

PCB Mass Loading Phase II  
Rogers Corner Dump Site  
SIRS ID: DE-0246  
Wilmington, Delaware



**BrightFields, Inc.**

## **Appendix 27**

# **ROGERS CORNER DUMP SITE WILMINGTON, DELAWARE**

**SIRS ID: DE-0246**

## **GENERAL SITE INFORMATION**

**Site Name: Rogers Corner Dump Site**

**SIRS ID Number: DE-0246**

**Site Location and Description:**

The Rogers Corner Dump site is located to the northwest of the intersection of US Route 13 (South Market Street) and Interstate 495 (Figure 1). The Christina River is located adjacent to the west of the site. This site is approximately 22 acres in size and is comprised of two tax parcels (#1000100013 and #1000100014). The site currently is owned by Donald W. Booker, Homer W. Booker Jr., and William J. Ryan.

The property is bounded to the north by a commercial property and a motel, to the east by DuPont Highway, beyond which are commercial properties, to the south by an interchange, and to the west by the Christina River, beyond which is the Russell Peterson Wildlife Area.

The 1991 Site Inspection states that runoff from the Site is expected to flow west towards the Christina River. The Christina River flows northeast and ultimately discharges to the Delaware River.

The site is currently vacant, open land surrounded by a locked fence.

**Previous Site Uses:**

The Rogers Corner Dump Site operated as a landfill from 1978 until 1988 when it was closed by order of DNREC. The western portion of the site (adjacent to the Christina River) was filled with approximately 11 feet of dredge spoils from the Christina River. Approximately 10 feet of waste was disposed of on top of the dredge spoils. The landfill was approved to accept bricks, concrete, lumber, trees, and shrubbery from clearing and demolition of buildings to fill an area of the property to a common elevation. The landfill was also reported to have accepted unauthorized wastes including metals, tires, electrical equipment, asbestos tar shingles, and railroad ties.

A review of historical aerial photographs of the former Rogers Corner Dump site indicates the following: The 1937 aerial photograph depicts the site as partially open land and partially open marsh. The 1954 aerial photograph shows little change in the site, although there is increased development on the northeast side of the property. The quality of the 1961 and 1968 aerial

photographs are poor, but the marsh portion of the site appears to be disturbed. The 1992 aerial photograph shows the site has been filled; subsequent aerial photographs (1997, 2002, and 2007) show little change in site surface conditions.

### **Site Regulatory Status:**

This section briefly summarizes previous investigations performed on the site through the SIRS program. A current SIRS regulatory status is also included.

#### ***Environmental Assessment of Booker, Booker, and Ryan Landfill (Prepared by DNREC, summarized by Dames & Moore, 1990)***

In January 1990, DNREC conducted multimedia environmental sampling at the former Rogers Corner Dump site. The results of the sampling were not formally reported by DNREC, but were summarized by Dames & Moore, a contracted environmental consultant, in March 1990. The samples revealed extensive contamination and Dames & Moore stated that the site may require remediation.

DNREC collected a total of 90 soil samples from 15 locations. Samples were collected from soil borings and well installation activities. Selected samples were submitted for analysis of metals, VOCs, SVOCs, pesticides, and PCBs at DNREC's laboratory. No screening was conducted. The PCB analysis indicated that the soil samples did not contain PCBs above laboratory detection limits. DNREC collected four sediment samples from a ditch/creek along the border of the Site in addition to a sample from an area outside of the site boundaries. None of the sediment samples were screened or submitted to a laboratory for PCB analysis.

DNREC collected a total of eight groundwater samples from 8 locations. All six groundwater samples collected from six newly-installed monitoring wells (MW-1 through MW-6) were submitted to DNREC's laboratory for PCB analysis. The pesticide/PCB analysis indicated that one groundwater sample, MW-2, contained Aroclor 1260 at a concentration of 4.3 µg/l. None of the other groundwater samples contained PCBs above laboratory detection limits. DNREC also collected five surface water samples from a ditch/creek along the border of the site, as well as a leachate sample from a bank along the northern side of the site. None of the surface water samples were screened or submitted to a laboratory for PCB analysis.

**A Preliminary Assessment of Rogers Corner Dump Site (DNREC, 1990)**

In July 1990, DNREC published a Preliminary Assessment of Rogers Corner Dump. The assessment provided greater detail of the site history, soil types, and potential waste characteristics. No samples were collected during this assessment.

**A Site Inspection of Rogers Corner Dump Site (DNREC, 1991)**

In January 1991, DNREC conducted a Site Inspection of the Rogers Corner Dump Site. Additional samples were collected, including groundwater, surface water, and sediment samples. Samples were analyzed for full inorganic and organic parameters at DNREC's laboratory. None of the samples were screened.

