604 and 1650 S. 43rd Street is approximately 3.2 acres or 140,000 square feet, located in the NW 1/4 of Section 1, Township 6N, Range 21E, Milwaukee County, Wisconsin. See **Figure 1** for a site map.

The property is bisected into two parts by a rail spur which extends from the northeastern part of the property toward the west-southwest. The northern part of the property contains a brick building with a wood roof which is deteriorating in places, last occupied by Mobile Blasting. The southern part of the property is covered by the cement foundation from the Sivyer Steel Casting Company facility, which was razed in 1985. The site is bounded to the east by railroad tracks, to the south by Mitchell Street, to the west by South 43rd Street, and to the north by a fence. The site is in an industrial area of West Milwaukee with manufacturing, businesses, and multi-family residential units near the property.

1.2 Purpose

This Phase II Environmental Site Assessment (ESA) was performed by the Wisconsin Department of Natural Resources (WDNR) as part of the U.S. Environmental Protection Agency and WDNR funded Brownfield Environmental Assessment Pilot conducted in 1996. The purpose of the pilot was to conduct Phase I and Phase II Environmental Assessments for municipalities to assess site conditions and to help market abandoned and/or tax delinquent properties that are under-utilized. An application process was used to allow municipalities to submit sites they believed had development potential, but were hindered by suspected or perceived contamination. Memorandum of Agreements (MOAs) were signed by the municipalities and the WDNR to ensure cooperation and define responsibilities for various aspects of the assessment.

The Phase I ESA prepared by WDNR in August 1996 recommended further investigation of the site due to unknown site history and work practices, and that a Phase II ESA be conducted. The Phase II involved the collection of soil samples and the installation of three monitoring wells in order to collect groundwater samples.

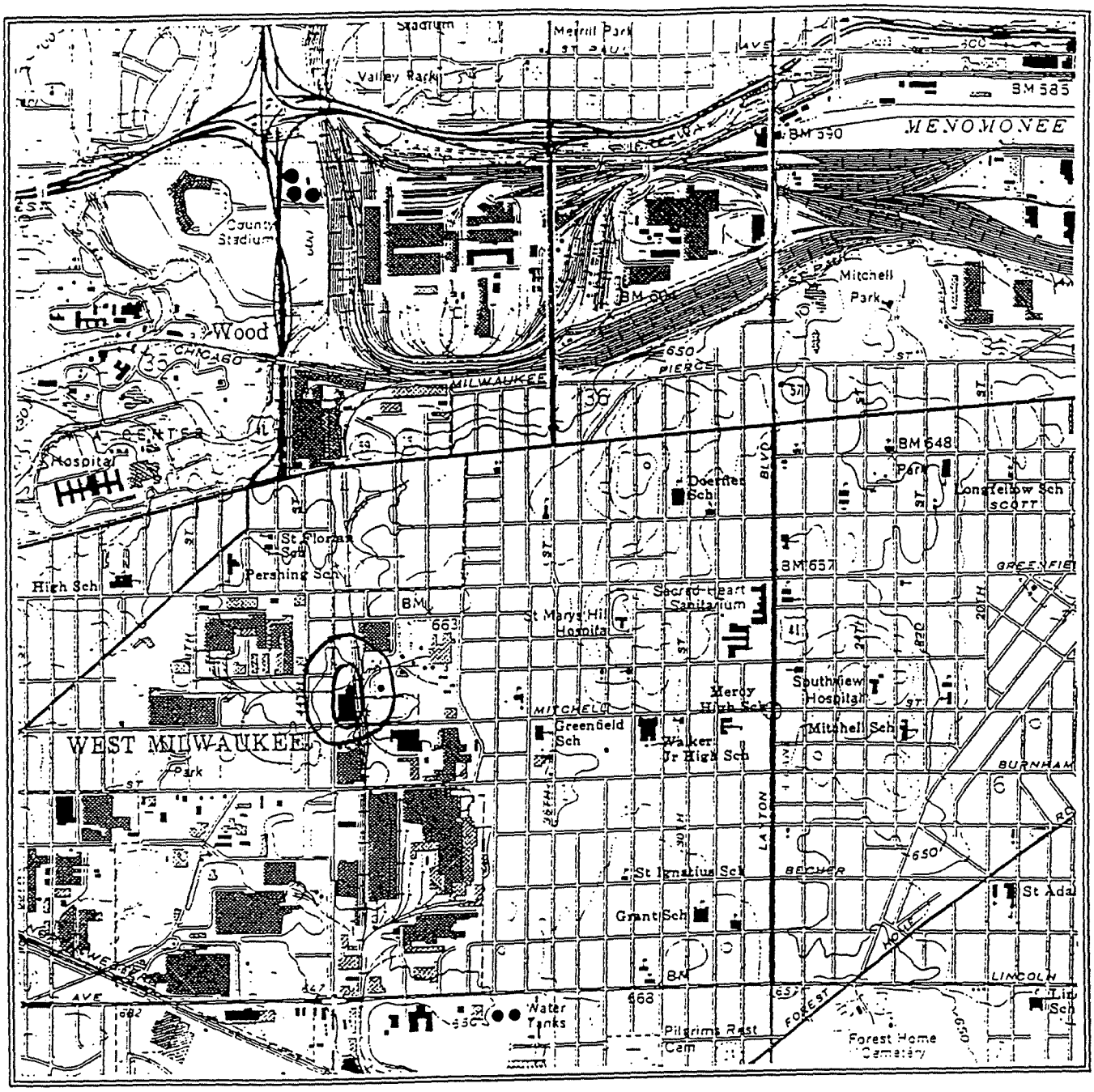
2.0 SITE BACKGROUND

2.1 Site Use

The site, located in an industrial area of the Village of West Milwaukee, has been occupied by a boiler company, steel casting operation, and most recently by a sand blasting and painting operation. The building at 1604 S. 43rd Street has been vacant since August 1988 and is currently owned by West Milwaukee Associates Limited Partnership. The owner was issued a Raze and Repair Order by the Village of West Milwaukee for this building in July 1993, though the building is still standing.

Mobile Blasting and Painting operated on the 1604 South 43rd Street property from April 1985

FIGURE 1



Mobile Blasting Site

MILWAUKEE QUADRANGLE

7.5 Minute Series (Topographic)

Scale 1:24 000

Contour Interval 10 Feet

N

SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

1 0

until August 1988. During this time, there were many complaints from nearby businesses and residents, as well as Village ordinance violations, regarding sandblasting activities and the associated smoke emissions and offensive odors outside the building. During some periods, there were daily, blatant violations due to both the time at which the activities occurred, as well as the amount of noise and air emissions generated. As a result, Village Police issued many citations, and there were two separate Circuit Court cases regarding the outdoor sandblasting activities. The main objects which were blasted on the site were rail cars, automobiles, trucks, and steel beams. Given this information, paint solvents and metal and paint flakes, possibly containing lead, were considered to be the primary contaminants present in the blasting sand remains and soils on the site.

There were also numerous instances of fire code and building code violations detected by both the Village Fire Department and Village Building Inspection Code Enforcement at the 1604 S. 43rd Street location. In November 1987, the occupancy permit was revoked by the Village due to the negative impact on public health and safety posed by the building and business operations. A revised occupancy permit was issued in May 1988 following some improvements which were made to the facility by Mobile Blasting and Painting.

Much less is known about the site history and activities for the southern part of the property, formerly occupied by Sivyer Steel Casting Company, at 1650 S. 43rd Street. Records indicate that this part of the property has not been utilized since the Sivyer Steel facility was razed in 1985. Sivyer Steel was operating by 1927, but it is not known when Sivyer Steel originated, or what occupied the property before Sivyer Steel. There are no detailed accounts readily available regarding the operations of Sivyer Steel, but the Sanborn Fire Insurance Maps indicated there was a foundry as well as sand blasting operations on the site.

For a more thorough site history, please refer to the Mobile Blasting Phase I report.

2.2 Environmental Investigations and Cleanups

According to the available records, there have been no environmental investigations or cleanups conducted at the site. While Mobile Blasting occupied the site, there were incidences when air emissions were monitored during periods of operation to determine whether the business was violating air emissions standards. There are no records which indicate that soil or groundwater investigations have been conducted at the site prior to the Phase II ESA.

3.0 SAMPLING LOCATIONS AND METHODOLOGY

3.1 Areas of Concern

One area of concern was the northeastern part of the property between the building occupied by Mobile Blasting and the train tracks. There was stressed vegetation in this area, and some blasting sand, indicating some of the outdoor blasting and painting activities may have taken place in this area. This assumption corresponds with the many complaints filed by neighboring businesses and residents while Mobile Blasting was in operation. A second area of concern was

the southern part of the property where Sivyer Steel was located. Much less is known about this part of the property in regards to the specific operations which occurred and the potential waste generated while Sivyer Steel was active. The concrete building foundation is still in place, with some holes present in the foundation, presumably left from the removal of building support structures.

All soil and water samples were analyzed for volatile organics, semi-volatiles, PCBs, and total metals.

3.2 Sampling Changes

The only deviation from the sampling plan, a copy of which is presented in **Appendix A**, was the inability to collect one soil sample from beneath the foundation of the Mobile Blasting building. The sample was to be collected with the Geoprobe™ from a depth of five feet below the former painting and blasting area in the central part of the building. However, due to the potential for release of the friable asbestos on the floor inside the building, it was decided during sampling activities not to collect the sample.

3.3 Soil Sampling Locations

There were a total of 19 samples collected from 10 different soil sampling locations, see **Figure 2**. **Table 1** provides a summary of soil sample information. At nine of the soil sampling locations, a surficial sample was collected as well as a sample collected with the Geoprobe™ at a depth of approximately 5 feet. Four of these sample locations were on the part of the property formerly occupied by Mobile Blasting. The remaining five were concentrated in the southern part of the property which was formerly occupied by Sivyer Steel. The final sample location was inside the former Mobile Blasting building, where a grab sample was collected from the large pile of blasting sand in the sand storage room at the northern part of the building. Three of the soil borings were sampled and converted to monitoring wells on September 17, 1996. The remaining borings were drilled and then sampled along with the monitoring wells on October 15, 1996.

3.4 Groundwater Sampling Locations

Three monitoring wells were installed on the property from which groundwater samples could be collected. The boring logs and monitoring well construction forms for the new wells are presented in **Appendix B**. See **Figure 2** for monitoring well locations. See **Table 2** for a summary of groundwater sample information. Note that the locations of the three monitoring wells are also the locations of the Round 1 soil samples, since the samples were collected as the wells were installed. Two of the wells were located on the northern part of the property, between the Mobile Blasting building and the train tracks which form the eastern property boundary. The third monitoring well was located on the southern part of the property, where Sivyer Steel was located. The three monitoring wells were installed in order to sample groundwater for suspected contamination and to determine the depth to groundwater and direction of groundwater flow. A background well was not installed as part of this investigation.

Sampling Locations

FIGURE 2

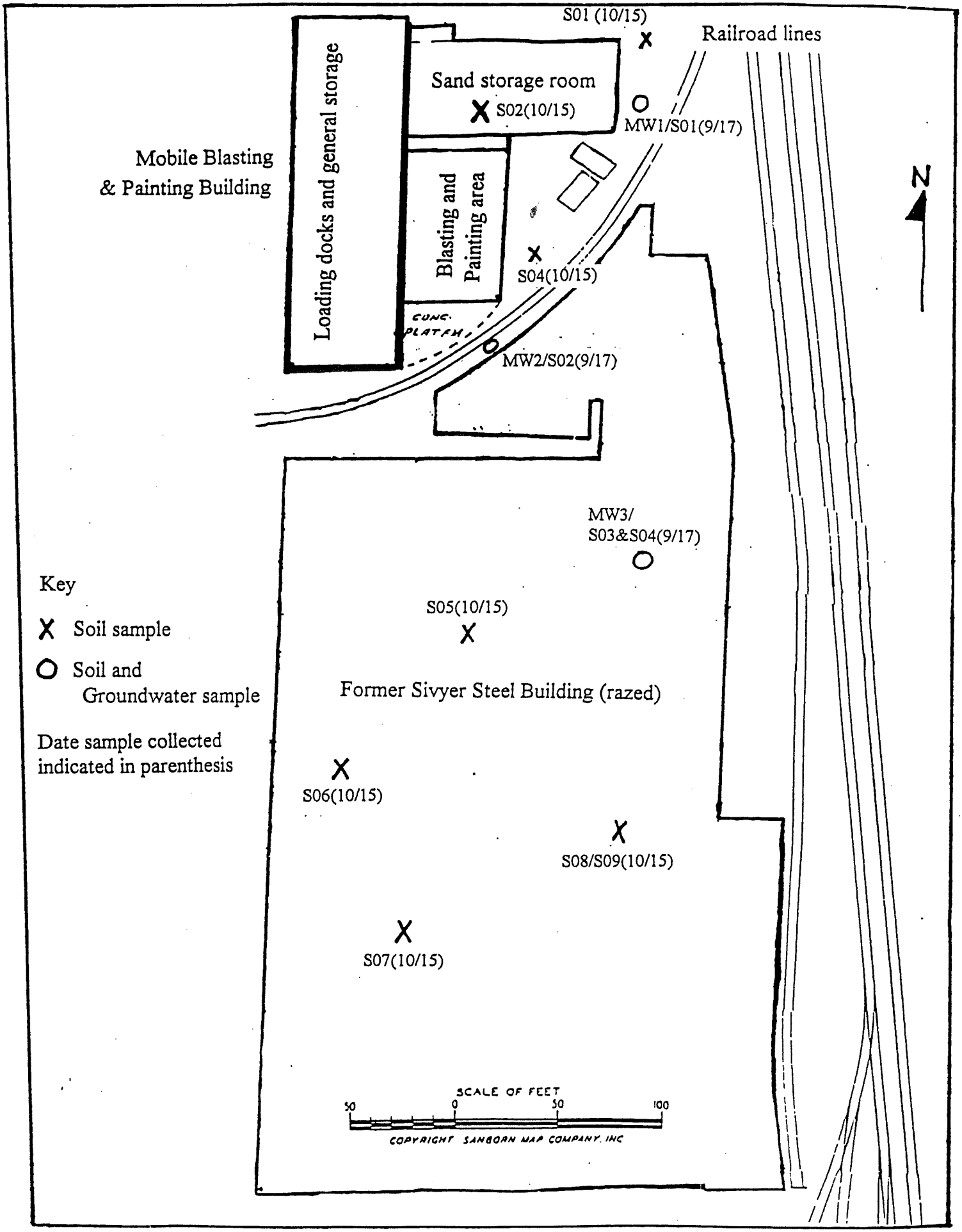


Table 1 - Soil Samples from Sampling Round 2

Date sampled	Sample #	Sample description
09/17/96	S01	surficial soil-NE corner of property
09/17/96	S01B	soil at 5' depth, S01 location
09/17/96	S02	surficial soil-S end of Mobile property
09/17/96	S02B	soil at 5' depth, S02 location
09/17/96	S03	surficial soil-NE end of Sivyer property
09/17/96	S03B	soil at 5' depth, S03 location
09/17/96	S04	duplicate of S02
10/15/96	S01	surficial soil-NE corner of Mobile
10/15/96	S01B	soil at 5' depth, S01 location
10/15/96	S02	collected from sand pile inside building
10/15/96	S04	surficial soil-SE corner of Mobile
10/15/96	S04B	soil at 5' depth, S04 location
10/15/96	S05	surficial soil-N central part of Sivyer property
10/15/96	S05B	soil at 5' depth, S05 location
10/15/96	S06	surficial soil-W central part of Sivyer property
10/15/96	S06B	soil at 5' depth, S06 location
10/15/96	S07	surficial soil-SW corner of Sivyer
10/15/96	S07B	soil at 5' depth, S07 location
10/15/96	S08	surficial soil-E central part of Sivyer property
10/15/96	S08B	soil at 5' depth, S08 location
10/15/96	S09	duplicate of S08

Table 2 - Round 2 Groundwater Samples/Round 1 Soil Samples

Date sampled	Sample #	Sample description
10/15/96	S01 (MW1)	groundwater - NE corner of Mobile property
10/15/96	S02 (MW2)	groundwater - SW corner of Mobile property
10/15/96	S03 MW3)	groundwater - NE corner of Sivyer property
10/15/96	D03	duplicate of S03
10/15/96	R01	rinse blank
10/15/96	R02	trip blank (VOC only)

3.5 Soil Sampling Procedure

The Phase II ESA soil sampling was conducted on two separate sampling trips. The first was on September 17, 1996, when three soil borings were drilled by a drill rig with a hollow-stem auger, and then converted into monitoring wells. The second sampling day was October 15, 1996 when six additional soil borings were drilled, this time with a U.S. EPA-provided Geoprobe™.

At each of the nine soil boring locations mentioned above, two samples were collected. Surface soil samples were collected with a stainless steel trowel from a depth of approximately 6"-9" in order to collect a sample free of loose surface debris and vegetation. The deep samples were collected from a depth of approximately five feet. On September 17, 1996 these deep samples were retrieved using a split spoon sampler on the drill rig. On October 15, 1996 deep samples were collected using the Geoprobe™. The sample collected from the sand pile inside the building was collected with a stainless steel trowel from approximately 4"-6" below the surface of the pile.

Obtaining a soil sample consisted of collecting a sufficient volume of material to fill two EnCore™ samplers, plus half of a 4 ounce jar for dry weight analysis, for volatile organic compounds, one 8 ounce jar for semi-volatile and PCB analysis, and one 8 ounce jar for metals analysis. The VOC samples collected with the EnCore™ sampler were immediately placed into tared vials and preserved with methanol in accordance with WDNR guidance, and then analyzed at the State Laboratory of Hygiene (SLOH). The remaining soil collected from the specified interval was placed in a stainless steel mixing bowl and thoroughly mixed before being placed in the appropriate sample container.

The SLOH provided the sample containers for the samples which they analyzed. The sample containers used for analyses by EPA's Contract Laboratory Program (CLP) were commercially obtained and comply with US EPA's cleaning protocols. Dedicated equipment was used where available and other equipment was decontaminated between samples with alconox and water and rinsed with tap and deionized water to prevent cross contamination of the samples.

3.6 Groundwater/Monitoring Well Sampling Procedure

Groundwater elevations were taken prior to bailing. The volume of water in the well was computed using Table 5 of WDNR Groundwater Sampling Procedures Outlines PUBL WR-168 87. The monitoring wells were purged using dedicated 1.66 inch O.D. Teflon bailers. Teflon bailers were used to minimize absorption of VOCs and reduce introduction of contaminants. Nonreuseable nylon rope was used to lower the bailers. Purged water was collected in 5-gallon plastic pails for color and volume determination. Purge water was then stored on site in 55-gallon drums until analytical results were obtained to determine the proper means of disposal.

A piece of 4-mil plastic sheet (approximately 4' by 4') was centered around the well to reduce the introduction of contaminants. The bailers are bottom loading and provided with specially designed bottom-emptying devices which were inserted into the bottom to transfer the sample to containers, thus minimizing volatilization of contaminants.

Obtaining a groundwater sample consisted of collecting enough water to fill two 40 ml vials pre-preserved with hydrochloric acid for VOA analysis, one 80 ounce amber glass bottle for semi-volatile and PCB analysis, one 1 liter polyethylene bottle preserved with nitric acid for metals analysis, and one ½ gallon transfer bottle for field analyses.