DNREC collected a total of four sediment samples (plus one duplicate sample) from four locations. PCB analysis indicated that the sediment samples contained Aroclor 1254 and Aroclor 1260 at concentrations ranging from 0.16 to 0.43 mg/kg, and from 0.20 to 0.43 mg/kg, respectively. Sediment samples RCD-18, RCD-20, and RCD-21 exceed the DNREC 2013 screening level for Aroclor 1254 of 0.22 mg/kg with concentrations of 0.35 mg/kg, 0.23 mg/kg, and 0.43 mg/kg, respectively. Sediment samples RCD-18 and RCD-20 exceed the DNREC 2013 screening level for Aroclor 1260 of 0.22 mg/kg with concentrations of 0.39 mg/kg and 0.43 mg/kg, respectively.

A total of four groundwater samples (plus one duplicate) and two surface water samples were collected. The PCB analysis indicated that none of the groundwater samples contained PCBs above laboratory detection limits, including RCD-4. Groundwater sample RCD-4 was collected from the same monitoring well as groundwater sample MW-2 (collected by DNREC in 1990) which had Aroclor 1260 at a concentration of 4.3 µg/l. No surface water samples contained PCBs above laboratory detection limits.

**Current Regulatory Status:**

A document titled "Rogers Corner Landfill: Closure Plan and Water Monitoring Plan" (included as Appendix B in the September 1991 Site Inspection prepared by DNREC) indicates that the site was to be covered with two feet of compacted soil, plus an additional six inches of topsoil. The plan notes that at the time of writing, the site had already been covered with approximately "50,000 tons of thermally treated nonhazardous petroleum contaminated soil for use as the 2 feet of soil cover." A 2006 Memorandum of Agreement indicates that a regional groundwater management

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zone (GMZ) was established that incorporates the former Rogers Corner Dump site. At present the site remains undeveloped and the status of the final landfill closure is unknown.

## SUMMARY OF SITE PCB INFORMATION

### Site Investigation PCB Findings:

No surface soil samples were analyzed for PCBs. PCBs were not detected in any subsurface soil samples. PCBs were detected in one groundwater sample, MW-2 (screen depth 19.5 to 29.5 feet below ground surface (bgs)), at a concentration of 4.3 µg/L in 1990. A sample from this well in 1991 did not detect PCBs. Additionally, PCBs were not detected in all other wells on site that were sampled in both 1990 and 1991, including wells between MW-2 and the Christina River. Therefore, the PCB mass loading rate to surface water via groundwater transport was not estimated for the Property.

The 95% upper confidence limit (UCL) of the mean of the concentration of total PCBs observed in the surface soil could not be calculated since no surface soil samples were analyzed for PCBs.

Concentrations of PCBs on Site			
Sample Matrix	Corresponding Figure	Analytical Methods	Range of Total PCBs
Surface Soil	Figure 2	Not Analyzed	Not Analyzed
Subsurface Soil (unsaturated)	Figure 3	Method 8082	Not Detected
Subsurface Soil (saturated)	Figure 4	Method 8082	Not Detected
Groundwater	Figure 5	Method 8082	Not detected to 4.3 µg/L

A summary of all samples collected for PCB analyses are presented in the Tables 1 and 2.

### Acreage where PCBs detected:

According to the information available and reviewed by BrightFields, no surface soil samples were analyzed for PCBs so the respective area impacted by PCBs cannot be determined (Figure 2). Therefore, overland flow estimates were not prepared for this site. Based on the data available and reviewed by BrightFields, the subsurface soil is not impacted by PCBs (Figure 3 and 4). The groundwater is not expected to be impacted by PCBs since they were not detected in the more recent groundwater data (Figure 5).

### PCB Remediation Status:

For the current site usage, PCB remediation is not presently required for the Rogers Corner Dump site.

## **PCB MASS LOADING SUMMARY**

Since no surface soil samples were analyzed for PCBs, overland flow cannot be evaluated as a mechanism of transport of PCB contamination at the Rogers Corner Dump Site. There was one PCB detection in a groundwater sample collected in January 1990 but PCBs were not detected when the same groundwater monitoring well was sampled in January 1991. Additionally, PCBs were not detected in all other wells on site that were sampled in both 1990 and 1991, including wells between MW-2 and the Christina River. PCBs were not detected in any saturated subsurface soil samples either. Therefore, the PCB mass loading rate to surface water via groundwater transport was not estimated for the Property.

### **Overland Flow:**

No overland flow calculations were performed for this site.

### **Groundwater Discharge Analysis:**

No groundwater discharge analysis was performed for this site.

**Site References:**

Dames & Moore, 1990, Environmental Assessment of Booker, Booker, and Ryan Landfill, March 1990.

Department of Natural Resources and Environmental Control (DNREC), 1990, A Preliminary Assessment of Rogers Corner Dump Site, July 1990.

DNREC, 1991, A Site Inspection of Rogers Corner Dump Site, September 1991.

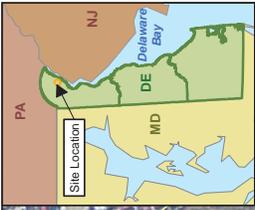
Delaware Geological Survey, 2013, Delaware Data Mil, <<http://datamil.delaware.gov/geonetwork/srv/en/main.home>>, May 2013.

Woodruff, Kenneth D., 1981, Geohydrology of the Wilmington Area, Hydrologic Map Series, No. 3. Sheet 1- Basic Geology, Delaware Geological Survey.

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# Figures



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Historic Sample Locations  
 and Aerial Photograph (2012)  
 Rogers Corner Dump  
 Wilmington, Delaware

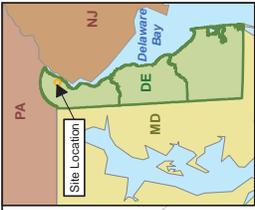
By	Date	Scale	File Name:
Drawn	ADS 4/29/2014	1:1,000	Fig1SiteLoc.mxd
Checked	JEH 4/29/2014		Fig. No.
Project #	0985.69.51		Figure 1

0 75 150 Feet



Source: Delaware Division of Aerial 2012. Tax Parcels: 2012-01-01

- Soil Sample
- Groundwater Sample
- ▲ Sediment Sample
- Surface Water Sample
- Rogers Corner Dump Site Boundary (22.01 acres)
- Tax Parcels



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PCB Distribution in Surface Soil (0' - 2' bgs)  
 Rogers Corner Dump  
 Wilmington, Delaware

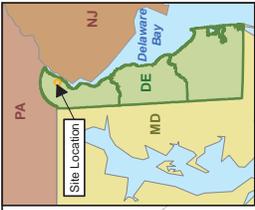
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Checked	JEH 4/29/2014		Fig. No.
Project #	0985.69.51		Figure 2

0 75 150 Feet



- Soil Sample, No PCB data available
- ▭ Rogers Corner Dump Site Boundary
- ▭ Buildings
- ▭ Tax Parcels
- ▭ Surface Water

Source: Delaware DataWILL - Tax Parcels;  
 New Castle County - Buildings.



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PCB Distribution in Subsurface Unsaturated Soil  
 Rogers Corner Dump  
 Wilmington, Delaware

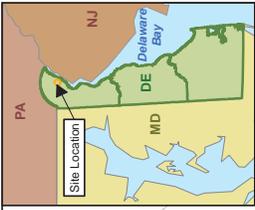
By	Date	Scale:	File Name:
Drawn ADS	4/29/2014	1:1,800	FigSSS_UnSat.mxd
Checked JEH	4/29/2014	Fig. No.	Figure 3
Project #	0985.69.51	Figure 3	

0 75 150 Feet



Note: ND (16) - Not Detected and Sample Depth.  
 Source: Delaware Databases - Tax Parcels,  
 New Castle County - Buildings