4.0 RESULTS

4.1 Laboratory Analyses

The soil samples collected in both Round 1 and Round 2 were analyzed by Wisconsin's SLOH for volatile organics, and by the US EPA's CLP for semi-volatiles, PCB/pesticides, and inorganics. The water samples collected in Round 2 were analyzed by the USEPA's Central Regional Lab (CRL) for all parameters. Summary tables of the laboratory data for groundwater and soil are presented in **Appendices C, D, and E**.

4.2 Data Limitations

Due to excess soil volume collected, there were several soil samples from Round 2 which could not be analyzed for volatile organics. These samples were: S01B, S02, S06, S06B, S07, S07B, S08, and S09. Additionally, one sample from Round 2 was not collected. This was sample S03, located inside the Mobile Painting and Blasting building. The sample was not collected due to the potential for release of the friable asbestos inside the building by driving the truck and Geoprobe™ into the building.

4.3 Soil Sample Results

There were several hazardous substances detected in the samples collected during the Phase II sampling. The presence of these compounds indicates contamination of the soil on the Mobile Blasting property. The data from the soil analyses were compared to the U.S. EPA Region III Risk-Based Concentration Table to help determine whether further site investigation was warrented. The data were compared to the risk-based concentrations for soil ingestion at both the industrial level and the residential level, and displayed in **Tables 3 and 4**, respectively.

There were semi-volatile compounds, pesticides, and one PCB compound detected in the soil samples. Most of the compounds were found on the northern portion of the site, concentrated on the part of the property formerly occupied by Mobile Blasting (samples S01, S02, and S04). Many of the highest concentrations were found in sample S04 on the Mobile Blasting property. The highest concentrations of the semi-volatile compounds were found in samples S04 and S03B. Though not all of the hazardous substances detected were found at depth (samples designated with a 'B' suffix), those contaminants which were detected at depth were almost always at a greater concentration than that of the surficial sample at the same location. The PCB compound was only detected in sample S03 on the Sivyer Steel property and sample S02, which was collected from the soil pile inside the Mobile Blasting building during the second round of sampling.

Table 3 - Detected Hazardous Substance Concentrations Compared With Industrial Level Soil Ingestion Guidelines

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)		Soil Ingestion Industrial Level (ug/g)	
S01	9/17/96	**Benz(a)anthracene**	83	J	7.8	C
S01B	9/17/96		730	J		
S02	9/17/96	**(SVOC)**	310	J		
S03	9/17/96		260	J		
S03B	9/17/96		1000			
S04	9/17/96		340	J		
S01	10/15/96		410			
S02	10/15/96		33	J		
S04	10/15/96		1500			
S05	10/15/96		350	J		
S09	10/15/96		110	J		
S01B	9/17/96	**Chrysene**	1900	J	780	C
S03B	9/17/96		1300			
S04	10/15/96	**(SVOC)**	1700			

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)		Soil Ingestion Industrial Level (ug/g)	
S02	10/15/96	**Bis(2-ethylhexyl) phthalate (SVOC)**	1000		410	C
S01	9/17/96	**Benzo(b) fluoranthene (SVOC)**	130	J	7.8	C
S01B	9/17/96		660	J		
S02	9/17/96		280	J		
S03	9/17/96		260	J		
S03B	9/17/96		870			
S04	9/17/96		330	J		
S01	10/15/96		660			
S02	10/15/96		45	J		
S04	10/15/96		2600			
S05	10/15/96		560			
S06	10/15/96		16	J		
S06B	10/15/96		20	J		
S01	9/17/96	**Benzo(k) fluoranthene (SVOC)**	100	J	78	C
S01B	9/17/96		400	J		
S02	9/17/96		270	J		
S03	9/17/96		240	J		
S03B	9/17/96		970			
S04	9/17/96		290	J		
S01	10/15/96		190	J		
S04	10/15/96		880			
S05	10/15/96		200	J		
S01B	9/17/96	**Benzo(a)pyrene (SVOC)**	730	JB	0.78	C
S03B	9/17/96		980	JB		
S01	10/15/96		290	J		
S04	10/15/96		1400			
S04B	10/15/96		25	J		
S05	10/15/96		240	J		
S06	10/15/96		8	J		
S06B	10/15/96		16	J		

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)		Soil Ingestion Industrial Level (ug/g)	
S02	9/17/96	**Indeno(1,2,3-cd)**	270	JB	7.8	C
S03	9/17/96	**pyrene**	270	JB		
S03B	9/17/96		840	B		
S04	9/17/96	**(SVOC)**	340	JB		
S01	10/15/96		350			
S02	10/15/96		19	J		
S04	10/15/96		1400			
S05	10/15/96		300	J		
S01	9/17/96	**Dibenz(ah)**	32	J	0.78	C
S02	9/17/96	**anthracene**	120	J		
S03	9/17/96		120	J		
S03B	9/17/96	**(SVOC)**	68	J		
S04	9/17/96		150	J		
S01	10/15/96		74	J		
S04	10/15/96		330	J		
S05	10/15/96		70	J		
S03	9/17/96	**Arochlor-1254**	51		41	N
S02	10/15/96	**(PCB)**	230	P		
S01B	9/17/96	**beta-BHC (Pest)**	9.6	PJ	3.2	C
S01B	9/17/96	**gamma-BHC (Lindane) - (Pest)**	7.2	PJ	4.4	C
S01	9/17/96	**Aldrin**	0.39	PJ	0.34	C
S01B	9/17/96	**(Pest)**	2.7	PJ		
S03	9/17/96		0.93	PJ		
S03	9/17/96	**Heptachlor epoxide (Pest)**	0.97	PJ	0.63	C
S04	9/17/96	**Dieldrin**	0.47	PJ	0.36	C
S01	10/15/96	**(Pest)**	1.5	PJ		
S02	10/15/96		1.6	PJ		

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)	Soil Ingestion Industrial Level (ug/g)
S04	9/17/96	**4,4'-DDT (Pest)**	17	17 C

Data qualifiers:

N=noncarcinogenic effects
C=Carcinogenic effects
J=The associated numerical value is an estimated quantity.
B=This contaminant was also in the blank.
P=Lab generated qualifier that essentially means "estimated".

Table 4 - Detected Hazardous Substance Concentrations Compared With Residential Level Soil IngestionGuidlines

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)	Soil Ingestion Residential Level (ug/g)
S01B	9/17/96	**Naphthalene (SVOC)**	3200	3100 N
S02	9/17/96	**Carbazole**	37 J	32 C
S03	9/17/96	**(SVOC)**	53 J	
S03B	9/17/96		210 J	
S04	10/15/96		150 J	
S04	10/15/97	**Pyrene (SVOC)**	3700	2300 N
S01	9/17/96	**Benz(a)anthracene**	83 J	0.88 C
S01B	9/17/96	**(SVOC)**	730 J	
S02	9/17/96		310 J	
S02B	9/17/96		5 J	
S03	9/17/96		260 J	
S03B	9/17/96		1000	
S04	9/17/96		340 J	
S01	10/15/97		410	
S02	10/15/97		33 J	
S04	10/15/97		1500	
S05	10/15/96		350 J	
S09	10/15/96		110 J	

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)		Soil Ingestion Residential Level (ug/g)	
S01	9/17/96	**Chrysene**	150	J	88	C
S02	9/17/96	**(SVOC)**	400			
S03	9/17/96		390			
S04	9/17/96		440			
S01	10/15/97		480			
S03	10/15/96		340	J		
S09	10/15/96		170	J		
S01	10/15/97	**Bis(2-ethylhexyl)**	220	J	46	C
S08B	10/15/97	**phthalate**	48	J		
S09	10/15/96	**(SVOC)**	120	J		
S01	9/17/96	**Benzo(b)**	130	J	0.88	C
S01B	9/17/96	**fluoranthene**	660	J		
S02	9/17/96	**(SVOC)**	280	J		
S02B	9/17/96		7	J		
S03	9/17/96		260	J		
S03B	9/17/96		870			
S04	9/17/96		330	J		
S01	10/15/97		660			
S02	10/15/97		45	J		
S04	10/15/97		2600			
S05	10/15/96		560			
S06	10/15/96		16	J		
S06B	10/15/96		20	J		
S01	9/17/96	**Benzo(k)**	100	J	8.8	C
S01B	9/17/96	**fluoranthene**	400	J		
S02	9/17/96	**(SVOC)**	270	J		
S03	9/17/96		240	J		
S03B	9/17/96		970			
S04	9/17/96		290	J		
S01	10/15/97		190	J		
S02	10/15/97		14	J		
S04	10/15/97		880			
S05	10/15/96		200	J		
S06B	10/15/96		10	J		

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)		Soil Ingestion Residential Level (ug/g)	
S01B	9/17/96	**Benzo(a)pyrene**	730	JB	0.088	C
S03B	9/17/96	**(SVOC)**	980	JB		
S01	10/15/97		290	J		
S04	10/15/97		1400			
S04B	10/15/97		25	J		
S05	10/15/96		240	J		
S06	10/15/96		8	J		
S06B	10/15/96		16	J		
S02	9/17/96	**Indeno(1,2,3-cd)**	270	JB	0.88	C
S03	9/17/96	**pyrene**	270	JB		
S03B	9/17/96	**(SVOC)**	840	B		
S04	9/17/96		340	JB		
S01	10/15/97		350			
S02	10/15/97		19	J		
S04	10/15/97		1400			
S05	10/15/96		300	J		
S01	9/17/96	**Dibenz(ah)**	32	J	0.088	C
S02	9/17/96	**anthracene**	120	J		
S03	9/17/96	**(SVOC)**	120	J		
S03B	9/17/96		68	J		
S04	9/17/96		150	J		
S01	10/15/97		74	J		
S04	10/15/97		330	J		
S05	10/15/96		70	J		
S02B	9/17/96	**Arochlor-1254**	3.2	J	1.6	N
S03B	9/17/96	**(PCB)**	21	J		
S04	9/17/96		19	J		
S07	10/15/96	**beta-BHC (Pest)**	1.2	PJ	0.35	C
S05	10/15/96	**gamma-BHC (Lindane) - (Pest)**	0.52	PJ	0.49	C
S05	10/15/96	**Heptachlor (Pest)**	0.48	PJ	0.14	C
S02	9/17/96	**Aldrin (Pest)**	0.19	PJ	0.038	C
S02B	9/17/96		0.17	PJ		

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)		Soil Ingestion Residential Level (ug/g)	
S01	9/17/96	**Heptachlor epoxide**	0.21	PJ	0.07	C
S03B	9/17/96	**(Pest)**	0.18	PJ		
S04	10/15/96		0.48	PJ		
S02	9/17/96	**Dieldrin**	0.15	PJ	0.04	C
S07	10/15/96	**(Pest)**	0.16	PJ		
S08B	10/15/96		0.34	PJ		
S01	9/17/96	**4,4'-DDE**	3.0	J	1.9	C
S02	9/17/96	**(Pest)**	6.9			
S03	9/17/96		3.5	P		
S04	9/17/96		9.4			
S04	10/15/96		3.0	PJ		
S05	10/15/96		2.5	PJ		
S01	9/17/96	**4,4'-DDD**	5.0	P	2.7	C
S04	10/15/96	**(Pest)**	5.1			
S01	9/17/96	**4,4'-DDT**	6.8		1.9	C
S01B	9/17/96	**(Pest)**	7.5	J		
S02	9/17/96		14	P		
S02B	9/17/96		2.8	J		
S03	9/17/96		2.4	PJ		
S04	10/15/96		13	P		
S08	10/15/96		7.7	P		
S09	10/15/96		6.6	P		
S01	9/17/96	**Iron**	36000	*J	23000	N
S01B	9/17/96		24800	*J		
S02	9/17/96		61600	*J		
S02B	9/17/96		49400	*J		
S04	9/17/96		48000	*J		
S04	10/15/96		35600			
S04B	10/15/96		25700			
S05	10/15/96		28600			

Soil Sample #	Date Collected	Hazardous Substance	Concentration (ug/g)		Soil Ingestion Residential Level (ug/g)	
S01	9/17/96	**Beryllium**	0.21	B	0.15	C
S01B	9/17/96		0.68	B		
S02	9/17/96		0.56	B		
S02B	9/17/96		0.54	B		
S03	9/17/96		0.21	B		
S03B	9/17/96		0.21	B		
S04	9/17/96		0.5	B		
S04	10/15/96		0.68	B		
S04B	10/15/96		0.85	B		
S05	10/15/96		0.16	B		
S05B	10/15/96		0.48	B		
S06	10/15/96		0.19	B		
S06	10/15/96		0.57	B		
S07	10/15/96		0.49	B		
S07B	10/15/96		0.49	B		
S08B	10/15/96		0.30	B		

Data qualifiers:

N=noncarcinogenic effects
C=Carcinogenic effects
J=The associated numerical value is an estimated quantity.
B=This contaminant was also in the blank.
P=Lab generated qualifier that essentially means "estimated".
*=Duplicate analysis was not within control limits.

4.4 Groundwater Sample Results

Groundwater analyses indicate exceedances of State of Wisconsin NR 140 Administrative Code, Groundwater Quality Standards. **Table 5** lists the hazardous substances detected and the associated enforcement standard (ES) and the preventive action limit (PAL) assigned by NR140. These are standards which have been established to protect public health. The PAL serves as an early warning level to indicate when preventive measures should be taken. The ES is higher than the PAL, and if the ES is exceeded, steps should be taken to initiate and maintain a remedial response that will restore groundwater quality if it is a drinking water source. In addition to the hazardous substances listed in **Table 5**, there were several compounds identified which are not listed in NR140. It should be noted that just because there are not standards associated with these compounds does not mean that they are not a concern.

- VOCs which were also detected: Isopropylbenzene, n-Propylbenzene, 1,3,5-Trimethylbenzene, 1,2,4-Trimethylbenzene, and p-Isopropyltoluene.
- Other semi-volatile compounds detected were 2-Methylnaphthalene and 2,4-

Dinitrotoluene (only detected in the duplicate sample of MW3).

- There were no PCBs or pesticides detected in any of the samples.
- Vanadium was the only inorganic compound detected which was not included in NR140.

Table 5
Exceedances of NR 140 Groundwater Quality
Enforcement Standards and Preventive Action Limits

Monitoring Well #	Hazardous Substance	Concentration (ug/l)	NR140 - ES (ug/l)	NR140 - PAL (ug/l)
MW1	Benzene	3	5	0.5
	Naphthalene	26 D	40	8
	Manganese	114	50	25
MW2	Benzene	1	5	0.5
	Naphthalene	200 D	40	8
	Lead	11	15	1.5
	Manganese	181	50	25
MW3	Benzene	1	5	0.5
	Naphthalene	360 D	40	8
	Manganese	178	50	25

Data Qualifier:
D=The sample was diluted.
ug/l = ppb

5.0 EVALUATION OF DATA

5.1 Physiographic and Hydrogeologic Features

The land surface at the site is relatively flat. However, in the vicinity of the site, the land slopes gently to the north-northeast, toward the Menomonee River located approximately 5000 feet away. It is assumed that surface water drainage patterns mimic the dominant topography and flow is to the north-northeast.

Drilling logs from the Phase II ESA reported clay to clayey sand underlying the site to a depth of eight to ten feet. Beneath this clay layer is poorly graded sand, with some silty clay layers, to the bottom of the borings, the maximum depth being 26 feet. There were also odors detected in the three borings which were converted to monitoring wells. There was an odor (paint solvent?) detected in the two borings which were drilled on the Mobile Blasting portion of the site (MW1 and MW2). Another odor (gasoline?) was detected in the boring drilled on the Sivyer Steel portion of the property (MW3). In all three borings, the odors were detected below a depth of 13 feet, and therefore beneath the upper clay layer.

Depth to groundwater at the site is approximately 18 feet.

The glacial till underlying the site does not serve as an aquifer, but does allow for the percolation of water to recharge underlying aquifers. However, all water is treated equally under Wisconsin state law, regardless of whether or not it serves as a primary aquifer. The predominant aquifer is the Niagara dolomite, which has an extensive system of joints and fractures serving to enhance the productivity of wells. Shallow groundwater flow in the vicinity of the site is to the north-northeast, in the direction of the Menomonee River, mimicking surface topography. Based on data collected October 15, 1996, there is a 2.5 foot gradient in the water table from MW3 at the southern part of the site to MW1 located at the northern part of the site. Deeper, more regional groundwater flow paths probably trend more to the east toward the Milwaukee Bay and Lake Michigan. WDNR records indicate that there are no wells in the vicinity of the site which provide drinking water, since the Village of West Milwaukee depends on Lake Michigan and other surface water sources for its water supply.

5.2 Distribution of Contaminants

Based on the analytical results, most of the soil contamination was concentrated on the northern portion of the site, particularly in the area formerly occupied by Mobile Blasting. Many of the semi-volatile compounds were found in samples analyzed from the northern portion of the site. These compounds may be attributed to past operations at the site, and are associated with paints, solvents, dyes, and sealants. They may also be partly attributed to the railway operations and maintenance, since rail lines ran alongside and bisected the site. The pesticides and PCB compound, however, were not as widely distributed. Instead, they were found only in samples S01 and S03, as well as a couple of detections from the sand pile (S02) inside the Mobile Blasting building. Pesticides were not known to be used at the site, and were detected at very low concentrations. They may also have been associated with railway operations to prevent grass and weed growth, or they may have been blown from offsite and deposited.

It appeared that many of the contaminants detected have migrated downward because contaminant concentrations were often greater in the sample collected at a depth of 5 feet than the overlying sample collected at a depth of only 6-8 inches. However, none of the contaminants listed in Table 3 which exceeded the industrial standards for soil ingestion were even detected in the groundwater samples analyzed.

6.0 CONCLUSIONS

There were numerous hazardous substances detected in the soil on the Mobile Blasting site, including semi-volatiles, pesticides and PCBs. These substances are listed in Tables 3 and 4. Most of the contamination is concentrated in the northern part of the site. Additional sampling should be focused in the northern portion of the site to determine the degree and extent of contamination. Additionally, the large sand pile inside the Mobile Blasting building should be further sampled to adequately characterize the pile and ensure proper disposal of the sand.

There were two compounds, manganese and benzene, which exceeded the State of Wisconsin Enforcement Standard for Drinking Water Quality as outlined in NR 140. There were also several compounds which exceeded the Preventive Action Limit outlined in NR 140, but did not exceed the Enforcement Standard. These compounds are listed in Table 5. Additionally, there were a number of compounds detected for which there are no established state drinking water standards, listed in Section 4.4.

There is also a concern about the presence of friable asbestos on the floor and hanging from pipes inside the building. The asbestos will need to be properly contained and removed before the building can be razed or reoccupied.

Additional soil and groundwater data, combined with the existing data, will be necessary to accomplish the site investigation and remediation goals of NR 716 and 722.

7.0 STATEMENT OF LIMITATIONS

This report was prepared by the Department of Natural Resources in cooperation with the Village of West Milwaukee as part of a pilot project to assist municipalities wishing to market potentially contaminated properties for redevelopment. This study is not intended to be a definitive study of environmental conditions at the site. Information provided by others has been accepted as true and correct. The conclusions presented in this report are professional opinions of the Department of Natural Resources' staff which are based on the information and sample data collected, and reviewed for this report.

Users of this report are cautioned that site conditions may change over time due to natural process or activity on the site or adjacent properties. Other conditions may also exist at the site that could not be identified based on the limited scope of this investigation.

If you have additional questions concerning this report you may contact the Department of Natural Resources, Bureau for Remediation and Redevelopment, 101 S. Webster Street, P.O. Box 7021, Madison, Wisconsin, 53707-7921.

APPENDIX A

Phase II Site Specific Workplan

Wisconsin Department Of Natural Resources

Brownfields Environmental Assessment Pilot
Phase II Site Specific Workplan

Site Name: Former Mobile Blasting Site

Location: 1604 and 1650 South 43rd Street, Village of West Milwaukee
NW 1/4, Section 1, Township 6N, Range 21E
Milwaukee County, Wisconsin

Access/Directions to site: From Madison, take I-94 east to West Milwaukee. Exit south on Highway 41 by the Milwaukee County Stadium. Travel south about one mile, then turn left on National Avenue. Go two blocks then turn right on South 43rd Street. The site will be on the left, between Orchard and Mitchell Streets.

Dates Of Investigation: September 17-18 and October 15-16, 1996

Inspection Leader: Kim White

Other Site Personnel:

Robert Amerson	_____
Amy Walden	_____
Carol McCurry	_____
Cara Norland	_____

* Initial to indicate that the Safety Plan has been reviewed.

Prepared by: Kimberly A. White 8/29/96
Date

Description Of Work To Be Performed:

The BEAP sampling activities will consist of the collection and analysis of groundwater and soil samples.

See **Attachment A** for the sampling review.
See **Attachment B** for the sampling plan and methodology.
See **Attachment C** for sample locations.

Soil Sampling

There will be a total of approximately 11 different soil sampling locations, with 20 samples collected. Three of the borings will be sampled and converted to monitoring wells on September 17 and 18. The remaining borings will be drilled and sampled, and the monitoring wells will be sampled on October 15 and 16. At nine of the soil sampling locations, there will be a surficial sample collected as well as a sample collected with the geoprobe at a depth of approximately 5 feet. The remaining two locations will be inside the former Mobile Blasting building. One sample will be collected from the large pile of blasting sand in the sand storage room at the northern part of the building. The other sample in the building will be collected from a five foot Geoprobe boring from the blasting and painting area in the central part of the building. Field screening during sampling activities may also influence actual sample locations and depths.

One area of concern is the northeastern part of the property between the building occupied by Mobile Blasting and the train tracks. There is stressed vegetation in this area, and some blasting sand, so some of the outdoor blasting and painting activities may have taken place in this area. Another area on which to focus sampling efforts is the southern part of the property where Sivyer Steel was located. Samples may be collected from holes in the foundation, presumably left from the removal of building support structures. Otherwise, since the building foundation is still in place, a geoprobe may be required to punch through the concrete to collect the samples.

Groundwater Sampling

Three monitoring wells will be installed on the property from which groundwater samples may be collected. Two of the wells will be located on the northern part of the property, between the Mobile Blasting building and the train tracks which form the eastern property boundary. The third monitoring well will be located on the southern part of the property, where Sivyer Steel was located. The three monitoring wells are proposed in order to sample groundwater for suspected contamination and to determine the depth to groundwater and direction of groundwater flow. There will not be a background well. The estimated depth to groundwater based on historic well logs from the area is 40 to 50 feet.

Sample Analyses

All soil and water samples will be analyzed for volatile organics, semi-volatiles, PCBs, and total metals.

Site Personnel Assignments:

Team Member	Responsibilities
Amy Walden	Offsite support Decontamination Sample shipping/paperwork Safety Manager
Kim White	Monitoring Well Sampling Field Monitoring Decontamination
Robert Amerson	Monitoring Well Sampling Decontamination Field Monitoring
Carol McCurry	Soil Sampling Field Monitoring Decontamination
Cara Norland	Soil Sampling Field Monitoring Decontamination

ATTACHMENT A

Sampling Review

Groundwater Samples

M-01 northeast sample, east of Mobile Blasting's sand storage room
M-02 northeast sample, east of blasting and painting room (south of M-01)
M-03 duplicate of M-02
M-04 southern sample, from hole in Sivyer Steel's building foundation
R-01 trip blank

- sample designated for matrix spike duplicate to be determined.
- samples will be field filtered for metals analysis
- addition of hydrochloric acid to volatile samples
- addition of nitric acid to total metals samples
- no preservative for semi-volatile and PCB samples
- volatile, semi-volatile, and PCB samples will be cooled to 4^0 C
- sample bottles per sample:

Volatiles	40 ml for all wells
Semi-Vol, PCB	80 oz for all wells
Metals	1 liter polyethylene bottle

Sample bottles will be filled in the following order:

1. 40 ml glass bottles for VOA analysis
2. 80 oz amber glass bottles for semi-volatile and PCB analysis.
3. 1 liter polyethylene bottle for metals analysis.
4. ½ gallon transfer bottle for field analysis.

Soil Samples

S01 - S06	Soil samples collected at northeastern part of property, inside Mobile Blasting building and between building and train tracks
S07 - S11	Soil samples collected from southern half of property from holes in former Sivyer Steel building foundation
S12	Shallow soil sample duplicate, to be determined
S13	Deep soil sample duplicate, to be determined

* Note: sample numbers will be designated with a 'b' suffix for those samples collected at depth but at the same location as the primary number assigned to the surficial sample.

* Exact sample locations will be selected closer to the time of sampling, and will depend on distribution of holes in foundation at southern part of property and ability of Geoprobe to drill through concrete foundation if necessary.

- sample designated for matrix spike duplicate to be determined.
- no preservatives for semi-volatile and PCBs; samples will be cooled to 4^0 C
- no preservatives for metals samples, cooling not necessary
- samples analyzed for VOCs will be preserved with methanol, according to guidelines provided in **Attachment B**, the Sampling Plan
- sample bottles per sample:

Volatiles and GRO	4 oz
Semi-Vol and PCB	8 oz
Metals	8 oz

ATTACHMENT B

Brownfields Environmental Assessment Pilot
Sampling Plan

Sampling Methodology

Soil Sampling

Obtaining a soil sample will consist of collecting a sufficient volume of material to fill one 8 ounce jar for metal analysis, one 8 ounce jar for semi-volatile/pesticide/PCB analysis, and two 4 ounce jars for analysis of volatiles. The samples will be taken near the surface or at depth. Surficial samples will be obtained using a stainless steel trowel or auger, and subsurface samples may be collected from a boring created by an auger, geoprobe, or other drilling method. Soil can be collected using a 30 ml plastic syringe with the end sliced off, a brass tube, an EnCore sampler or other appropriate devices. Samples cannot be analyzed if the amount of soil in the vial exceeds the weight maxima listed in Table 1. Loose surface material, grass or gravel, shall not be included in the soil sample.

Material from the specified interval will be placed in a stainless steel mixing bowl prior to filling the sample bottles. VOA samples jars will be filled, with no head space, as soon as sample collection/auguring is completed with as little handling or disturbance as possible. Material for filling the VOA jars will be selected from multiple points throughout the stainless steel bowls prior to mixing. Stainless steel trowels or spoons will be used to facilitate mixing the sample material following VOA sample collection. Regardless of the method of collection, soil samples obtained for non-volatile chemical analyses will be thoroughly mixed before being placed in the appropriate sample containers. The soil will be removed from the sampling device (dredge, core tube, scoop, etc.) and placed in a stainless steel pan or mixing bowl. The soil in the pan will be scraped from the sides, corners, and bottom of the pan, rolled to the middle of the pan, and initially mixed. The sample will then be quartered and moved to the four corners of the container. Each quarter of the sample will be mixed individually. Each quarter will then be rolled to the center of the container and the entire sample mixed again. Stainless steel trowels or spoons will be used to fill the sample jars.

Monitoring Well Sampling

The monitoring wells will be pruged using 1.66 inch O.D. Teflon bailers. Groundwater elevations will be taken prior to bailing. The head space in the well will also be monitored with an Hnu meter. The volume of water in the well will be computed using Table 5 of WDNR Groundwater Sampling Procedures Outlines PUBL WR-168 87. Purged water will be collected and contained in calibrated 5-gallon plastic pails for color and volume determination. Teflon bailers will be used to minimize absorption of VOCs and reduce introduction of contaminants. Nylon rope (1/8 in. 4SB - nonreuseable) will be used to lower the bailers.

All monitoring wells will be sampled using Teflon bailers. All bailers will be properly decontaminated before and after each use. A piece of 4-mil plastic (4ft. By 4ft.), will be centered around the well to reduce the introduction of contaminants. The bailers are bottom loading and are provided with specially designed botom-emptying devices which will be inserted into the bottom to tramsfer the sample to containers, thus minimizing volatilization of contaminants.

Sample Preservation

Water Sample Preservation

A portion of the water from the transfer bottles will be used for determining specific conductance, pH and temperature. Monitoring well samples will be field filtered.

Prior to obtaining the VOA samples, hydrochloric acid will be added to the 40 ml bottles to preserve these samples for analysis (pH of less than 2). Particular care will be taken to avoid splashing when filling these bottles. Attention will be given to avoid trapping air bubbles within the sample bottle. Bottles will also be cooled to 4°C.

No preservative will be added to the semi-volatile/PCB sample bottles, though the bottles will be cooled to 4°C.

Total metals analysis for the monitoring well samples will be preserved with nitric acid to a pH of less than 2, and will be cooled to 4°C.

Soil Sample Preservation

No chemical preservatives will be added to samples for pesticide/PCB or metals analysis. Samples will be cooled to 4°C.

Methanol preservation is mandatory for VOCs and the Modified GRO method and must be noted on the chain of custody. Sample collection time must be verifiable from the chain of custody. Soil samples that arrive at the laboratory without methanol that have not been stored

properly must be rejected. Flagging data for these samples will not be acceptable. Results from soil samples not preserved in methanol will be rejected. If the laboratory analyzes soil samples not handled properly, at the request of clients, the samples must not be reported as "GRO".

A sufficient number of vials (three recommended) should be collected to provide for backup analyses in the event of breakage and to allow for screening. One vial must be collected for dry weight determination (without methanol). A methanol trip blank must accompany each batch of samples (for each site and each day that samples are collected). Care must be taken to be sure the vial seals properly (no soil on the threads). This can be accomplished by using a clean toothbrush or other utensil to sweep particles off the threads of the vial.

Collect and preserve soil samples by one of the following techniques:

a. Collect soil into tared VOC vials following the guidelines in Table 1. Preserve immediately with methanol. Store samples on ice or at 4°C. **Note that any samples collected in this fashion which are not analyzed by a laboratory are considered hazardous waste.** Vials should be shipped in an upright position. Vials can also be placed in separate "ziplock" bags to avoid any problems that might occur if a vial leaks (such as the ink being removed from vial labels). Samplers should be aware that laboratories use a variety of vial taring methods so it is important to use only vials supplied by the laboratory performing the analysis.

b. Use a brass tube to line either the split spoon or Geoprobe sampler for collecting the soil sample. Cap the tube using plastic endcaps with Teflon sheets placed between the endcaps and the sample. Store samples on ice or at 4°C. Preserve with methanol within 2 hours of sample collection. Immediately prior to methanol preservation, the soil from the brass tube must be subsampled into a VOC vial following guidelines in Table 1. Subsampling involves removing one of the plastic endcaps, scraping away the surface soil, and then scooping out, (with a spatula or other utensil), the appropriate weight of soil into the vial. Brass tubes must be cleaned appropriately prior to reuse.

c. Push an EnCore sampler into a split spoon liner or sample, allowing no headspace. Cap with the stainless steel "o-ring" cap. Store samples on ice or at 4°C. Preserve with methanol within 48 hours of sample collection. Note that this allows the possibility of having the laboratory preserve the sample. If you intend to have the laboratory preserve the sample, it must be received at the laboratory within 40 hours of sample collection. Soil stored in the EnCore sampler must be extruded from the device into a VOC vial immediately prior to methanol preservation. The soil is extruded by using a pushrod supplied with the tool. Soil should not be scooped out of the sampler using a spatula, etc. EnCore samplers must be cleaned appropriately (following the manufacturers recommendations) prior to reuse.

d. Alternate sample storage devices equivalent or superior in performance to the brass

tube or the EnCore sampler may be used for sample storage prior to methanol preservation. Alternate sample storage devices must be approved prior to use.

Vials must not be submitted to the laboratory for analysis of any volatile parameter (GRO, PVOC, VOC) if any of the methanol has spilled in sampling. If the laboratory determines that a vial has leaked, by noting a visible reduction of volume, or an unusually low weight, then this must be reported with analytical results. Only the vial that has leaked will be in question not the entire cooler or shipping package.

Methanol can be added by one of the methods listed below:

a. Samples collected directly into a VOC vial in the field can be placed into tared vials already containing the appropriate volume of methanol (see Table 1). Samples stored in the brass tube, EnCore sampler, or an approved alternate storage device, can be added to tared vials already containing the appropriate volume of methanol. Samples stored in the brass tube, EnCore sampler, or an approved alternate storage device, should be preserved after screening of collected samples to determine which samples will be laboratory analyzed. Only those samples to be analyzed by a laboratory should be methanol preserved. Store samples on ice or at 4°C.

b. Methanol can be added from premeasured volumes provided by the laboratory or a commercial vendor. For samples collected directly into a VOC vial in the field or soils placed into a VOC vial after storage in an approved device, quickly open the soil vial and pour in the appropriate volume of methanol (see Table 1), closing the sample vial immediately. Sore samples on ice or at 4°C. Unused vials of methanol may be used at other sites at the sampler's discretion. Professional judgement should be used in determining how long vials with methanol for preservation (or vials for trip blanks) can be stored. Labs may determine the shelf life for these vials if they wish to offer an exact time period for storage to their clients.

c. Premeasured volumes of methanol can be added via syringe from a septa vial provided by the laboratory or a private vendor containing the appropriate volume (see Table 1) or from the bulk methanol in the laboratory. For samples collected directly into a VOC vial in the field or soils placed into a VOC vial after storage in an approved device, draw the appropriate volume of methanol into the syringe and add by puncturing the vial septa. Depending on the vial size and volume of methanol added, venting of the vial may be necessary to facilitate adding the methanol. If necessary, vent the vial by partially unscrewing the vial top. A fresh syringe needle will be needed for each new vial to avoid cross contamination. Common laboratory glass syringes and noncoring type syringe needles should be used. Store samples on ice or at 4°C.

d. Methanol can be added using a Teflon repeater pipet pump that attaches to a bottle of a purge and trap grade methanol and delivers the appropriate volume of methanol (see Table

1). For samples collected directly into a VOC vial in the field or soils placed into a VOC vial after storage in an approved device, quickly open the soil vial and depress the pipet pump to deliver the methanol, closing the sample vial immediately. If this method is used it is important to make sure that purge and trap grade methanol be used. Store samples on ice or at 4°C. Note that the methanol in the bottle can become contaminated if stored near any source of volatile fumes. Storage and use of this apparatus must be away from petroleum products and other volatile contaminants.

Additional Comments

For aqueous samples, one trip blank of distilled water for volatile organic analysis will be included per cooler. A rinse blank for the groundwater bailers, as well as field duplicate samples (1 duplicate for every 10 samples) for each matrix, and appropriate matrix duplicates for laboratory quality control (QC) purposes will be obtained. All field data will be recorded on field data sheets and logs. Cleaning and rinse waters, as well as purge waters from contaminated wells, will be collected in pails or drums and properly disposed of according to state ARARs concerning investigative wastes.

Dedicated precleaned sampling equipment will be used for most of the sampling. When dedicated equipment is not used, between the collection of every sample the sampling equipment (augers, mixing bowls, and trowels or spoons, etc) shall be decontaminated by scrubbing with a brush and alconox, rinsing with tap water, and then triple rinsing with distilled water. Equipment will be cleaned in the decontamination area where practical. Discarded items (ie. Tyvek suits, masking tape, etc.) will be placed in plastic trash bags, removed from the site and disposed of at the WDNR office.

All appropriate information such as field measurements, sample I.D. numbers, person obtaining and handling samples, etc., will be recorded on preprinted data sheets and/or in the sampling field notebook. The date and time of sampling will be recorded on each sample bottle or jar. After sample bottles are filled, they will be clean rinsed with tap and/or distilled water for handling.

Preservation of water samples will be performed in a well ventilated area to avoid inhalation of any vapors that may be produced from this operation. No preservation of soil or sediment samples will be performed. The sample bottles or jars will then be kept cool (except samples for metals analysis) until packaging.

Quality Control

Groundwater sampling will comply with Chapter 1, Sections C-J and Chapter 2, Sections C-I of the Groundwater Monitoring Procedures Guidelines. The sample containers will be commercially obtained and will comply with EPA's cleaning protocols.