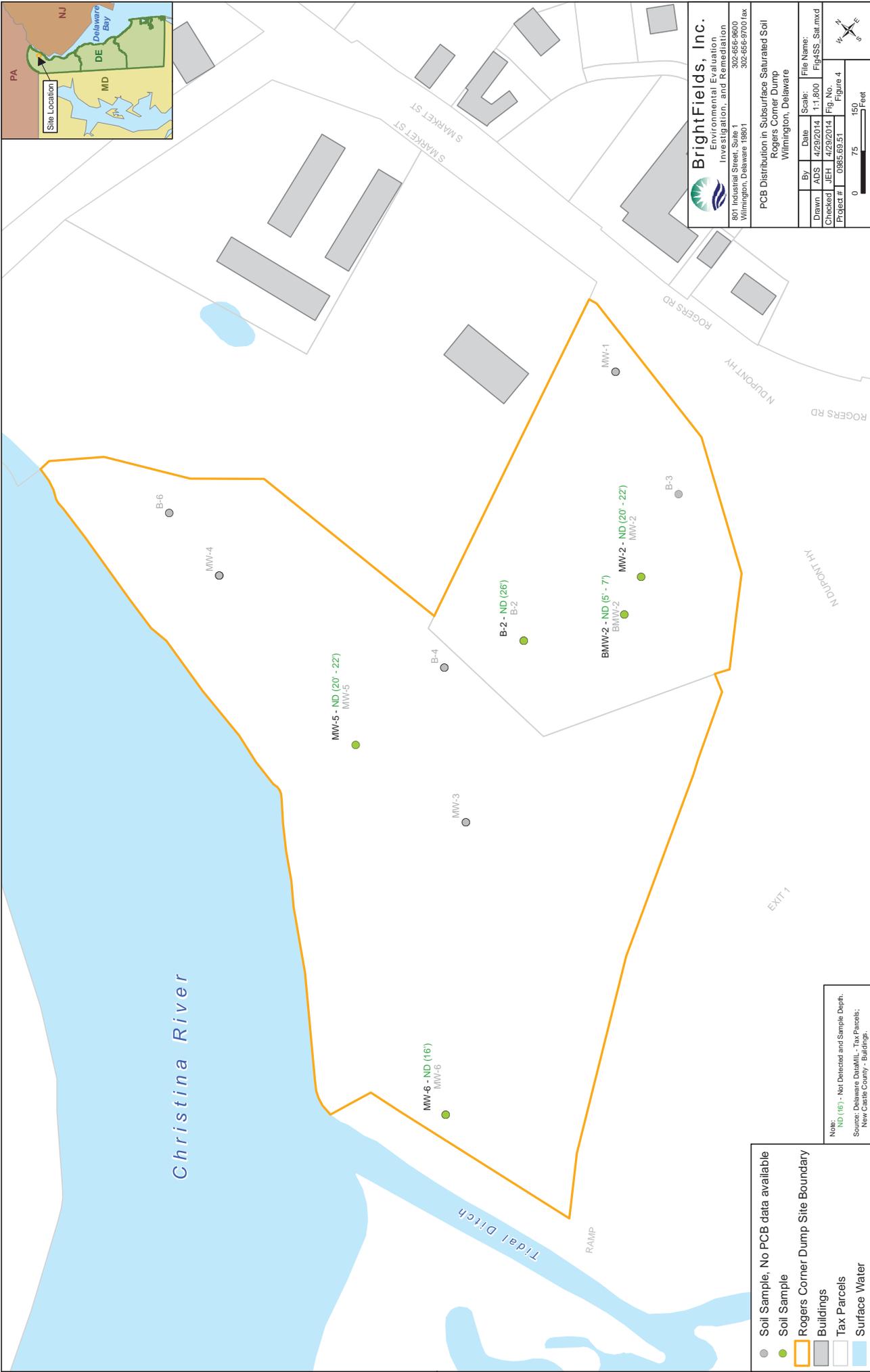
- Soil Sample, No PCB data available
- Soil Sample
- Rogers Corner Dump Site Boundary
- Buildings
- Tax Parcels
- Surface Water



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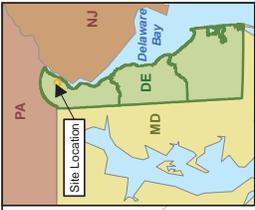
PCB Distribution in Subsurface Saturated Soil  
 Rogers Corner Dump  
 Wilmington, Delaware

By	Date	Scale:	File Name:
Drawn	ADS 4/29/2014	1:1,800	Fig4SS_Sat.mxd
Checked	JEH 4/29/2014	Figure 4	Figure 4
Project #	0985.69.51	0 75 150	Feet



Note: ND (16) - Not Detected and Sample Depth.  
 Sources: Delaware Dept. of Transportation, Tax Parcels,  
 New Castle County - Buildings.

- Soil Sample, No PCB data available
- Soil Sample
- ▭ Rogers Corner Dump Site Boundary
- ▭ Buildings
- ▭ Tax Parcels
- ▭ Surface Water



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PCB Distribution in Groundwater  
 Rogers Corner Dump  
 Wilmington, Delaware

By	Date	Scale	File Name
Drawn ADS	6/26/2014	1:1,800	Fig5GW.mxd
Checked JEH	6/26/2014	Fig. No.	Figure 5
Project #	0985.69.51	Figure 5	

0 75 150 Feet



Notes:  
 \*Sample RCD-4 was collected from the same location as the sample RCD-4. The sample RCD-4 was utilized for PCB distribution in the groundwater.  
 4.3 - Total PCB Concentration (ug/L)  
 ND - Not Detected  
 Source: Delaware DataMILL - Tax Parcels; New Castle County - Buildings.