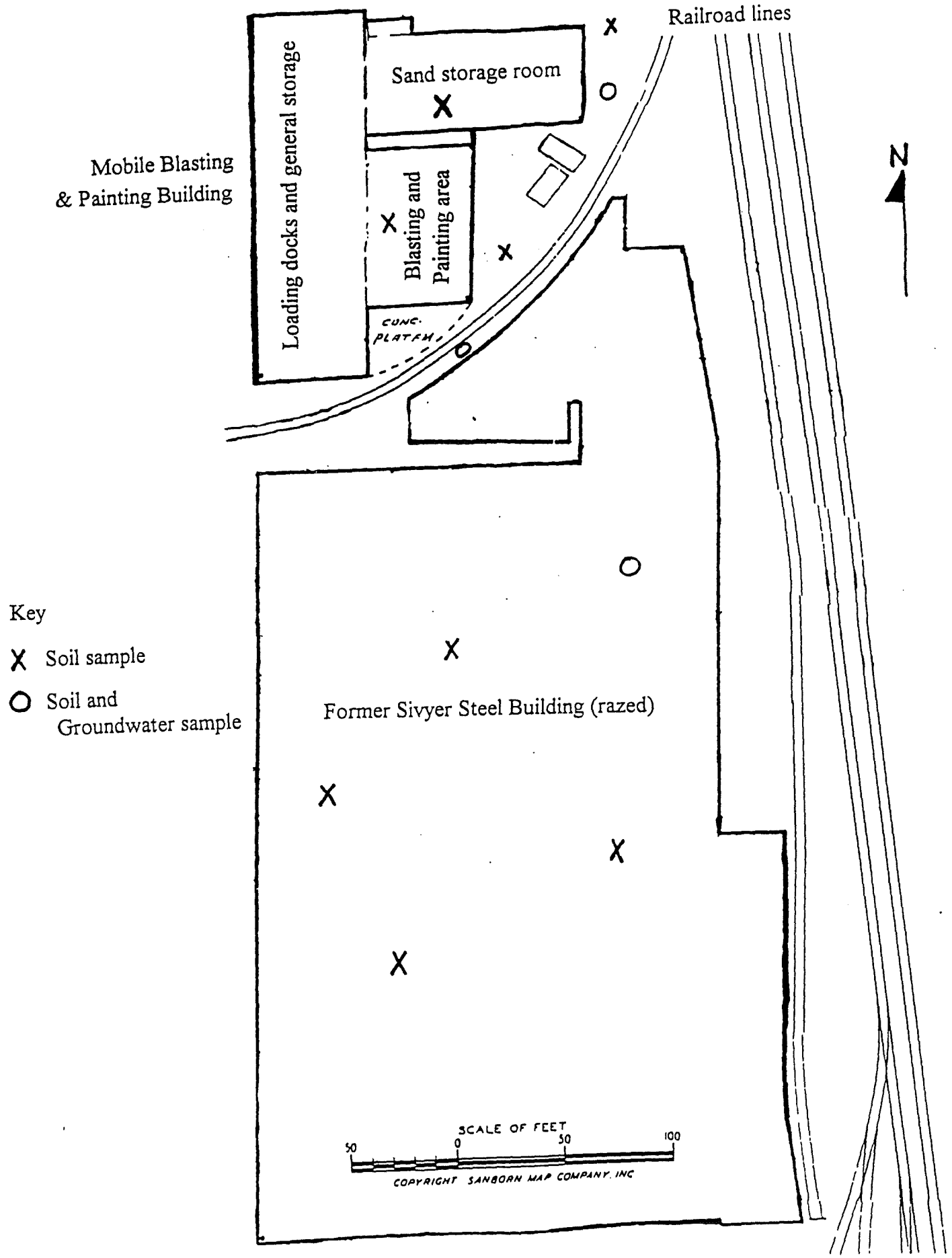
Table 1 - Weight Maxima

Vial Size	Target Sample Weight	Actual Sample Weight	Volume of Methanol	Action
40 mls (GRO only)	10 gms	<8 gms 8-11 gms >11gms<20gms >20 gms	10 mls 10 mls 10 mls for any amount	flag none add methanol reject
60 mls	10 gms	<8 gms 8-11 gms >11gms<35gms	10 mls 10 mls 10 mls	flag none add methanol
60 mls	25 gms	<20 gms 20-26 gms >26gms<35gms >35 gms	25 mls 25 mls 25 mls for any amount	flag none add methanol reject
120 mls	10 gms	<8 gms 8-11 gms >11gms<70gms	10 mls 10 mls 10 mls	flag none add methanol
120 mls	25 gms	<20 gms 20-26 gms >26gms<70gms	25 mls 25 mls 25 mls	flag none methanol
120 mls	50 gms	<40 gms 40-51 gms >51gms<70gms >70 gms	50 mls 50 mls 50 mls for any amount	flag none add methanol reject

ATTACHMENT C

Site Map With Sampling Locations

Sampling Locations



APPENDIX B

Soil Boring Logs

and

Monitoring Well Construction Reports

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☒ Other **Brownsfield**

Soil Boring Log Information
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Mobile Blasting		**MW1**

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Miller Engineers & Scientists. Chief Driller Arvin Broehm.	**09/17/96**	**09/17/96**	**HSA**

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		MW1	Feet MSL	Feet MSL	**8.0** Inches

Boring Location
1/4 of 1/4 of Section T N,R
Lat ° ' "
Long ° ' "

Local Grid Location (If applicable)
Feet ☐ N ☐ S Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
MILWAUKEE	**41**	**MILWAUKEE**

Sample Number	Sample Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log / Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1			1–4	TOPSOIL:SILTY SAND - damp, loose, dark brown (10YR 2/2).	SM		15						
2	1	11	5–8	LEAN CLAY - damp, stiff, dark gray (10YR 3/1).	CL		150	11					
3	18	27	9–13	POORLY GRADED SAND WITH SILT - moist, dense, dark grayish brown (10YR 3/2).	SP SM		175	27					
4	18	32	14–19	POORLY GRADED SAND - moist to wet, dense, dark grayish brown (10YR 4/2), paint solvent odor.	SP		25	32					
5	15	15	20–24	...wet.	SP		450	15					
6	15		25–26		SP		200						

NOTES:
1) End of boring at 26.5 feet.
2) Monitoring Well MW1 constructed at completion.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Kristine K. Shillinglaw

Firm: Miller Engineers & Scientists
5308 South 12th Street, Sheboygan, WI 53081
Tel: (414)458-6164 Fax: (414)458-0369

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

ıe of Wisconsin
partment of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ■ Brownfield Pilot

MONITORING WELL CONSTRUCTION
Form 4400-113A
Rev. 4-90

ility/Project Name: Mobile Blasting	Local Grid Location of Well: ____ ft. ☐N ☐S ____ ft. ☐E ☐W	Well Name: MW1
ility License, Permit or Monitoring Number:	Grid Origin Location: Lat. ____ Long. ____ or St. Plane ____ ft. N. ____ ft. E.	Wis. Unique Well Number: DNR Well Number:
e of Well: Water Table Observation Well ■ 11; Piezometer ☐ 12		Date Well Installed: 09/17/96 (m m d d y y)
ance Well Is From Waste/Source Boundary: ____ ft.	Section Location of Waste/Source: ____ 1/4 of ____ 1/4 of Sec. ____ T. ____ N. R. ____ ☐E ☐W	Well Installed By: (Person's Name and Firm): Arvin Erickson; Miller Engineers
Well A Point of Enforcement Std. Application? ■ Yes ☐ No	Location of Well Relative to Waste/Source: u ☐ Upgradient; s ☐ Sidegradient; d ☐ Downgradient; n ■ Not Known	

Protective pipe, top elevation 69.59 ft. MSL (City Datum)
Well casing, top elevation 69.39 ft. MSL
and surface elevation 67.2 ft. MSL
urface seal, bottom ____ ft. MSL or 0.5 ft.

USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ■
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ☐ No

Drilling method used: Rotary ☐ 50; Hollow Stem Auger ■ 41; Other ☐

Drilling fluid used: Water ☐ 02; Air ☐ 01; Drilling Mud ☐ 03; None ☐ 99

Drilling additives used? ☐ Yes ☐ No

Describe ____

Source of water (attach analysis): ____

ntonite seal, top ____ ft. MSL or 0.5 ft.
e sand, top ____ ft. MSL or 9.0 ft.
er pack, top ____ ft. MSL or 10.0 ft.
een joint, top ____ ft. MSL or 11.5 ft.
l bottom ____ ft. MSL or 21.5 ft.
er pack, bottom ____ ft. MSL or 24.0 ft.
ehole, bottom ____ ft. MSL or 24.0 ft.

hole, diameter 10 in.
D. well casing 2.34 in.
well casing 2.00 in.

1. Cap and lock? ■ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ■ 04; Other ☐
d. Additional protection? ☐ Yes ■ No
If yes, describe: ____
3. Surface seal: Bentonite ☐ 30; Concrete ☐ 01; Soil Other ☐
4. Material between well casing and protective pipe: Bentonite ■ 30; Annular space seal ☐; Other ☐
5. Annular space seal: a. Granular Bentonite ☐ 33; b. ____ Lbs/gal mud weight ... Bentonite-sand slurry ☐ 35; c. ____ Lbs/gal mud weight ..... Bentonite slurry ☐ 31; d. ____ % Bentonite ..... Bentonite-cement grout ☐ 50; e. ____ Ft³ volume added for any of the above; f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ■ 03
6. Bentonite seal: a. Bentonite granules ☐ 33; b. ☐1/4 in. ☐3/8 in. ☐1/2 in. Bentonite pellets ☐ 32; c. 3/8" Hole Plug - 43255 Other ☐
7. Fine sand material: Manufacturer, product name & mesh size: a. ½ Bag.; b. Volume added 0.24 ft³
8. Filter pack material: Manufacturer, product name and mesh size: a. ____; b. Volume added 1.7 ft³ 3½ Bags
9. Well casing: Flush threaded PVC schedule 40 ■ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐
10. Screen material: PVC
a. Screen type: Factory cut ■ 11; Continuous slot ☐ 01; Other ☐
b. Manufacturer ____
c. Slot size: 0.010 in.
d. Slotted length: 13.0 ft.
11. Backfill material (below filter pack): None ☐ 14; Other ☐

I certify that the information on this form is true and correct to the best of my knowledge.

Name: Kristine K. Gallagher | Firm: Miller Engineers & Scientists

Complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than ... each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each ... NOTE: Shaded areas are for DNR use only. See instructions for more information including ...

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☒ Other **Brownsfield**

Soil Boring Log Information

Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Mobile Blasting		MW2

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Miller Engineers & Scientists. Chief Driller Arvin Broehm.	09/17/96	09/17/96	HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		MW1	Feet MSL	Feet MSL	8.0 Inches

Boring Location
1/4 of 1/4 of Section T N,R
Lat ° ' "
Long ° ' "
Local Grid Location (If applicable)
Feet ☐ N ☐ S Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
MILWAUKEE	41	MILWAUKEE

Sample Number	Sample Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	18	19	5	LEAN CLAY - moist, stiff, yellowish brown (10YR 5/4).	CL			0	19					
2	18	15	10	SILTY CLAY - moist, stiff, grayish brown (10YR 5/2).	CL CL ML			0	15					
3	15	19	15	POORLY GRADED SAND - wet, dense, grayish brown (10YR 5/2).	SP			45	19					
	20	12	20	...strong paint solvent odor.	SP			220	12					
			21	SILTY CLAY - wet, stiff, grayish brown (10YR 5/2).	CL ML									
			23	NOTES: 1) End of boring at 23 feet. 2) Monitoring Well MW2 constructed at completion.										

reby certify that the information on this form is true and correct to the best of my knowledge.

ature Kristin K. Gallagher

Firm Miller Engineers & Scientists
5308 South 12th Street, Sheboygan, WI 53081
Tel: (414)458-6164 Fax: (414)458-0369

form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of nued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

isconsin
t of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ■ Brownfield pilot

MONITORING WELL CONSTRUCTION
Form 4400-113A
Rev. 4-90

oject Name: Mobile Blasting	Local Grid Location of Well: ____ ft. ☐N ☐S ____ ft. ☐E ☐W	Well Name: MW2
ense, Permit or Monitoring Number: _____	Grid Origin Location: Lat. ____ Long. ____ or St. Plane ____ ft. N. ____ ft. E.	Wis. Unique Well Number: DNR Well Number:
ll: Water Table Observation Well ■ 11 Piezometer ☐ 12	Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___T. ___N. R. ___ ☐E ☐W	Date Well Installed: 09/17/96 (m m d d y y)
ell Is From Waste/Source Boundary: ____ ft.	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Well Installed By: (Person's Name and Firm) Aryn Brehm / Miller Engineers
Point of Enforcement Std. Applicable? ☐ Yes ☐ No		

ve pipe, top elevation 71.36 ft. ~~MSL~~ City Datum
ring, top elevation 71.54 ft. ~~MSL~~
face elevation 70.4 ft. ~~MSL~~
seal, bottom _____ ft. MSL or 0.5 ft.

classification of soil near screen:
GM ☐ GC ☐ GW ☐ SW ☐ SP ■
SC ☐ ML ■ MH ☐ CL ■ CH ☐
k ☐

nalysis attached? ☐ Yes ■ No

g method used: Rotary ☐ 50
Hollow Stem Auger ■ 41
Other ☐

g fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ■ 99

g additives used? ☐ Yes ☐ No

pe _____
of water (attach analysis):

e seal, top _____ ft. MSL or 0.5 ft.
d, top _____ ft. MSL or 10.0 ft.
ck, top _____ ft. MSL or 11.0 ft.
oint, top _____ ft. MSL or 12.0 ft.
tom _____ ft. MSL or 22.0 ft.
ck, bottom _____ ft. MSL or 23.0 ft.
, bottom _____ ft. MSL or 30 ft.
, diameter 8.0 in.
ell casing 2.34 in.
l casing 2.00 in.

1. Cap and lock? ■ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ■ 04 Other ☐ _____
d. Additional protection? ☐ Yes ■ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 30 Concrete ☐ 01 Other ■ Soil
4. Material between well casing and protective pipe: Bentonite ■ 30 Annular space seal ☐ Other ☐ _____
5. Annular space seal: a. Granular Bentonite ☐ 33
b. _____ Lbs/gal mud weight ... Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight ..... Bentonite slurry ☐ 31
d. _____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. _____ Ft³ volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ■ 03
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☐3/8 in. ☐1/2 in. Bentonite pellets ☐ 32
c. Bentonite Hole Plug 3 Bag Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. _____
b. Volume added 0.24 ft³ 1/2 Bag
8. Filter pack material: Manufacturer, product name and mesh size
a. _____
b. Volume added 3.7 ft³ 6 1/2 Bag
9. Well casing: Flush threaded PVC schedule 40 ■ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ _____
10. Screen material: PVC
a. Screen type: Factory cut ■ 11 Continuous slot ☐ 01 Other ☐ _____
b. Manufacturer _____
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☐ 14 Other ☐ _____

I certify that the information on this form is true and correct to the best of my knowledge.

Kristine Gallagher — Firm: Miller Engineers & Scientists

Complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than $10. nor more than $1000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

: of Wisconsin
.rtment of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☒ Other Brownsfield

Soil Boring Log Information
Form 4400-122 7-91

ty/Project Name	License/Permit/Monitoring Number	Boring Number
bile Blasting		MW3

Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
ler Engineers & Scientists. Chief Driller Arvin Broehm.	09/17/96	09/17/96	HSA

Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		MW1	Feet MSL	Feet MSL	8.0 Inches

Location	Lat ° ' "	Local Grid Location (If applicable)
1/4 of 1/4 of Section T N,R	Long ° ' "	Feet ☐ N ☐ S Feet ☐ E ☐ W

	DNR County Code	Civil Town/City/ or Village
.WAUKEE	41	MILWAUKEE

ıple Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
4		1–5	SILTY, CLAYEY SAND - moist, dense, dark brown (10YR 3/2).	SC SM									
18	11	6–10	LEAN CLAY - moist, stiff, brown (10YR 5/3), very fractured, mottled.	CL			200	11					
20	3	11–15	SILTY CLAY - wet, loose, grayish brown (10YR 4/2).	CL ML			140 175	3					
		16–17	POORLY GRADED SAND - wet, loose, grayish brown (10YR 4/2), gasoline odor.	SP									
15	14	18–20	SILTY SAND	SM			450	14					
		21	NOTES: 1) End of boring at 21.5 feet. 2) Monitoring Well MW3 constructed at completion.										

tify that the information on this form is true and correct to the best of my knowledge.

Kristine K. Gallagher

Firm: Miller Engineers & Scientists
5308 South 12th Street, Sheboygan, WI 53081
Tel: (414)458-6164 Fax: (414)458-0369

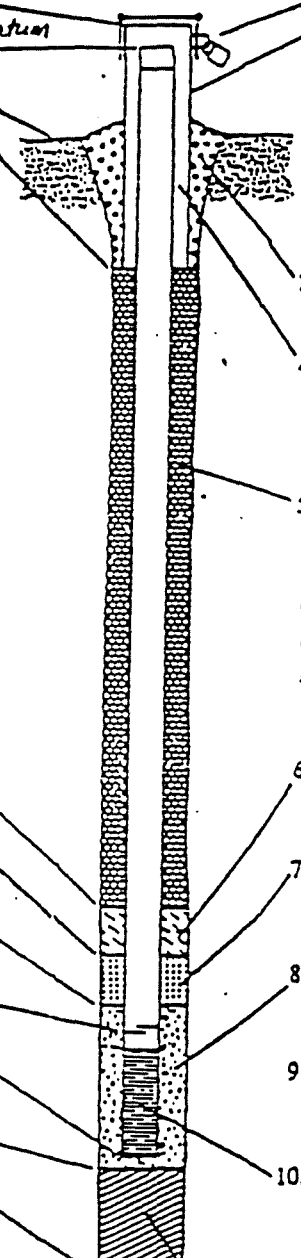
authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of lation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

f Wisconsin
ment of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Project Name: Mobile Blasting	Local Grid Location of Well: _____ ft. ☐N ☐S _____ ft. ☐E ☐W	Well Name: MW3
License, Permit or Monitoring Number: _____	Grid Origin Location: Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number: DNR Well Number:
Well: Water Table Observation Well ■ 11; Piezometer ☐ 12	Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___ T. ___ N. R. ___ ☐E ☐W	Date Well Installed: 09/17/96 (mm/dd/yy)
e Well Is From Waste/Source Boundary: _____ ft.	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient; d ☐ Downgradient n ■ Not Known	Well Installed By: (Person's Name and Firm): Arvin Brochm; Miller Engineers
A Point of Enforcement Std. Applicanon? ■ Yes ☐ No		



ective pipe, top elevation 71.48 ft. MSL (City Datum)
casing, top elevation 71.54 ft. MSL
surface elevation 69.1 ft. MSL
ite seal, bottom _____ ft. MSL or _____ ft.

CS classification of soil near screen:
☐ GM ☐ GC ☐ GW ☐ SW ■ SP ☐
■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
rock ☐

e analysis attached? ☐ Yes ☐ No

ling method used: Rotary ☐ 50; Hollow Stem Auger ■ 41; Other ☐ _____

ing fluid used: Water ☐ 02; Air ☐ 01; Drilling Mud ☐ 03; None ■ 99

ing additives used? ☐ Yes ☐ No

ribe _____

ce of water (attach analysis): _____

ite seal, top	ft. MSL or 05	ft.
nd, top	ft. MSL or 85	ft.
ack, top	ft. MSL or 100	ft.
joint, top	ft. MSL or 120	ft.
ttom	ft. MSL or 220	ft.
ack, bottom	ft. MSL or 225	ft.
e, bottom	ft. MSL or 225	ft.
r diameter	8.0	in.
ell casing	2.34	in.
l casing	2.00	in.

1. Cap and lock? ■ Yes ☐ No
2. Protective cover pipe:
   a. Inside diameter: 4.0 in.
   b. Length: 7.0 ft.
   c. Material: Steel ■ 04; Other ☐ _____
   d. Additional protection? ☐ Yes ☐ No
   If yes, describe: _____
3. Surface seal: Bentonite ☐ 30; Concrete ☐ 01; Soil; Other ☐ _____
4. Material between well casing and protective pipe: Bentonite ■ 30; Annular space seal ☐ _____; Other ☐ _____
5. Annular space seal: a. Granular Bentonite ☐ 33
   b. _____ Lbs/gal mud weight ... Bentonite-sand slurry ☐ 35
   c. _____ Lbs/gal mud weight ..... Bentonite slurry ☐ 31
   d. _____ % Bentonite ..... Bentonite-cement grout ☐ 50
   e. _____ Ft^3 volume added for any of the above
   f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ■ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
   b. ☐1/4 in. ☐3/8 in. ☐1/2 in. Bentonite pellets ☐ 32
   c. 3/4" Hole Plug 4 Bags Other ☐ _____
7. Fine sand material: Manufacturer, product name & mesh size
   a. _____
   b. Volume added 0.24 ft^3 ½ Bag
8. Filter pack material: Manufacturer, product name and mesh size
   a. _____
   b. Volume added 2.9 ft^3 3 Bags
9. Well casing: Flush threaded PVC schedule 40 ■ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐ _____
10. Screen material: PVC
    a. Screen type: Factory cut ■ 11; Continuous slot ☐ 01; Other ☐ _____
    b. Manufacturer _____
    c. Slot size: 0.010 in.
    d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ■ 14; Other ☐ _____

certify that the information on this form is true and correct to the best of my knowledge.

Kristen Gallagher — Firm: Miller Engineers & Scientists

ete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than ach day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each tion. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

APPENDIX C

Data Summary Tables

for

Groundwater Samples (Collected during Round 2)

VOLATILE ORGANIC ANALYSIS - GROUNDWATER PAGE 1 OF 2

Sample Description	LOW	MW1	MW2	MW3	MW3	RINSATE	TRIP
Sample Location ID	WATER QL	S01	S02	S03	D03	R01	R02
Number of TIC's	ug/l	12	12	12	12	0	0
Chloromethane	1	U	U	U	U	U	U
Vinyl chloride	1	U	U	U	U	U	U
Bromomethane	1	U	U	U	U	U	U
Chloroethane	1	U	U	U	U	U	U
1,1-Dichloroethene	1	U	U	U	U	U	U
Acetone	3	7 JB	7 JB	8 JB	7 JB	7 JB	8 JB
Carbon disulfide	1	U	U	0.9 J	0.8 J	U	U
Methylene chloride	1	U	U	U	U	U	U
trans-1,2-Dichloroethene	1	U	U	U	U	U	U
1,1-Dichloroethane	1	U	U	U	U	U	U
2,2-Dichloropropane	1	U	U	U	U	U	U
cis-1,2-Dichloroethene	1	U	U	U	U	U	U
2-Butanone	3	U	U	U	2 JB	3	4
Bromochloromethane	1	U	U	U	U	U	U
Chloroform	1	U	U	U	U	U	U
1,1,1-Trichloroethane	1	U	U	U	U	U	U
Carbon tetrachloride	1	U	U	U	U	U	U
1,1-Dichloropropene	1	U	U	U	U	U	U
Benzene	1	3	1	1	1	U	U
1,2-Dichloroethane	1	U	U	U	U	U	U
Trichloroethene	1	U	U	U	U	U	U
1,2-Dichloropropane	1	U	U	U	U	U	U
Dibromomethane	1	U	U	U	U	U	U
Bromodichloromethane	1	U	U	U	U	U	U
cis-1,3-Dichloropropene	1	U	U	U	U	U	U
Toluene	1	UJ	12 J	UJ	UJ	UJ	UJ
4-Methyl-2-pentanone	2	U	U	U	U	U	U
trans-1,3-Dichloropropene	1	U	U	U	U	U	U
Tetrachloroethene	1	U	U	U	U	U	U
1,1,2-Trichloroethane	1	U	U	U	U	U	U

DATA QUALIFIER DEFINITIONS (ORGANIC)
U The material was analyzed for, but not detected.
J The associated numerical value is an estimated quantity.
R The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
D The sample has been diluted.
E The concentration of the compound has exceeded the linear range of the instrument.
B This contaminant was also present in the blank.

Sample Description	LOW	MW1	MW2	MW3	MW3	RINSATE	TRIP
Sample Location ID	WATER QL	S01	S02	S03	D03	R01	R02
Number of TIC's	ug/l	12	12	12	12	0	0
1,3-Dichloropropane	1	U	U	U	U	U	U
2-Hexanone	2	U	U	U	U	U	U
Dibromochloromethane	1	U	U	U	U	U	U
1,2-Dibromoethane	1	U	U	U	U	U	U
Chlorobenzene	1	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	1	U	U	U	U	U	U
Ethylbenzene	1	U	10	43 D	40 D	U	U
m &/or p-Xylene	1	U	23	22	20	U	U
o-Xylene	1	U	19	4	4	U	U
Styrene	1	U	U	U	U	U	U
Bromoform	1	U	U	U	U	U	U
Isopropylbenzene	1	0.9 J	2	4	4	U	U
Bromobenzene	1	U	U	U	U	U	U
1,2,3-Trichloropropane	1	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	1	UJ	UJ	UJ	UJ	UJ	UJ
n-Propylbenzene	1	1	2	14	13	U	U
2-Chlorotoluene	1	U	U	U	U	U	U
4-Chlorotoluene	1	U	U	U	U	U	U
1,3,5-Trimethylbenzene	1	0.6 J	9	20	19	U	U
tert-Butylbenzene	1	U	U	U	U	U	U
1,2,4-Trimethylbenzene	1	U	42 D	30 D	28 D	U	U
sec-Butylbenzene	1	U	1 J	1	1	U	U
1,3-Dichlorobenzene	1	U	U	U	U	U	U
1,4-Dichlorobenzene	1	U	U	U	U	U	U
p-Isopropyltoluene	1	U	3	0.7 J	0.7 J	U	U
1,2-Dichlrorobenzene	1	U	U	U	U	U	U
n-Butylbenzene	1	U	U	U	U	U	U
1,2-Dibromo-3-chloropropane	1	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	1	U	U	U	U	U	U
Naphthalene	1	26 D	200 D	360 D	360 D	U	U
Hexachlorobutadiene	1	U	U	U	U	U	U
1,2,3-Trichlorobenzene	1	U	U	U	U	U	U

DATA QUALIFIER DEFINITIONS (ORGANIC)
U The material was analyzed for, but not detected.
J The associated numerical value is an estimated quantity.
R The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
D The sample has been diluted.
E The concentration of the compound has exceeded the linear range of the instrument.
B This contaminant was also present in the blank.

Sample Location ID	LOW	S01	S02	S03	D03	R01
Sample Description	WATER	NE Mobile	SW Mobile	NE Siwyer	Duplicate	Rinse
Traffic Report No.	QL	EBKG8	EBKG9	EBKH0	EBKH1	EBKH2
Number of TICs	ug/l	22 TICs	22 TICs	23 TICs	23 TICs	3 TICs
Date Sampled		10-15-96	10-15-96	10-15-96	10-15-96	10-15-96
Phenol	10	U	U	U	U	U
bis(-2-Chloroethyl)ether	10	U	U	U	U	U
2-Chlorophenol	10	U	U	U	U	U
1,3-Dichlorobenzene	10	U	U	U	U	U
1,4-Dichlorobenzene	10	U	U	U	U	U
1,2-Dichlorobenzene	10	U	U	U	U	U
2-Methylphenol	10	U	U	U	U	U
2,2' oxybis (1-Chloropropane)	10	U	U	U	U	U
4-Methylphenol	10	U	U	U	U	U
N-Nitroso-di-n-propylamine	10	UJ	UJ	UJ	UJ	UJ
Hexachloroethane	10	U	U	U	U	U
Nitrobenzene	10	U	U	U	U	U
Isophorone	10	U	U	U	U	U
2-Nitrophenol	10	U	U	U	U	U
2,4-Dimethelphenol	10	U	U	U	U	U
bis(2-Chloroethoxy)methane	10	UR	UR	UR	UR	UR
2,4-Dichlorophenol	10	U	U	U	U	U
1,2,4-Trichlorobenzene	10	U	U	U	U	U
Naphthalene	10	19	U	55	58	U
4-Chloroaniline	10	UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	10	U	U	U	U	U
4-Chloro-3-methylphenol	10	U	U	U	U	U
2-Methylnaphthalene	10	22	37	86	89	U
Hexachlorocyclopentadiene	10	U	U	U	U	U
2,4,6-Trichlorophenol	10	U	U	U	U	U
2,4,5-Trichlorophenol	25	U	U	U	U	U
2-Chloronaphthalene	10	U	U	U	U	U
2-Nitroaniline	25	U	U	U	U	U
Dimethylphthalate	10	U	U	U	U	U
Acenaphthylene	10	U	U	U	U	U
2,6-Dinitrotoluene	10	U	U	U	U	U
3-Nitroaniline	25	U	U	U	U	U
Acenaphthene	10	U	4 J	5	6	U

DATA QUALIFIER DEFINITIONS (ORGANIC)	
U	The material was analyzed for, but not detected.
J	The associated numerical value is an estimated quantity.
R	The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
N	Presumtive evidence of presence of material.
NJ	Presumtive evidence of the presence of the material at an estimated quantity.
UJ	The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
D	The sample has been diluted.
E	The concentration of the compound has exceeded the linear range of the instrument.
X	In the pesticide fraction, denotes manually entered data.
P	This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
B	This contaminant was also present in the blank. .

Sample Description	LOW	S01	S02	S03	D03	R01
Sample Location ID	WATER	NE Mobile	SW Mobile	NE Slyver	Duplicate	Rinse
Traffic Report No.	QL	EBKG8	EBKG9	EBKH0	EBKH1	EBKH2
Number of TIC's	ug/l	22 TICs	22 TICs	23 TICs	23 TICs	3 TICs
Date Sampled		10-15-96	10-15-96	10-15-96	10-15-96	10-15-96
2,4-Dinitrophenol	25	U	U	U	U	U
4-Nitrophenol	25	U	U	U	U	U
Dibenzofuran	10	U	6	4 J	U	U
2,4-Dinitrotoluene	10	U	U	U	4 J	U
Diethylphthalate	10	U	U	U	U	U
4-Chlorophenyl-phenylether	10	U	U	U	U	U
Fluorene	10	U	5	4 J	5 J	U
4-Nitroaniline	25	U	U	U	U	U
4,6-Dinitro-2-Methylphenol	25	UJ	UJ	UJ	UJ	UJ
N-Nitrosodiphenylamine (1)	10	UJ	UJ	UJ	UJ	UJ
4-Bromophenyl-phenylether	10	U	U	U	U	U
Hexachlorobenzene	10	UJ	UJ	UJ	UJ	UJ
Pentachlorophenol	25	U	U	U	U	U
Phenanthrene	10	U	5	3 J	3 J	U
Anthracene	10	U	U	U	U	U
Carbazole	10	U	1 J	U	U	U
Di-n-Butylphthalate	10	UB	UB	UB	UB	UB
Fluoranthene	10	U	U	U	U	U
Pyrene	10	U	U	U	U	U
Butylbenzylphthalate	10	U	U	U	U	U
3,3'-Dichlorbenzidine	10	UR	UR	UR	UR	UR
Benzo(a)anthracene	10	U	U	U	U	U
Chrysene	10	U	U	U	U	U
bis(2-ethylhexyl)phthalate	10	UB	2 BJ	3 BJ	4 BJ	1 BJ
Di-N-Octyl Phthalate	10	U	U	U	U	U
Benzo(b)fluoranthene	10	U	U	U	U	U
Benzo(k)fluoranthene	10	U	U	U	U	U
Benzo(a)Pyrene	10	U	U	U	U	U
Ideno(1,2,3-cd)pyrene	10	U	U	U	U	U
Dibenz(a,h)anthracene	10	U	U	U	U	U
Benzo(g,h,i)peryfene	10	U	U	U	U	U

(1) Can not be separated from Diphenylamine

DATA QUALIFIER DEFINITIONS (ORGANIC)
U The material was analyzed for, but not detected.
J The associated numerical value is an estimated quantity.
R The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
N Presumtive evidence of presence of material.
NJ Presumtive evidence of the presence of the material at an estimated quantity.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
D The sample has been diluted.
E The concentration of the compound has exceeded the linear range of the instrument.
X In the pesticide fraction, denotes manually entered data.
P This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
B This contaminant was also present in the blank.

Sample Description Sample Location ID Traffic Report No. pH	LOW WATER CRQL	MW1 S01	MW2 S02	MW3 S03	MW3 D03	RINSATE R01
alpha-BHC	0.01	U	U	U	U	U
beta-BHC	0.01	U	U	U	U	U
delta-BHC	0.01	U	U	U	U	U
gamma-BHC (Lindane)	0.01	U	U	U	U	U
Heptachlor	0.01	U	U	U	U	U
Aldrin	0.01	U	U	U	U	U
Heptachlor epoxide	0.01	U	U	U	U	U
Endosulfan I	0.01	U	U	U	U	U
Dieldrin	0.02	U	U	U	U	U
4,4'-DDE	0.02	U	U	U	U	U
Endrin	0.02	U	U	U	U	U
Endosulfan II	0.02	U	U	U	U	U
4,4'-DDD	0.02	U	U	U	U	U
Endosulfan sulphate	0.02	U	U	U	U	U
4,4'-DDT	0.02	U	U	U	U	U
Methoxychlor	0.1	U	U	U	U	U
Endrin keytone	0.02	U	U	U	U	U
alpha-Chlordane	0.01	U	U	U	U	U
Endrin Aldehyde	0.02	U	U	U	U	U
Chlordane-Technical	0.2	U	U	U	U	U
gamma-Chlordane	0.01	U	U	U	U	U
Toxaphene	1	U	U	U	U	U
Arochlor-1016	0.2	U	U	U	U	U
Arochlor-1221	0.2	U	U	U	U	U
Arochlor-1232	0.2	U	U	U	U	U
Arochlor-1242	0.2	U	U	U	U	U
Arochlor-1248	0.2	U	U	U	U	U
Arochlor-1254	0.2	U	U	U	U	U
Arochlor-1260	0.2	U	U	U	U	U

DATA QUALIFIER DEFINITIONS (ORGANIC)	
U	The material was analyzed for, but not detected.
J	The associated numerical value is an estimated quantity.
R	The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification
N	Presumtive evidence of presence of material.
NJ	Presumtive evidence of the presence of the material at an estimated quantity.
UJ	The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
D	The sample has been diluted.
E	The concentration of the compound has exceeded the linear range of the instrument.
X	In the pesticide fraction, denotes manually entered data.
P	This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
B	This contaminant was also present in the blank.

Sample Description	LOW WATER	MW1	MW2	MW3	MW3	RINSATE
Sample Location ID	DL (ug/l)	S01	S02	S03	D03	R01
Aluminum	80	U	U	U	U	U
Antimony	1	U	U	U	U	U
Arsenic	2	U	U	U	U	U
Barium	6	255	199	118	120	U
Beryllium	2	U	U	U	U	U
Cadmium	0.2	U	U	U	U	U
Calcium	500	147000	113000	113000	114000	U
Chromium	10	U	U	U	U	U
Cobalt	6	U	U	U	U	U
Copper	6	U	U	U	U	U
Iron	80	8400	173	1060	711	U
Lead	2	U	11	U	2	U
Magnesium	100	50200	54700	31600	32100	U
Manganese	5	114	181	178	187	U
Mercury	0.1	U	U	U	U	U
Nickel	20	U	U	U	U	U
Potassium	5000	5110	U	U	U	U
Selenium	2	U	U	U	U	U
Silver	6	U	U	U	U	U
Sodium	1000	25000	26800	14400	14700	U
Thallium	2	U	U	U	U	U
Vanadium	5	U	U	8.5	8.4	U

DATA QUALIFIER DEFINITIONS (INORGANIC):
U The material was analyzed for, but none was detected above the IDL.
J The associated value is an estimated quantity.
R The data are unusable. (Note: Analyte may or may not be present.)
UJ The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

APPENDIX D

Data Summary Tables

for

Round 1 Soil Samples

SAMPLE NUMBER		S01	S01B	S02	S02B	S03	S03B	S04
% SOLID		97	81	94	90	94	92	94
COMPOUND	LOD ug/g, dry	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION
Acetone	0.25	ND	ND	ND	ND	ND	ND	ND
Allyl chloride	0.25	ND	ND	ND	ND	ND	ND	ND
Benzene	0.025	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	0.025	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	0.025	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	0.025	ND	ND	ND	ND	ND	ND	ND
Bromoform	0.025	ND	ND	ND	ND	ND	ND	ND
Bromomethane	0.025	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	0.025	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	0.025	**0.13**	**4.9**	ND	ND	ND	ND	ND
tert-Butylbenzene	0.025	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	0.25	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	0.025	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	0.025	ND	ND	ND	ND	ND	ND	ND
Chloroethane	0.025	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	0.25	ND	ND	ND	ND	ND	ND	ND
Chloroform	0.025	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	0.025	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	0.025	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	0.025	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.25	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.025	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	0.025	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.025	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.025	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.025	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.025	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.025	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	0.025	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	0.025	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	0.025	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.025	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.025	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	0.025	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	0.025	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.025	ND	ND	ND	ND	ND	ND	ND

LOD - Level of detection, dry weight basis.
ND - Not detected at or above the LOD.

SAMPLE NUMBER		S01	S01B	S02	S02B	S03	S03B	S04
% SOLID		97	81	94	90	94	92	94
COMPOUND	LOD ug/g, dry	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION
trans-1,3-Dichloropropene	0.025	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.025	**0.088**	ND	**0.053**	ND	ND	ND	ND
Hexachlorobutadiene	0.025	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	0.25	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	0.25	ND	ND	ND	ND	ND	ND	ND
Isopropylether	0.25	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	0.025	**0.044**	**1.6**	**0.057**	ND	ND	ND	ND
p-Isopropyltoluene	0.025	**0.062**	ND	ND	ND	ND	ND	ND
Methylene chloride	0.025	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone	0.25	ND	ND	ND	ND	ND	ND	ND
Methyliodide	0.25	ND	ND	ND	ND	ND	ND	ND
Methylmethacrylate	0.25	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	0.25	ND	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl ether	0.25	ND	ND	ND	ND	ND	ND	ND
Naphthalene	0.025	**0.83**	**21**	**0.80**	**0.34**	**0.40**	**1.2**	**0.59**
n-Propylbenzene	0.025	**0.17**	**3.4**	**0.034**	ND	ND	ND	ND
Styrene	0.025	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.025	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.025	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	0.025	ND	ND	ND	ND	ND	ND	ND
Tetrahydrofuran	0.25	ND	ND	ND	ND	ND	ND	ND
Toluene	0.025	**0.30**	**0.04**	**0.044**	**0.084**	**0.028**	ND	ND
1,2,3-Trichlorobenzene	0.025	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.025	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.025	**0.057**	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.025	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	0.025	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.025	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0.025	ND	ND	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	0.25	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.025	**0.39**	**4.4**	**0.097**	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.025	**0.28**	**2.2**	**0.11**	ND	ND	ND	ND
Vinyl acetate	0.25	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	0.025	ND	ND	ND	ND	ND	ND	ND
m/p-Xylene	0.025	**0.23**	**0.27**	**0.053**	**0.037**	ND	ND	ND
o-Xylene	0.025	**0.11**	**0.41**	**0.050**	ND	ND	ND	ND

LOD - Level of detection, dry weight basis.
ND - Not detected at or above the LOD.

SAMPLE # / QTR #		S01	EXA54		S01B	EXA55		S02	EXA56		S02B	EXA57		S03	EXA58		S03B	EXA59		S04	EXA60	
% SOLID / pH / # OF TICS	LOW	98	6.9	25	79	6.8	20	95	7.3	28	86	7.6	0	94	10.2	29	92	8.9	28	95	7.6	28
SAMPLE DESCRIPTION	SOIL																					
	CRQL	SAMPLE	SAMPLE		SAMPLE	SAMPLE		SAMPLE	SAMPLE		SAMPLE	SAMPLE		SAMPLE	SAMPLE		SAMPLE	SAMPLE		SAMPLE	SAMPLE	
	ug/Kg	CRQL	CONCENTRATION		CRQL	CONCENTRATION		CRQL	CONCENTRATION		CRQL	CONCENTRATION		CRQL	CONCENTRATION		CRQL	CONCENTRATION		CRQL	CONCENTRATION	
Phenol	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
bis(2-Chloroethyl)Ether	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
2-Chlorophenol	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
1,3-Dichlorobenzene	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
1,4-Dichlorobenzene	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
1,2-Dichlorobenzene	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
2-Methylphenol	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
2,2'-oxybis(1-Chloropropane)	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
4-Methylphenol	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	10	J
N-Nitroso-Di-n-Propylamine	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
Hexachloroethane	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
Nitrobenzene	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
Isophorone	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
2-Nitrophenol	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
2,4-Dimethylphenol	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
bis(2-Chloroethoxy)Methane	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
2,4-Dichlorophenol	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
1,2,4-Trichlorobenzene	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
Naphthalene	330	340	53	J	2100	3200		350	60	J	380	U		350	12	J	360	19	U	350	58	J
4-Chloroaniline	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
Hexachlorobutadiene	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
4-Chloro-3-Methylphenol	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
2-Methylnaphthalene	330	340	120	J	2100	3800		350	740		380	9	J	350	90	J	380	53	J	350	780	
Hexachlorocyclopentadiene	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
2,4,6-Trichlorophenol	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
2,4,5-Trichlorophenol	800	850	U		5000	UJ		870	U		960	U		880	U		900	U		870	U	
2-Chloronaphalene	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
2-Nitroaniline	800	850	U		5000	UJ		870	U		960	U		880	U		900	U		870	U	
Dimethylphthalate	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
Acenaphthylene	330	340	31	J	2100	UJ		350	28	J	380	U		350	U		360	24	J	350	28	J
2,6-Dinitrotoluene	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
3-Nitroaniline	800	850	U		5000	UJ		870	U		960	U		880	U		900	U		870	U	
Acenaphthene	330	340	6	J	2100	UJ		350	71	J	380	U		350	U		360	36	J	350	69	J

DATA QUALIFIER DEFINITIONS (ORGANIC)

- **U** The material was analyzed for, but not detected.
- **J** The associated numerical value is an estimated quantity.
- **R** The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- **N** Presumtive evidence of presence of material.
- **NJ** Presumtive evidence of the presence of the material at an estimated quantity.
- **UJ** The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- **D** The sample has been diluted.
- **E** The concentration of the compound has exceeded the linear range of the instrument.
- **X** In the pesticide fraction, denotes manually entered data.
- **P** This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
- **B** This contaminant was also present in the blank.