- Groundwater Sample, No PCB data available
- Groundwater Sample
- Rogers Corner Dump Site Boundary
- Buildings
- Tax Parcels
- Surface Water

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# Tables

Table 1  
PCB Analytical Results For Soil  
Rogers Corner Dump Site (DE-0246)  
Wilmington, DE

Sample Identification	Sample Depth (feet bgs)	Sampling Company	Report Name	Report Date	Aroclor-1016 DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.39	Aroclor-1221 DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.14	Aroclor-1232 DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.14	Aroclor-1242 DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.22	Aroclor-1248 DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.22	Aroclor-1254 DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.11	Aroclor-1260 DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.22
B-2	26'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.099	U	0.099	U	0.099	U	0.2
B-4	6'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.1	U	0.1	U	0.1	U	0.2
B-5	11'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.096	U	0.096	U	0.096	U	0.19
B-6	11'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.11	U	0.11	U	0.11	U	0.22
B-6	16'	DNREC	Environmental Assessment of Booker Landfill	March-90	3.1	U	3.1	U	3.1	U	6.2
B-7	11'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.093	U	0.093	U	0.093	U	0.19
B-8	6'	DNREC	Environmental Assessment of Booker Landfill	March-90	1.1	U	1.1	U	1.1	U	2.2
B-9	11'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.93	U	0.93	U	0.93	U	1.9
BMW-2	5' - 7'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.093	U	0.093	U	0.093	U	0.18
MW-2	20' - 22'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.094	U	0.094	U	0.094	U	0.19
MW-3	10'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.13	U	0.13	U	0.13	U	0.27
MW-5	10' - 12'	DNREC	Environmental Assessment of Booker Landfill	March-90	1.1	U	1.1	U	1.1	U	2.2
MW-5	20' - 22'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.14	U	0.14	U	0.14	U	0.27
MW-6	16'	DNREC	Environmental Assessment of Booker Landfill	March-90	0.1	U	0.1	U	0.1	U	0.2

Note: All results reported in mg/kg.

Qualifiers:

bgs - Below ground surface

U - Sample not detected above the laboratory method detection limit

Table 2  
 PCB Analytical Results For Groundwater  
 Rogers Corner Dump Site (DE-0246)  
 Wilmington, DE

Sample Identification	Screen Depth (feet bgs)	Sampling Company	Report Name	Report Date	Aroclor-1016 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.11	Aroclor-1221 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.004*	Aroclor-1232 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.004*	Aroclor-1242 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.034*	Aroclor-1248 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.034*	Aroclor-1254 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.031*	Aroclor-1260 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.034*
MW-1	10' - 20'	DNREC	Environmental Assessment of Booker Landfill	Mar-90	U	U	U	U	U	U	U
MW-2	19.5' - 29.5'	DNREC	Environmental Assessment of Booker Landfill	Mar-90	U	U	U	U	U	U	U
MW-3	4' - 29'	DNREC	Environmental Assessment of Booker Landfill	Mar-90	U	U	U	U	U	U	U
MW-4	15.4' - 35.4'	DNREC	Environmental Assessment of Booker Landfill	Mar-90	U	U	U	U	U	U	U
MW-5	10' - 20'	DNREC	Environmental Assessment of Booker Landfill	Mar-90	U	U	U	U	U	U	U
MW-6	15.1' - 25.1'	DNREC	Environmental Assessment of Booker Landfill	Mar-90	U	U	U	U	U	U	U
RCD-4	19.5' - 29.5'	DNREC	Site Inspection Report	Sep-91	U	U	U	U	U	U	U
RCD-5	10' - 20'	DNREC	Site Inspection Report	Sep-91	U	U	U	U	U	U	U
RCD-6	10' - 20'	DNREC	Site Inspection Report	Sep-91	U	U	U	U	U	U	U
RCD-7	15.4' - 35.4'	DNREC	Site Inspection Report	Sep-91	U	U	U	U	U	U	U
RCD-9	15.4' - 35.4'	DNREC	Site Inspection Report	Sep-91	U	U	U	U	U	U	U

Note: All results reported in ug/L.

Qualifiers:

bgs - Below ground surface

\* - Screening level likely below the routine method detection limit

U - Sample not detected above the laboratory method detection limit

Bold and shaded - Exceeds DNREC-SIRS January 2014 Screening Levels

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# Site Photographs

PCB Mass Loading Phase II  
Rogers Corner Dump Site  
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Thick vegetation along the northwest of the site.

PCB Mass Loading Phase II  
Rogers Corner Dump Site  
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# **Overland Flow Calculations**

## **(Not Applicable)**

PCB Mass Loading Phase II  
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# **Groundwater Transport Calculations (Not Applicable)**