SAMPLE # / OTR #		S01	EXA54		S01B	EXA55		S02	EXA56		S02B	EXA57		S03	EXA58		S03B	EXA59		S04	EXA60	
% SOLID / pH / # OF TICS	LOW	98	6.9	28	79	6.8	20	95	7.3	28	86	7.6	0	94	10.2	29	92	8.9	28	95	7.6	28
SAMPLE DESCRIPTION	SOIL																					
	CRQL	sample	sample		sample	sample		sample	sample		sample	sample		sample	sample		sample	sample		sample	sample	
	ug/l	CRQL	concentration		CRQL	concentration		CRQL	concentration		CRQL	concentration		CRQL	concentration		CRQL	concentration		CRQL	concentration	
2,4-Dinitrophenol	800	850	U		5000	UJ		870	U		960	U		880	U		900	U		870	U	
4-Nitrophenol	800	850	U		5000	UJ		870	U		960	U		880	U		900	U		870	U	
Dibenzofuran	330	340	23	J	2100	UJ		350	100	J	380	U		350	U		360	43	J	350	110	J
2,4-Dinitrotoluene	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
Diethylphthalate	330	340	JBU		2100	UJ		350	JBU		380	JBU		350	JBU		360	JBU		350	JBU	
4-Chlorophenyl-phenylether	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
Fluorene	330	340	U		2100	UJ		350	26	J	380	U		350	U		360	35	J	350	20	J
4-Nitroaniline	800	850	U		5000	UJ		870	U		960	U		880	U		900	U		870	U	
4,6-Dinitro-2-methylphenol	800	850	U		5000	UJ		870	U		960	U		880	U		900	U		870	U	
N-Nitrosodiphenylamine (1)	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
4-Bromophenyl-phenylether	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
Hexachlorobenzene	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
Pentachlorophenol	800	850	U		5000	UJ		870	U		960	U		880	U		900	U		870	U	
Phenanthrene	330	340	120	J	2100	3800	J	350	410		380	5	J	350	580		360	1400		350	420	
Anthracene	330	340	30	J	2100	1700	J	350	65	J	380	U		350	63	J	360	150	J	350	57	J
Carbazole	330	340	13	J	2100	UJ		350	37	J	380	U		350	53	J	360	210	J	350	28	J
Di-n-Butylphthalate	330	340	JBU		2100	UJ		350	JBU		380	JBU		350	JBU		360	JBU		350	JBU	
Fluoranthene	330	340	110	J	2100	UJ		350	580		380	10	J	350	510		360	2100		350	560	
Pyrene	330	340	JBU		2100	JBU		350	430	B	380	JBU		350	480	B	360	1800	B	350	530	B
Butylbenzylphthalate	330	340	U		2100	U		350	U		380	U		350	U		360	U		350	U	
3,3'Dichlorobenzidine	330	340	U		2100	UJ		350	U		380	U		350	U		360	U		350	U	
Benzo(a)Anthracene	330	340	83	J	2100	730	J	350	310	J	380	5	J	350	260	J	360	1000		350	340	J
Chrysene	330	340	150	J	2100	1900	J	350	400		380	7	J	350	390		360	1300		350	440	
bis(2-Ethylhexyl)phthalate	330	340	JBU		2100	U		350	JBU		380	JBU		350	JBU		360	JBU		350	JBU	
Di-n-Octyl Phthalate	330	340	UJ		2100	UJ		350	39	J	380	UJ		350	UJ		360	UJ		350	UJ	
Benzo(b)Fluoranthene	330	340	130	J	2100	660	J	350	280	J	380	7	J	350	260	J	360	870		350	330	J
Benzo(k)Fluoranthene	330	340	100	J	2100	400	J	350	270	J	380	6	J	350	240	J	360	970		350	290	J
Benzo(a)Pyrene	330	340	JBU		2100	730	JB	350	JBU		380	U		350	JBU		360	980	B	350	BU	
Indeno(1,2,3-cd)Pyrene	330	340	JBU		2100	JBU		350	270	JB	380	U		350	270	JB	360	840	B	350	340	JB
Dibenzo(a,h)Anthracene	330	340	32	J	2100	U		350	120	J	380	U		350	120	J	360	68	J	350	150	J
Benzo(g,h,i)Perylene	330	340	JBU		2100	JBU		350	JBU		380	UJ		350	350	JBU	360	310	JB	350	180	JB

(1) Cannot be separated from Diphenylamine

DATA QUALIFIER DEFINITIONS (ORGANIC)

- U The material was analyzed for, but not detected.
- J The associated numerical value is an estimated quantity.
- R The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- N Presumtive evidence of presence of material.
- NJ Presumtive evidence of the presence of the material at an estimated quantity.
- UJ The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- D The sample has been diluted.
- E The concentration of the compound has exceeded the linear range of the instrument.
- X In the pesticide fraction, denotes manually entered data.
- P This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
- B This contaminant was also present in the blank.

SAMPLE # / QTR #		S01	EXA54	S01B	EXA55	S02	EXA56	S02B	EXA57	S03	EXA58	S03B	EXA59	S04	EXA60
SAMPLE DESCRIPTION	LOW														
% SOLID / pH	SOIL	98	6.9	79	6.8	95	7.3	86	7.6	94	10.2	92	8.9	95	7.6
	CRQL	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample
	mg/Kg	CRQL	concentration	CRQL	concentration	CRQL	concentration	CRQL	concentration	CRQL	concentration	CRQL	concentration	CRQL	concentration
alpha-BHC	1.7	1.7	U	2.2	UJ	1.8	U	2.0	U	1.8	U	1.8	U	1.8	U
beta-BHC	1.7	1.7	U	2.2	9.6 PJ	1.8	U	2.0	U	1.8	U	1.8	U	1.8	U
delta-BHC	1.7	1.7	U	2.2	UJ	1.8	U	2.0	U	1.8	U	1.8	U	1.8	U
gamma-BHC (Lindane)	1.7	1.7	UJ	2.2	7.2 PJ	1.8	U	2.0	U	1.8	U	1.8	U	1.8	U
Heptachlor	1.7	1.7	U	2.2	UJ	1.8	U	2.0	U	1.8	U	1.8	U	1.8	U
Aldrin	1.7	1.7	0.39 JP	2.2	2.7 PJ	1.8	0.19 JP	2.0	0.17 JP	1.8	0.93 JP	1.8	U	1.8	U
Heptachlor epoxide	1.7	1.7	0.21 JP	2.2	UJ	1.8	U	2.0	U	1.8	0.97 JP	1.8	0.18 JP	1.8	U
Endosulfan I	1.7	1.7	U	2.2	6.6 J	1.8	U	2.0	U	1.8	U	1.8	U	1.8	U
Dieldrin	3.3	3.4	0.33 JP	4.2	UJ	3.5	0.15 JP	3.8	U	3.5	U	3.6	U	3.5	0.47 JP
4,4'-DDE	3.3	3.4	3.0 J	4.2	UJ	3.5	6.9	3.8	1.3 JP	3.5	3.5 P	3.6	1.2 JP	3.5	9.4
Endrin	3.3	3.4	0.98 JP	4.2	3.0 JP	3.5	1.5 JP	3.8	U	3.5	U	3.6	U	3.5	U
Endosulfan II	3.3	3.4	U	4.2	1.4 JP	3.5	0.2 JP	3.8	U	3.5	U	3.6	U	3.5	0.42 JP
4,4'-DDD	3.3	3.4	5.0 P	4.2	UJ	3.5	1.7 JP	3.8	0.42 JP	3.5	U	3.6	U	3.5	U
Endosulfan sulphate	3.3	3.4	U	4.2	UJ	3.5	U	3.8	U	3.5	U	3.6	U	3.5	U
4,4'-DDT	3.3	3.4	6.8	4.2	7.5 J	3.5	14 P	3.8	2.8 J	3.5	2.4 JP	3.6	0.83 JP	3.5	17
Methoxychlor	17.0	17	U	21.5	3.1 JP	17.9	2.8 JP	20	U	18.1	3.9 J	18.5	3.3 JP	18	U
Endrin keytone	3.3	3.4	U	4.2	3.1 JP	3.5	U	3.8	U	3.5	U	3.6	U	3.5	U
Endrin aldehyde	3.3	3.4	2.5 JP	4.2	8.2 J	3.5	1.2 JP	3.8	0.44 JP	3.5	1.8 JP	3.6	0.64 JP	3.5	1.4 JP
alpha-Chlordane	1.7	1.7	U	2.2	UJ	1.8	0.22 JP	2.0	0.077 JP	1.8	1.6 JP	1.8	0.53 JP	1.8	0.47 JP
gamma-Chlordane	1.7	1.7	0.16 J	2.2	UJ	1.8	0.059 JP	2.0	0.033 JP	1.8	0.74 J	1.8	0.21 J	1.8	0.22 JP
Toxaphene	170.0	173	U	220	UJ	180	U	200	U	180	U	180	U	180	U
Arochlor-1016	33.0	34	U	42	UJ	35	U	38	U	35	U	36	U	35	U
Arochlor-1221	67.0	68	U	85	UJ	70	U	78	U	71	U	73	U	70	U
Arochlor-1232	33.0	34	U	42	UJ	35	U	38	U	35	U	36	U	35	U
Arochlor-1242	33.0	34	U	42	UJ	35	U	38	U	35	U	36	U	35	U
Arochlor-1248	33.0	34	U	42	UJ	35	U	38	U	35	U	36	U	35	U
Arochlor-1254	33.0	34	U	42	UJ	35	U	38	3.2 J	35	51	36	21 J	35	19 J
Arochlor-1260	33.0	34	49 P	42	UJ	35	30 JP	38	6.1 JP	35	30 JP	36	12 JP	35	28 JP

DATA QUALIFIER DEFINITIONS (ORGANIC)

- U The material was analyzed for, but not detected.
- J The associated numerical value is an estimated quantity.
- R The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- N Presumtive evidence of presence of material.
- NJ Presumtive evidence of the presence of the material at an estimated quantity.
- UJ The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- D The sample has been diluted.
- E The concentration of the compound has exceeded the linear range of the instrument.
- X In the pesticide fraction, denotes manually entered data.
- P This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
- B This contaminant was also present in the blank.

SAMPLE # / ITR #		S01 MEXE54		S01B MEXE55		S02 MEXE56		S02B MEXE57	
% SOLID	LOW SOIL	98.4		76.9		94.9		86.6	
	CRDL	sample	sample	sample	sample	sample	sample	sample	sample
	mg/Kg	CRDL	concentration	CRDL	concentration	CRDL	concentration	CRDL	concentration
Aluminum	40	41	1770 *J	52	6010 *J	42	3270 *J	46	7340 *J
Antimony	12	12	3.2 U	16	4.1 U	13	3.3 U	14	4.2 B
Arsenic	2	2	3	3	7.8	2	12.5	2	8.5
Barium	40	41	25.7 B	52	66.3	42	55.5	46	67.3
Beryllium	1	1.0	0.21 B	1.3	0.68 B	1.1	0.56 B	1.2	0.54 B
Cadmium	1	1.0	1.4 *	1.3	0.62 U*	1.1	1.2 *	1.2	0.59 B*
Calcium	1000	1016	1380	1300	6410	1054	5640	1155	37200
Chromium	2	2	48.0 NJ	3	36.6 NJ	2	48.1 NJ	2	27.3 NJ
Cobalt	10	10	3.1 BJ	13	6.7 B	11	10.9	12	10.5 B
Copper	5	5	49.9 *	7	30.4 *	5	10.9 *	6	80.4 *
Iron	20	20	36000 *J	26	24800 *J	21	61600 *J	23	49400 *J
Lead	1	1	57.9 *	1.6	48.6 *	1	78.5 *	1	95.8 *
Magnesium	1000	1016	928 B	1300	2830	1054	8450	1155	20600
Manganese	3	3	151 N*J	4	131 N*J	3	528 N*J	3	554 N*J
Mercury	0.2	0.2	0.06 B	0.3	0.06 U	0.2	0.05 U	0.2	0.06 U
Nickel	8	8	47.3 *J	10	35.8 *J	8	41.8 *J	9	26.3 *J
Potassium	1000	1016	132 B	1300	633 B	1054	261 B	1155	1440
Selenium	1	1.0	0.28 B	1.3	1.1 B	1.1	1 B	1.2	1.1 BS
Silver	2	2.0	0.43 U	2.6	0.55 U	2.1	0.44 U	2.3	0.48 U
Sodium	1000	1016	46.9 B	1300	249 B	1054	190 B	1155	203 B
Thallium	2	2.0	0.12 U	2.6	0.39 BJ	2.1	0.40 BJ	2.3	0.42 BJ
Vanadium	10	10	5.9 B	13	17.3	11	12.8	12	19.0
Zinc	4	4	349 N*J	5	204 N*J	4	337 N*J	5	248 N*J

DATA QUALIFIER DEFINITIONS (INORGANIC):

U The material was analyzed for, but none was detected above the IDL.
J The associated value is an estimated quantity.
R The data are unusable. (Note: Analyte may or may not be present.)
UJ The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
B The concentration is greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).
S The reported value was determined by the Method of Standard Addition (MSA).
* Duplicate analysis was not within control limits.
W Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
N Spiked sample recovery not within control limits.
+ Correlation coefficient for the MSA is less than 0.995.
M Duplicate injection precision not met.
E The reported value is estimated because of the presence of interference.

SAMPLE #/ITR #		S03 MEXE58		S03B MEXE69		S04 MEXE60	
%SOLID	LOW SOIL CRDL	94.5		94.0		94.7	
	mg/Kg	sample CRDL	sample concentration	sample CRDL	sample concentration	sample CRDL	sample concentration
Aluminum	40	42	4320 *J	43	4140 *J	42	2510 *J
Antimony	12	13	3.3 U	13	3.3 U	13	3.3 U
Arsenic	2	2.1	1.9 B	2.1	1.6 B	2.1	12.7
Barium	40	42	20.8 B	43	20.6 B	42	47.5
Beryllium	1	1.1	0.21 B	1.1	0.21 B	1.1	0.5 B
Cadmium	1	1.1	1.5 *	1.1	0.53 B	1.1	1.2
Calcium	1000	1058	22000	1064	18500	1056	5370
Chromium	2	2	14.9 NJ	2	9.9 NJ	2	37.4 NJ
Cobalt	10	11	1.6 B	11	2.5 B	11	9.4 B
Copper	5	5	27.9	5	18.8	5	95.2
Iron	20	21	12600 *J	21	10500 *J	21	48000 *J
Lead	1	1.1	41.3 *+	1.1	26.8	1.1	86.9 MS+
Magnesium	1000	1058	8090	1064	6630	1056	8300
Manganese	3	3	149 N*J	3	167 N*J	3.9	462 N*J
Mercury	0.2	0.2	0.05 U	0.2	0.05 B	0.2	0.09 B
Nickel	8	8	12.2 J	9	18.4 B J	8	34.8 *J
Potassium	1000	1058	151 B	1064	247 B	1056	185 B
Selenium	1	1.1	0.13 U	1.1	0.13 U	1.1	1.8
Silver	2	2.1	0.44 U	2.1	0.45 U	2.1	0.44 U
Sodium	1000	1058	63.3 B	1064	56.0 B	1056	136 B
Thallium	2	2.1	0.21 BJ	2.1	0.26 BJ	2.1	0.42 B
Vanadium	10	11	27.6 B	11	27.6 B	11	19.2 B
Zinc	4	4	77.6 N*J	4	44.1 N*J	4	260 N*J

DATA QUALIFIER DEFINITIONS (INORGANIC):

U The material was analyzed for, but none was detected above the IDL.
J The associated value is an estimated quantity.
R The data are unusable. (Note: Analyte may or may not be present.)
UJ The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
B The concentration is greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).
S The reported value was determined by the Method of Standard Addition (MSA).
* Duplicate analysis was not within control limits.
W Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
N Spiked sample recovery not within control limits.
+ Correlation coefficient for the MSA is less than 0.995.
M Duplicate injection precision not met.
E The reported value is estimated because of the presence of interference.

APPENDIX E

Data Summary Tables

for

Round 2 Soil Samples

SAMPLE NUMBER		S01	S04	S04B	S05	S05B	S08B
% SOLID		95	85	80	91	78	87
COMPOUND	LOD ug/g, dry	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION
Acetone	0.25	ND	ND	ND	ND	ND	ND
Allyl chloride	0.25	ND	ND	ND	ND	ND	ND
Benzene	0.025	ND	ND	ND	ND	ND	ND
Bromobenzene	0.025	ND	ND	ND	ND	ND	ND
Bromochloromethane	0.025	ND	ND	ND	ND	ND	ND
Bromodichloromethane	0.025	ND	ND	ND	ND	ND	ND
Bromoform	0.025	ND	ND	ND	ND	ND	ND
Bromomethane	0.025	ND	ND	ND	ND	ND	ND
n-Butylbenzene	0.025	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	0.025	ND	ND	ND	ND	ND	**0.034**
tert-Butylbenzene	0.025	ND	ND	ND	ND	ND	ND
Carbon disulfide	0.25	ND	ND	ND	ND	ND	ND
Carbontetrachloride	0.025	ND	ND	ND	ND	ND	ND
Chlorobenzene	0.025	ND	ND	ND	ND	ND	ND
Chloroethane	0.025	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	0.25	ND	ND	ND	ND	ND	ND
Chloroform	0.025	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	0.025	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	0.025	ND	ND	ND	ND	ND	ND
Dibromochloromethane	0.025	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.25	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.025	ND	ND	ND	ND	ND	ND
Dibromomethane	0.025	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.025	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.025	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.025	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.025	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.025	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	0.025	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	0.025	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	0.025	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.025	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.025	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	0.025	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	0.025	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.025	ND	ND	ND	ND	ND	ND

LOD - Level of detection, dry weight basis.
ND - Not detected at or above the LOD.
Samples S01B, S02, S06, S06B, S07, S07B, S08, and S09 were not analyzed due to excess sample weight.

SAMPLE NUMBER		S01	S04	S04B	S05	S05B	S08B
% SOLID		95	85	80	91	78	87
COMPOUND	LOD ug/g, dry	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION	SAMPLE CONCENTRATION
trans-1,3-Dichloropropene	0.025	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.025	ND	**0.036**	ND	ND	ND	ND
Hexachlorobutadiene	0.025	ND	ND	ND	ND	ND	ND
Hexachloroethane	0.25	ND	ND	ND	ND	ND	ND
2-Hexanone	0.25	ND	ND	ND	ND	ND	ND
Isopropylether	0.25	ND	ND	ND	ND	ND	ND
Isopropylbenzene	0.025	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	0.025	ND	ND	ND	ND	ND	ND
Methylene chloride	0.025	ND	11	ND	ND	ND	ND
Methyl ethyl ketone	0.25	ND	ND	ND	ND	ND	ND
Methyliodide	0.25	ND	ND	ND	ND	ND	ND
Methylmethacrylate	0.25	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	0.25	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl ether	0.25	ND	ND	ND	ND	ND	ND
Naphthalene	0.025	0.037	0.059	ND	ND	ND	1.3
n-Propylbenzene	0.025	ND	**0.03**	**0.50**	ND	ND	**0.057**
Styrene	0.025	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.025	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.025	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	0.025	ND	ND	ND	ND	ND	ND
Tetrahydrofuran	0.25	ND	ND	ND	ND	ND	ND
Toluene	0.025	ND	**0.042**	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.025	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.025	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.025	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.025	ND	ND	ND	ND	ND	ND
Trichloroethylene	0.025	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.025	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0.025	ND	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	0.25	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.025	ND	**0.059**	ND	ND	ND	**1.1**
1,3,5-Trimethylbenzene	0.025	ND	ND	ND	ND	ND	**0.086**
Vinyl acetate	0.25	ND	ND	ND	ND	ND	ND
Vinyl chloride	0.025	ND	ND	ND	ND	ND	ND
m/p-Xylene	0.025	0.060	0.057	ND	ND	ND	ND
o-Xylene	0.025	**0.049**	**0.060**	ND	ND	ND	ND

LOD - Level of detection, dry weight basis.
ND - Not detected at or above the LOD.
Samples S01B, S02, S06, S06B, S07, S07B, S08, and S09 were not analyzed due to excess sample weight.

SAMPLE # / QTR #		S01	EBKF0	S01B	EBKF1	S02	EBKF2	S04	EBKF4	S04B	EBKF5	S08	EBKG2	S08B	EBKG3
% SOLID / pH / # OF TICS	LOW	95	8.1 30	52	6.5 30	100	7.6 21	91	7.7 30	81	6.1 28	86	6.7 30	89	7.2 30
SAMPLE DESCRIPTION	SOIL CRQL ug/Kg	SAMPLE CRQL	SAMPLE CONCENTRATION	SAMPLE CRQL	SAMPLE CONCENTRATION	SAMPLE CRQL	SAMPLE CONCENTRATION	SAMPLE CRQL	SAMPLE CONCENTRATION	SAMPLE CRQL	SAMPLE CONCENTRATION	SAMPLE CRQL	SAMPLE CONCENTRATION	SAMPLE CRQL	SAMPLE CONCENTRATION
Phenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
bis(2-Chloroethyl)Ether	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2-Chlorophenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
1,3-Dichlorobenzene	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
1,4-Dichlorobenzene	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
1,2-Dichlorobenzene	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2-Methylphenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2,2'-oxybis(1-Chloropropane)	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
4-Methylphenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
N-Nitroso-Di-n-Propylamine	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
Hexachloroethane	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
Nitrobenzene	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
Isophorone	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2-Nitrophenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2,4-Dimethylphenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
bis(2-Chloroethoxy)Methane	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2,4-Dichlorophenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
1,2,4-Trichlorobenzene	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
Naphthalene	330	350	72 J	630	920	330	35 J	730	190 J	410	U	380	U	370	410
4-Chloroaniline	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
Hexachlorobutadiene	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
4-Chloro-3-Methylphenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2-Methylnaphthalene	330	350	45 J	630	5700 E	330	260 J	730	210 J	410	U	380	14 J	370	2200
Hexachlorocyclopentadiene	330	350	U	630	U	330	U	730	U	410	UJ	380	U	370	UJ
2,4,6-Trichlorophenol	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2,4,5-Trichlorophenol	800	870	U	1600	U	830	U	1800	U	1000	U	970	U	930	U
2-Chloronaphalene	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
2-Nitroaniline	800	870	U	1600	U	830	U	1800	U	1000	U	970	U	930	U
Dimethylphthalate	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
Acenaphthylene	330	350	U	630	U	330	U	730	73 J	410	U	970	U	370	U
2,6-Dinitrotoluene	330	350	U	630	U	330	U	730	U	410	U	380	U	370	U
3-Nitroaniline	800	870	U	1600	U	830	U	1800	U	1000	U	970	U	930	U
Acenaphthene	330	350	52 J	630	640	330	U	730	96 J	410	U	380	U	370	U

DATA QUALIFIER DEFINITIONS (ORGANIC)

- **U** The material was analyzed for, but not detected.
- **J** The associated numerical value is an estimated quantity.
- **R** The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- **N** Presumtive evidence of presence of material.
- **NJ** Presumtive evidence of the presence of the material at an estimated quantity.
- **UJ** The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- **D** The sample has been diluted.
- **E** The concentration of the compound has exceeded the linear range of the instrument.
- **X** In the pesticide fraction, denotes manually entered data.
- **P** This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
- **B** This contaminant was also present in the blank.

SAMPLE # / OTR #		S05 EBKF6		S05B EBKF7		S06 EBKF8		S06B EBKF9		S07 EBKG0		S07B EBKG1		S09 EBKG4	
% SOLID / pH / # OF TICS	LOW	93	6.9 12	82	6.5 4	NA*	8.1 1	93	6.8 3	86	7.5 0	86	7.7 4	93	7.4 30
SAMPLE DESCRIPTION	SOIL														
	CRQL	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE
	ug/Kg	CRQL	CONCENTRATION	CRQL	CONCENTRATION	CRQL	CONCENTRATION	CRQL	CONCENTRATION	CRQL	CONCENTRATION	CRQL	CONCENTRATION	CRQL	CONCENTRATION
Phenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
bis(2-Chloroethyl)Ether	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2-Chlorophenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
1,3-Dichlorobenzene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
1,4-Dichlorobenzene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
1,2-Dichlorobenzene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2-Methylphenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2,2'-oxybis(1-Chloropropane)	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
4-Methylphenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
N-Nitroso-Di-n-Propylamine	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Hexachloroethane	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Nitrobenzene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Isophorone	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2-Nitrophenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2,4-Dimethylphenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
bis(2-Chloroethoxy)Methane	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2,4-Dichlorophenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
1,2,4-Trichlorobenzene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Naphthalene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	120 J
4-Chloroaniline	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Hexachlorobutadiene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
4-Chloro-3-Methylphenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2-Methylnaphthalene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	750
Hexachlorocyclopentadiene	330	350	U	400	UJ	330	UJ	350	UJ	380	UJ	380	UJ	350	U
2,4,6-Trichlorophenol	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2,4,5-Trichlorophenol	800	890	U	1000	U	830	UJ	890	U	970	U	970	U	890	U
2-Chloronaphalene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
2-Nitroaniline	800	890	U	1000	U	830	UJ	890	U	970	U	970	U	890	U
Dimethylphthalate	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Acenaphthylene	330	350	U	400	U	330	UJ	350	U	970	U	970	U	350	U
2,6-Dinitrotoluene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
3-Nitroaniline	800	890	U	1000	U	830	UJ	890	U	970	U	970	U	890	U
Acenaphthene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U

NA* - Lab did not analyze this sample for % moisture.

DATA QUALIFIER DEFINITIONS (ORGANIC)

- **U** The material was analyzed for, but not detected.
- **J** The associated numerical value is an estimated quantity.
- **R** The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- **N** Presumtive evidence of presence of material.
- **NJ** Presumtive evidence of the presence of the material at an estimated quantity.
- **UJ** The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- **D** The sample has been diluted.
- **E** The concentration of the compound has exceeded the linear range of the instrument.
- **X** In the pesticide fraction, denotes manually entered data.
- **P** This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
- **B** This contaminant was also present in the blank.

SAMPLE # / QTR #		S01	EBKF0		S01B	EBKF1		S02	EBKF2		S04	EBKF4		S04B	EBKF5		S08	EBKG2		S08B	EBKG3	
% SOLID / pH / # OF TICS	LOW	95	8.1	30	52	6.5	30	100	7.6	21	91	7.7	30	81	6.1	28	86	6.7	30	89	7.2	30
SAMPLE DESCRIPTION	SOIL																					
	CRQL	sample	sample		sample	sample		sample	sample		sample	sample		sample	sample		SAMPLE	SAMPLE		SAMPLE	SAMPLE	
	ug/Kg	CRQL	concentration		CRQL	concentration		CRQL	concentration		CRQL	concentration		CRQL	concentration		CRQL	CONCENTRATION		CRQL	CONCENTRATION	
2,4-Dinitrophenol	800	870	UJ		1600	UJ		830	UJ		1800	UJ		1000	UJ		970	UJ		930	UJ	
4-Nitrophenol	800	870	U		1600	U		830	U		1800	U		1000	U		970	U		930	U	
Dibenzofuran	330	350	10 J		630	120 J		330	62 J		730	98 J		410	U		380	U		370	20 J	
2,4-Dinitrotoluene	330	350	U		630	U		330	U		730	U		410	U		380	U		370	U	
Diethylphthalate	330	350	U		630	U		330	U		730	U		410	U		380	U		370	U	
4-Chlorophenyl-phenylether	330	350	U		630	U		330	U		730	U		410	U		380	U		370	U	
Fluorene	330	350	36 J		630	580 J		330	38 J		730	75 J		410	U		380	U		370	U	
4-Nitroaniline	800	870	U		1600	U		830	U		1800	U		1000	U		970	U		930	U	
4,6-Dinitro-2-methylphenol	800	870	U		1600	U		830	U		1800	U		1000	U		970	U		930	U	
N-Nitrosodiphenylamine (1)	330	350	U		630	U		330	U		730	U		410	U		380	U		370	U	
4-Bromophenyl-phenylether	330	350	U		630	U		330	U		730	U		410	U		380	U		370	U	
Hexachlorobenzene	330	350	U		630	U		330	U		730	U		410	U		380	U		370	U	
Pentachlorophenol	800	870	U		1600	UJ		830	U		1800	U		1000	UJ		970	U		930	UJ	
Phenanthrene	330	350	720		630	550 J		330	500		730	2300		410	U		380	26 J		370	U	
Anthracene	330	350	95 J		630	41 J		330	U		730	170 J		410	U		380	U		370	U	
Carbazole	330	350	26 J		630	U		330	UJ		730	150 J		410	U		380	UJ		370	U	
Di-n-Butylphthalate	330	350	JBU		630	BJU		330	JBU		730	JBU		410	BJU		380	BJU		370	BJU	
Fluoranthene	330	350	590		630	30 J		330	91 J		730	2400		410	9 J		380	U		370	U	
Pyrene	330	350	1300		630	36 J		330	130 J		730	3700		410	33 J		380	UJ		370	28 J	
Butylbenzylphthalate	330	350	U		630	UJ		330	U		730	U		410	UJ		380	UJ		370	UJ	
3,3'Dichlorobenzidine	330	350	U		630	UJ		330	U		730	U		410	UJ		380	UJ		370	UJ	
Benzo(a)Anthracene	330	350	410		630	U		330	33 J		730	1500		410	U		380	UJ		370	U	
Chrysene	330	350	480		630	U		330	42 J		730	1700		410	U		380	UJ		370	U	
bis(2-Ethylhexyl)phthalate	330	350	220 J		630	40 J		330	1000		730	U		410	31 J		380	UJ		370	48 J	
Di-n-Octyl Phthalate	330	350	U		630	UJ		330	56 J		730	UJ		410	UJ		380	UJ		370	UJ	
Benzo(b)Fluoranthene	330	350	660		630	U		330	45 J		730	2600		410	U		380	UJ		370	U	
Benzo(k)Fluoranthene	330	350	190 J		630	UJ		330	14 J		730	880		410	UJ		380	UJ		370	UJ	
Benzo(a)Pyrene	330	350	290 J		630	U		330	U		730	1400		410	25 J		380	UJ		370	U	
Indeno(1,2,3-cd)Pyrene	330	350	350		630	U		330	19 J		730	1400		410	U		380	UJ		370	U	
Dibenzo(a,h)Anthracene	330	350	74 J		630	U		330	U		730	330 J		410	U		380	UJ		370	U	
Benzo(g,h,i)Perylene	330	350	200 J		630	U		330	11 J		730	700 J		410	U		380	UJ		370	U	

(1) Cannot be separated from Diphenylamine

DATA QUALIFIER DEFINITIONS (ORGANIC)	
U	The material was analyzed for, but not detected.
J	The associated numerical value is an estimated quantity.
R	The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
N	Presumtive evidence of presence of material.
NJ	Presumtive evidence of the presence of the material at an estimated quantity.
UJ	The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
D	The sample has been diluted.
E	The concentration of the compound has exceeded the linear range of the instrument.
X	In the pesticide fraction, denotes manually entered data.
P	This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
B	This contaminant was also present in the blank.

SAMPLE # / OTR #		S05 EBKF6		S05B EBKF7		S06 EBKF8		S06B EBKF9		S07 EBKG0		S07B EBKG1		S09 EBKG4	
% SOLID / pH / # OF TICS	LOW	93	6.9 12	82	6.5 4	NA*	8.1 1	93	6.8 3	86	7.5 0	86	7.7 4	93	7.4 30
SAMPLE DESCRIPTION	SOIL														
	CRQL ug/l	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration	SAMPLE CRQL	SAMPLE CONCENTRATION
2,4-Dinitrophenol	800	890	UJ	1000	UJ	830	UJ	890	UJ	970	UJ	970	UJ	890	UJ
4-Nitrophenol	800	890	U	1000	U	830	UJ	890	U	970	U	970	U	890	U
Dibenzofuran	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	62 J
2,4-Dinitrotoluene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Diethylphthalate	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
4-Chlorophenyl-phenylether	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Fluorene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	25 J
4-Nitroaniline	800	890	U	1000	U	830	UJ	890	U	970	U	970	U	890	U
4,6-Dinitro-2-methylphenol	800	890	U	1000	U	830	UJ	890	U	970	U	970	U	890	U
N-Nitrosodiphenylamine (1)	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
4-Bromophenyl-phenylether	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Hexachlorobenzene	330	350	U	400	U	330	UJ	350	U	380	U	380	U	350	U
Pentachlorophenol	800	890	U	1000	UJ	830	UJ	890	UJ	970	UJ	970	UJ	890	U
Phenanthrene	330	350	290 J	400	12 J	330	UJ	350	U	380	U	380	U	350	160 J
Anthracene	330	350	44 J	400	U	330	UJ	350	U	380	U	380	U	350	U
Carbazole	330	350	20 J	400	U	330	UJ	350	U	380	U	380	U	350	UJ
Di-n-Butylphthalate	330	350	JBU	400	JBU	330	BJU	350	JBU	380	JBU	380	JBU	350	BJU
Fluoranthene	330	350	530	400	20 J	330	14 J	350	17 J	380	U	380	U	350	32 J
Pyrene	330	350	590	400	19 J	330	13 J	350	47 J	380	UJ	380	UJ	350	180 J
Butylbenzylphthalate	330	350	U	400	UJ	330	UJ	350	21 J	380	UJ	380	250 J	350	UJ
3,3'Dichlorobenzidine	330	350	U	400	UJ	330	UJ	350	UJ	380	UJ	380	UJ	350	UJ
Benzo(a)Anthracene	330	350	350 J	400	U	330	UJ	350	U	380	U	380	U	350	110 J
Chrysene	330	350	340 J	400	U	330	UJ	350	U	380	U	380	U	350	170 J
bis(2-Ethylhexyl)phthalate	330	350	U	400	18 J	330	18 J	350	31 J	380	37 J	380	39 J	350	120 J
Di-n-Octyl Phthalate	330	350	UJ	400	UJ	330	UJ	350	UJ	380	UJ	380	UJ	350	UJ
Benzo(b)Fluoranthene	330	350	560	400	U	330	16 J	350	20 J	380	U	380	U	350	UJ
Benzo(k)Fluoranthene	330	350	200 J	400	UJ	330	7 J	350	10 J	380	UJ	380	UJ	350	UJ
Benzo(a)Pyrene	330	350	240 J	400	U	330	8 J	350	16 J	380	U	380	U	350	UJ
Indeno(1,2,3-cd)Pyrene	330	350	300 J	400	U	330	UJ	350	U	380	U	380	U	350	UJ
Dibenzo(a,h)Anthracene	330	350	70 J	400	U	330	UJ	350	U	380	U	380	U	350	UJ
Benzo(g,h,i)Perylene	330	350	120 J	400	U	330	UJ	350	U	380	U	380	U	350	UJ

NA* - Lab did not analyze this sample for % moisture.

(1) Cannot be separated from Diphenylamine

DATA QUALIFIER DEFINITIONS (ORGANIC)	
U	The material was analyzed for, but not detected.
J	The associated numerical value is an estimated quantity.
R	The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
N	Presumtive evidence of presence of material.
NJ	Presumtive evidence of the presence of the material at an estimated quantity.
UJ	The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
D	The sample has been diluted.
E	The concentration of the compound has exceeded the linear range of the instrument.
X	In the pesticide fraction, denotes manually entered data.
P	This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
B	This contaminant was also present in the blank.

SAMPLE# / QTR #		S01	EBKF0	S01B	EBKF1	S02	EBKF2	S04	EBKF4	S04B	EBKF5	S05	EBKF6	S05B	EBKF7
SAMPLE DESCRIPTION	LOW														
% SOLID / pH	SOIL	95	8.1	52	6.8	100	7.7	91	7.7	81	6.1	93	6.9	82	6.5
	CRQL	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample	sample
	mg/Kg	CRQL	concentration	CRQL	concentration	CRQL	concentration	CRQL	concentration	CRQL	concentration	CRQL	concentration	CRQL	concentration
alpha-BHC	1.7	1.8	U	3.3	U	1.7	U	1.9	U	2.1	U	1.8	U	2.1	U
beta-BHC	1.7	1.8	U	3.3	U	1.7	U	1.9	U	2.1	U	1.8	U	2.1	U
delta-BHC	1.7	1.8	U	3.3	U	1.7	U	1.9	U	2.1	U	1.8	U	2.1	U
gamma-BHC (Lindane)	1.7	1.8	U	3.3	U	1.7	U	1.9	U	2.1	U	1.8	0.52 JP	2.1	U
Heptachlor	1.7	1.8	U	3.3	U	1.7	U	1.9	0.11 JP	2.1	U	1.8	0.48 JP	2.1	U
Aldrin	1.7	1.8	U	3.3	U	1.7	U	1.9	U	2.1	U	1.8	U	2.1	U
Heptachlor epoxide	1.7	1.8	U	3.3	U	1.7	U	1.9	0.48 JP	2.1	U	1.8	U	2.1	U
Endosulfan I	1.7	1.8	U	3.3	U	1.7	U	1.9	U	2.1	U	1.8	U	2.1	U
Dieldrin	3.3	3.5	1.5 JP	6.3	U	3.3	1.6 JP	3.6	U	4.1	U	3.5	U	4.0	U
4,4'-DDE	3.3	3.5	1.6 JP	6.3	U	3.3	U	3.6	3.0 JP	4.1	U	3.5	2.5 JP	4.0	U
Endrin	3.3	3.5	1.8 JP	6.3	U	3.3	9.6 P	3.6	U	4.1	U	3.5	U	4.0	U
Endosulfan II	3.3	3.5	1.9 JP	6.3	U	3.3	1.2 JP	3.6	U	4.1	U	3.5	U	4.0	U
4,4'-DDD	3.3	3.5	2.4 JP	6.3	U	3.3	U	3.6	5.1	4.1	U	3.5	U	4.0	U
Endosulfan sulphate	3.3	3.5	U	6.3	U	3.3	2.0 JP	3.6	U	4.1	U	3.5	0.69 JP	4.0	U
4,4'-DDT	3.3	3.5	10 JP	6.3	U	3.3	U	3.6	13 P	4.1	U	3.5	1.1 J	4.0	U
Methoxychlor	17.0	17.9	4.8 JP	33	U	17.0	12 JP	18.7	24	21	U	18.3	19 JP	21	U
Endrin keytone	3.3	3.5	U	6.3	U	3.3	3.2 JP	3.6	4.7 P	4.1	U	3.5	3.6 J	4.0	U
Endrin aldehyde	3.3	3.5	3.1 JP	6.3	U	3.3	4.8 P	3.6	26 P	4.1	U	3.5	U	4.0	U
alpha-Chlordane	1.7	1.8	U	3.3	U	1.7	2.2 P	1.9	U	2.1	U	1.8	U	2.1	U
gamma-Chlordane	1.7	1.8	0.7 JP	3.3	U	1.7	0.77 JP	1.9	U	2.1	U	1.8	U	2.1	U
Toxaphene	170.0	180	U	330	U	170	U	190	U	210	U	180	U	210	U
Arochlor-1016	33.0	35	U	63	U	33.0	U	36	U	41	U	35	U	40	U
Arochlor-1221	67.0	71	U	130	U	67.0	U	74	U	83	U	72	U	82	U
Arochlor-1232	33.0	35	U	63	U	33.0	U	36	U	41	U	35	U	40	U
Arochlor-1242	33.0	35	U	63	U	33.0	U	36	U	41	U	35	U	40	U
Arochlor-1248	33.0	35	U	63	U	33.0	U	36	U	41	U	35	U	40	U
Arochlor-1254	33.0	35	U	63	U	33.0	230 P	36	U	41	U	35	U	40	U
Arochlor-1260	33.0	35	88 PJ	63	U	33.0	U	36	U	41	U	35	U	40	U

DATA QUALIFIER DEFINITIONS (ORGANIC)

- **U** The material was analyzed for, but not detected.
- **J** The associated numerical value is an estimated quantity.
- **R** The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- **N** Presumtive evidence of presence of material.
- **NJ** Presumtive evidence of the presence of the material at an estimated quantity.
- **UJ** The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- **D** The sample has been diluted.
- **E** The concentration of the compound has exceeded the linear range of the instrument.
- **X** In the pesticide fraction, denotes manually entered data.
- **P** This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
- **B** This contaminant was also present in the blank.

SAMPLE # / QTR #		S06	EBKF8	S06B	EBKF9	S07	EBKG0	S07B	EBKG1	S08	EBKG2	S08B	EBKG3	S09	EBKG4
SAMPLE DESCRIPTION	LOW														
% SOLID / pH	SOIL	NA*	8.1	93	8.8	86	7.5	85	7.7	86	8.7	89	7.2	93	7.4
	CRQL mg/Kg	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration	sample CRQL	sample concentration
alpha-BHC	1.7	1.7*	UJ	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U	1.8	U
beta-BHC	1.7	1.7*	UJ	1.8	U	2.0	1.2 JP	2.0	U	2.0	U	1.9	U	1.8	U
delta-BHC	1.7	1.7*	UJ	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U	1.8	U
gamma-BHC (Lindane)	1.7	1.7*	UJ	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U	1.8	U
Heptachlor	1.7	1.7*	UJ	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U	1.8	U
Aldrin	1.7	1.7*	UJ	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U	1.8	U
Heptachlor epoxide	1.7	1.7*	UJ	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U	1.8	U
Endosulfan I	1.7	1.7*	UJ	1.8	U	2.0	0.69 J	2.0	U	2.0	U	1.9	U	1.8	U
Dieldrin	3.3	3.3*	UJ	3.5	U	3.8	0.16 JP	3.9	U	3.8	U	3.7	0.34 JP	3.5	U
4,4'-DDE	3.3	3.3*	UJ	3.5	U	3.8	U	3.9	U	3.8	U	3.7	0.18 JP	3.5	U
Endrin	3.3	3.3*	UJ	3.5	U	3.8	U	3.9	U	3.8	U	3.7	U	3.5	U
Endosulfan II	3.3	3.3*	UJ	3.5	U	3.8	U	3.9	U	3.8	U	3.7	U	3.5	U
4,4'-DDD	3.3	3.3*	UJ	3.5	U	3.8	U	3.9	U	3.8	U	3.7	U	3.5	U
Endosulfan sulphate	3.3	3.3*	0.24 JP	3.5	U	3.8	U	3.9	0.62 JP	3.8	U	3.7	U	3.5	U
4,4'-DDT	3.3	3.3*	UJ	3.5	U	3.8	U	3.9	U	3.8	7.7 P	3.7	0.53 JP	3.5	6.6 P
Methoxychlor	17.0	17*	1.1 J	18	U	20	U	20	U	20	U	19	U	18	U
Endrin keytone	3.3	3.3*	0.31 JP	3.5	U	3.8	U	3.9	U	3.8	U	3.7	U	3.5	U
Endrin aldehyde	3.3	3.3*	UJ	3.5	U	3.8	U	3.9	U	3.8	8.9 P	3.7	U	3.5	18 P
alpha-Chlordane	1.7	1.7*	UJ	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U	1.8	U
gamma-Chlordane	1.7	1.7*	UJ	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U	1.8	U
Toxaphene	170.0	170*	UJ	180	U	200	U	200	U	200	U	190	U	180	U
Arochlor-1016	33.0	33*	UJ	35	U	38	U	39	U	38	U	37	U	35	U
Arochlor-1221	67.0	67*	UJ	72	U	78	U	79	U	76	U	75	U	72	U
Arochlor-1232	33.0	33*	UJ	35	U	38	U	39	U	38	U	37	U	35	U
Arochlor-1242	33.0	33*	UJ	35	U	38	U	39	U	38	U	37	U	35	U
Arochlor-1248	33.0	33*	UJ	35	U	38	U	39	U	38	U	37	U	35	U
Arochlor-1254	33.0	33*	UJ	35	U	38	U	39	U	38	U	37	U	35	U
Arochlor-1260	33.0	33*	UJ	35	U	38	U	39	U	38	U	37	U	35	U

NA* - Lab did not analyze this sample for % moisture.

DATA QUALIFIER DEFINITIONS (ORGANIC)

- U The material was analyzed for, but not detected.
- J The associated numerical value is an estimated quantity.
- R The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- N Presumtive evidence of presence of material.
- NJ Presumtive evidence of the presence of the material at an estimated quantity.
- UJ The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- D The sample has been diluted.
- E The concentration of the compound has exceeded the linear range of the instrument.
- X In the pesticide fraction, denotes manually entered data.
- P This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).
- B This contaminant was also present in the blank.

SAMPLE #/ ITR #		S01	MEXE63	S01B	MEXE64	S02	MEXE65	S04	MEXE67	S04B	MEXE68
% SOLID	LOW SOIL CRDL	95.7		75.0		99.9		86.6		82.0	
		sample CRDL	sample concentration	sample CRDL	sample concentration	sample CRDL	sample concentration	sample CRDL	sample concentration	sample CRDL	sample concentration
	mg/Kg	CRDL	concentration	CRDL	concentration	CRDL	concentration	CRDL	concentration	CRDL	concentration
Aluminum	40	42	557	53	4260	40	1900	46	7280	49	16700
Antimony	12	13	2.8 UNJ	16	3.5 UNJ	12	2.7 UNJ	14	3.1 UNJ	15	3.2 UNJ
Arsenic	2	2.1	2.0 B	2.7	2.9	2.0	1.7 B	2.3	8.1	2.4	4.4 S
Barium	40	42	49.0	53	69.0	40	58.9	46	84.4	49	137
Beryllium	1	1.0	0.08 U	1.3	0.23 B	1.0	0.08 U	1.2	0.68 B	1.2	0.85 B
Cadmium	1	1.0	0.71 B	1.3	0.83 B	1.0	0.98 B	1.2	1.0 B	1.2	0.73 U
Calcium	1000	1045	10000	1333	36600	1001	7970	1155	17100	1220	7760
Chromium	2	2	99.0	3	7.2	2	26.9	2	173	2	35.4
Cobalt	10	10	1.8 B	13	2.5 B	10	3.2 B	12	8.3 B	12	10.9 B
Copper	5	5	25.8 EJ	7	23.4 EJ	5	22.1 EJ	6	71.4 EJ	6	36.1 EJ
Iron	20	21	9590	27	7880	20	10800	23	35600	24	25700
Lead	1	1	324	1	17.2	1	42.4	1	166	1	21.0
Magnesium	1000	1045	5950	1333	17900	1001	4570	1155	9000	1220	5010
Manganese	3	3	90.9 *	4	108 *	3	155 *	3	558 *	4	284 *
Mercury	0.2	0.21	0.05 U	0.27	0.07 U	0.20	0.05 U	0.23	0.08 B	0.24	0.06 U
Nickel	8	8	62.1	11	19.9 B	8	10.4	9	130	10	33.9
Potassium	1000	1045	80.6 U	1333	106 BJ	1001	279 BJ	1155	1290	1220	1160 B
Selenium	1	1.0	0.17 UW	1.3	0.93 BWJ	1.0	0.16 UW	1.2	0.58 BJ	1.2	0.24 BWJ
Silver	2	2.1	0.33 U	2.7	0.43 U	2.0	0.32 U	2.3	0.37 U	2.4	0.39 U
Sodium	1000	1045	28.5 B	1333	82.0 B	1001	100 B	1155	142 B	1220	76.1 B
Thallium	2	2.1	1.0 BJ	2.7	0.45 BWJ	2.0	0.14 UWJ	2.3	0.92 BWJ	2.4	0.85 UWJ
Vanadium	10	10	1.9 B	13	17.7	10	8.3 B	12	21.9	12	36.5
Zinc	4	4	431 ENJ	5	27.2 ENJ	4	146 ENJ	5	261 ENJ	5	63.7 ENJ

DATA QUALIFIER DEFINITIONS (INORGANIC):

U The material was analyzed for, but none was detected above the IDL.
J The associated value is an estimated quantity.
R The data are unusable. (Note: Analyte may or may not be present.)
UJ The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
B The concentration is greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).
S The reported value was determined by the Method of Standard Addition (MSA).
* Duplicate analysis was not within control limits.
W Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
N Spiked sample recovery not within control limits.
+ Correlation coefficient for the MSA is less than 0.995.
M Duplicate injection precision not met.
E The reported value is estimated because of the presence of interference.

SAMPLE#/ ITR#		S05	MEXE69	S05B	MEXE70	S06	MEXE71	S06B	MEXE72	S07	MEXE73
% SOLID	LOW SOIL CRDL mg/Kg	92.1		79.0		85.1		84.4		85.5	
		sample CRDL	sample concentration	sample CRDL	sample concentration	sample CRDL	sample concentration	sample CRDL	sample concentration	sample CRDL	sample concentration
Aluminum	40	43	3870	51	13000	47	4420	47	14400	47	10000
Antimony	12	13	2.9 UNJ	15	3.4 UNJ	14	3.1 UNJ	14	3.2 UNJ	14	3.1 UNJ
Arsenic	2	2.2	2.5	2.5	4.8 S	2.4	1.8 B	2.4	4.9 S	2.3	3.0 S
Barium	40	43	23.7 B	51	77.3	47	17.2	47	66.9	47	45.4 B
Beryllium	1	1.1	0.16 B	1.3	0.48 B	1.2	0.19 B	1.2	0.57 B	1.2	0.49 B
Cadmium	1	1.1	0.65 U	1.3	0.76 U	1.2	0.71 U	1.2	0.77 B	1.2	0.70 U
Calcium	1000	1086	12000	1266	7500	1175	9340	1185	91200	1170	96100
Chromium	2	2	17.2	3	25.8	2	8.2	2	24.6	2	19.0
Cobalt	10	11	9.2 B	13	10.7 B	12	3.4 B	12	8.8 B	12	5.8 B
Copper	5	5	63.7 EJ	6	22.7 EJ	6	15.6 EJ	6	18.9 EJ	6	18.0 EJ
Iron	20	22	28600	25	21100	24	19600	24	18900	23	14700
Lead	1	1	21.9	1	12.2	1	1.67	1	10.8	1	9.4
Magnesium	1000	1086	4310	1266	5990	1175	2420	1185	40200	1170	39300
Manganese	3	3	655 *	4	490 *	4	584 *	4	465 *	4	282 *
Mercury	0.2	0.22	0.05 U	0.25	0.06 U	0.24	0.15	0.24	0.05 U	0.23	0.06 U
Nickel	8	9	14.2	10	20.6	9	10.3	9	25.8	9	17.0
Potassium	1000	1086	638 BJ	1266	1230 B	1175	760 B	1185	2920	1170	2120
Selenium	1	1.1	0.17 UWJ	1.3	0.20 U	1.2	0.19 U	1.2	0.19 UWJ	1.2	0.94 UWJ
Silver	2	2.2	0.35 U	2.5	0.41 U	2.4	0.38 U	2.4	0.38 U	2.3	0.37 U
Sodium	1000	1086	78.2 B	1266	60.8 B	1175	97.3 B	1185	199 B	1170	193 B
Thallium	2	2.2	0.76 UWJ	2.5	0.33 BW	2.4	0.82 U	2.4	0.24 BWJ	2.3	0.21 BWJ
Vanadium	10	11	10.8 B	13	33.9	12	9.6 B	12	27.5	12	22.9
Zinc	4	4	23.2 ENJ	5	52.5 ENJ	5	264 ENJ	5	45.4 ENJ	5	39.9 ENJ

DATA QUALIFIER DEFINITIONS (INORGANIC):

U The material was analyzed for, but none was detected above the IDL.

J The associated value is an estimated quantity.

R The data are unusable. (Note: Analyte may or may not be present.)

UJ The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

B The concentration is greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).

S The reported value was determined by the Method of Standard Addition (MSA).

* Duplicate analysis was not within control limits.

W Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

N Spiked sample recovery not within control limits.

+ Correlation coefficient for the MSA is less than 0.995.

M Duplicate injection precision not met.

E The reported value is estimated because of the presence of interference.

SAMPLE # / ITR #		S07B	MEXE74	S08	MEXE75	S08B	MEXE76	S09	MEXE77
% SOLID	LOW SOIL	85.1		90.4		87.5		91	
	CRDL	sample	sample	sample	sample	sample	sample	sample	sample
	mg/Kg	CRDL	concentration	CRDL	concentration	CRDL	concentration	CRDL	concentration
Aluminum	40	47	10300	44	3160	46	10200	44	4310
Antimony	12	14	3.1 UNJ	13	2.9 UNJ	14	3.0 UNJ	13	2.9 UNJ
Arsenic	2	2.4	2.8 S	2.2	1.7 B	2.3	3.2	2.2	2.2
Barium	40	47	51.9	44	16.0 B	46	44.9 B	44	27.5 B
Beryllium	1	1.2	0.49 B	1.1	0.10 B	1.1	0.30 B	1.1	0.15 B
Cadmium	1	1.2	0.71 U	1.1	0.66 U	1.1	0.69 U	1.1	0.66 U
Calcium	1000	1175	101000	1106	9500	1145	6320	1099	11500
Chromium	2	2	19.7	2	4.6	2	20.9	2	7.8
Cobalt	10	12	6.5 B	11	2.8 B	11	5.9 B	11	3.1 B
Copper	5	6	19.3 EJ	6	6.6 EJ	6	16.1 EJ	5	9.6 EJ
Iron	20	24	15600	22	8580	23	18800	22	12400
Lead	1	1	1.0	1	10.1	1	14.0	1	1.5
Magnesium	1000	1175	41800	1106	4460	1145	4720	1099	5280
Manganese	3	4	322	3	17.3	3	27.5	3	38.2
Mercury	0.2	0.2	0.05 U	0.2	0.05 U	0.2	0.05 U	0.2	0.05 U
Nickel	8	9	19.7	9	6.1 B	9	16.1	9	6.8 B
Potassium	1000	1175	2090	1106	582 BJ	1145	850 B	1099	753 B
Selenium	1	1.2	0.94 UWJ	1.1	0.18 U	1.1	0.18 U	1.1	0.18 BWJ
Silver	2	2.4	0.38 U	2.2	0.35 U	2.3	0.37 U	2.2	0.35 U
Sodium	1000	1175	200 B	1106	57.4 B	1145	106 B	1099	81.0 B
Thallium	2	2.4	0.16 BWJ	2.2	0.77 U	2.3	0.80 UW	2.2	0.15 UW
Vanadium	10	12	23.5 W	11	6.3 B	11	39.2	11	12.1
Zinc	4	5	41.7 ENJ	4	25.0 ENJ	5	81.1 ENJ	4	30.9 ENJ

DATA QUALIFIER DEFINITIONS (INORGANIC):

U	The material was analyzed for, but none was detected above the IDL.
J	The associated value is an estimated quantity.
R	The data are unusable. (Note: Analyte may or may not be present.)
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
B	The concentration is greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).
S	The reported value was determined by the Method of Standard Addition (MSA).
*	Duplicate analysis was not within control limits.
W	Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
N	Spiked sample recovery not within control limits.
+	Correlation coefficient for the MSA is less than 0.995.
M	Duplicate injection precision not met.
E	The reported value is estimated because of the presence of interference.

APPENDIX F

Environmental Professional Qualifications Statement

ENVIRONMENTAL SITE ASSESSOR QUALIFICATIONS

Site Assessor

Kim White, Hydrogeologist, Wisconsin Department of Natural Resources

Education

Degrees

B.S. Geology, 1993, University of North Carolina-Chapel Hill
M.S. Water Resources Management, 1997, University of Wisconsin-Madison
Concentration: Hydrogeology

Relevant Coursework

Hydrogeology
Contaminant Hydrogeology
Field Methods in Hydrogeology
Fluvial Geomorphology
Hydrology
Field Geology

Experience

- Wisconsin Department of Natural Resources - July 1994 to Present
  - Brownfields Environmental Assessment Pilot - January 1996 to Present
    - Phase I and Phase II Environmental Assessment Training
    - Project Management
  - Superfund Site Evaluation - July 1994 to December 1995
    - Project Management
    - Prepare workplans, conduct field investigations, report writing

- U.S. Geological Survey - May 1993 to October 1993
  - National Water Quality Assessment Project (NAWQA)
    - Water quality data collection in field, monitoring well installation, database management

- ATEC Environmental Consultants - May 1991 to October 1991
  - Monitoring well installation, groundwater and soil sampling, report writing