

PCB Mass Loading Phase II
DuPont Louviers/MBNA
SIRS ID: DE-1049
Newark, Delaware



Appendix 11

DUPONT LOUVIERS/MBNA

NEWARK, DELAWARE

SIRS ID: DE-1049

GENERAL SITE INFORMATION

Site Name: Dupont Louviers/MBNA

SIRS ID Number: DE-1049

Site Location and Description:

The DuPont Louviers/MBNA site is located at 655 Paper Mill Road in Newark, Delaware. The site is approximately 60.3 acres in size and is comprised of one tax parcel (#0804600008) located in the southwest quadrant created by the intersection of Paper Mill Road and Thompson Station Road (Figure 1). The property is bounded to the north by Thompson Station road, beyond which is state parkland; to the east by Paper Mill Road, beyond which are commercial and residential properties; to the south by wooded land and a small commercial office complex; and to the west by state parkland. The head of an unnamed, perennial tributary of White Clay Creek is located approximately 1,000 feet west of the western site boundary; this tributary discharges into White Clay Creek approximately 3,000 feet from the same site boundary. Two other unnamed tributaries have headwaters within 1,000 feet of the site boundary; however, these other tributaries flow further to discharge into the White Clay Creek. Northwest of the site is a golf course, formerly associated with the DuPont Louviers/MBNA site, but outside the scope of this and historical environmental investigations. The surrounding land is generally recreational, residential, and commercial.

Based on the 1994 Phase II Environmental Assessment, surface water from the Site flows westward to southwestward into the White Clay Creek.

The DuPont Louviers/MBNA site is currently owned by the Bracebridge Corporation, and occupied by Bank of America. Bracebridge purchased the property from DuPont in 1994 for use as office space. At present, only two original office buildings from the DuPont era remain. A large office building, the Engineering Test Center (ETC), was demolished immediately prior to the 1994 sale, and a smaller building has been constructed in a previously undeveloped area on site. The three office buildings (and several smaller buildings and support structures) are located centrally on the site, with parking lots and landscaped areas covering the remainder of the site.

The current facility was constructed beginning in 1952, with additions and new buildings being added through 2001. As part of the terms of the 1994 sale to Bracebridge, the ETC and several

associated buildings were demolished, and six areas of soil were excavated and removed from the site for disposal. In the decade prior to the sale, several USTs and ASTs were identified on site. All USTs that were removed were subsequently granted No Further Action (NFA) letters by DNREC-Tank management Branch.

Previous Site Uses:

The site was previously utilized for engineering, testing, and design operations, but most recently has been maintained as an office complex (Bank of America, formerly MBNA). The property historically was vacant land/farmland under the ownership of the Philadelphia, Baltimore, and Washington Railroad, before being purchased by DuPont in the early 1950's. The site was developed incrementally, with the first structure being built in 1952.

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.

Sampling Event (DuPont Environmental Sampling Service, 1988)

In August 1988, DuPont Environmental Sampling Service prepared a report detailing sampling activities at the Louviers Rod and Gun club (located adjacent to the Engineering Test Center). The sampling was performed primarily to determine the nature and extent of the impacts of lead shot contamination from the trap, skeet, and target ranges. The investigation included the sampling of soil, sediment, and surface water to the areas north and west of the range. Two surface soil samples were also collected from the "old disposal area" to the east of the range and analyzed for priority pollutant metals and select volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). No samples were screened or analyzed for PCBs, and the limited hydrogeological data collected from three shallow soil borings was too limited to be extrapolated to site-wide conditions. Data from this report was not incorporated into the PCB Mass Loading database.

Report of Investigation: DuPont Louviers Site/USTs 6, 7 and 8 (DuPont Environmental Field Service, 1991)

In December 1991, DuPont Environmental Field Service (DEFS) prepared a report detailing sampling activities related to the removal of three USTs during October 1990 on the DuPont Louviers property. Two USTs (identified as UST #7 and #8) were removed from the extreme

western edge of the DuPont property, at the water treatment plant located in the floodplain of the White Clay Creek. The third UST (UST # 6) was removed from an area adjacent to a pump house, near the ETC. Fourteen soil borings were advanced at the site of the former UST#6, and nine soil borings were advanced at the site of the former USTs #7 and #8. In total, 34 soil samples were collected, including 3 composite samples of excavated soil stockpiles associated with the UST excavations. Additionally, a surface water sample and groundwater sample from a UST #7/#8 boring were collected. Based on the report and supporting field logs, no groundwater was identified in soil borings associated with UST #6 (located near the ETC). No samples were screened or analyzed for PCBs. Data from this report was not incorporated into the PCB Mass Loading database.

Phase I Environmental Site Assessment: DuPont Louviers Site (DuPont Environmental Remediation Service, 1994)

In April 1994, DuPont Environmental Remediation Service (DERS) prepared a Phase I Environmental Site Assessment in anticipation of the sale of the DuPont Louviers property. At the time of the report, there was one transformer outside which had a PCB concentration low enough to be considered non-PCB and all other transformers outside had the PCB-containing oils replaced with PCB-free oil. However, there were a few transformers in the Louviers Office Building which had PCB-containing oils. Additional potential sources of PCBs were some capacitors on site and the lighting ballasts in some of the non-public areas. The report made several recommendations based on the potential for environmental impacts at several areas of the site:

- Sample soil for PCBs at the electrical substation north of the ETC.
- Perform tightness testing of the two active USTs near the ETC/Louviers office building.
- Sample soil to the west of the ETC, in the vicinity of the welding laboratory, sandblasting area, gun club area, and down gradient of an area where environmental field equipment had been rinsed.
- Drain the acid sump and sample for pH, as well as sample the pH of soil down gradient of the acid loop.
- Sample soil beneath an AST near the ETC, at a depth equal to or greater than associated underground piping.

- Sample soil in the vicinity of the former and current drum storage pad, beneath the cyclonic incinerator, and near the Particle Processing Grinding (PPG) shed.
- Collect a background sample to determine a baseline of soil metals on the site.

Louviers Building Area and Engineering Test Center Phase II Environmental Assessment: DuPont Louviers Site (DERS, 1994)

In July 1994, DERS completed a Phase II Environmental Assessment of the DuPont Louviers/MBNA site. The investigation scope was limited to the areas immediately in and around the office buildings and support structures; the investigation did not include the water treatment plant or golf course areas. The assessment was performed to determine the nature and extent of any contamination associated with activities at the ETC, and was guided by the recommendations of the DERS and Duffield Phase I Assessments. A total of 27 soil samples were collected from the DuPont Louviers/ETC site. Only two samples (LS-1 and LS-2) were submitted for PCB analysis. Both samples were collected from locations adjacent to the transformer pads at the electrical substation and lab analysis revealed elevated PCB concentrations. LS-1 was found to contain Aroclor 1254 at a concentration of 0.3 mg/kg. LS-2 was found to contain Aroclor 1260 at a concentration of 1.4 mg/kg. The DNREC unrestricted URS at the time was 0.3 mg/kg for Aroclor 1254/Aroclor 1260. The unrestricted URS was not exceeded.

Based upon the completed Phase II Environmental Assessment, DERS recommended further investigation of the substation area only if residential development (unrestricted use) was anticipated at the site.

Louviers Building Area and Engineering Test Center Phase II Environmental Assessment: DuPont Louviers Site (Duffield, 1995)

The Duffield Phase II assessment was performed on behalf of MBNA to determine if environmental issues could affect their future ownership and redevelopment. The full report was not available at the time of this report but the data available on the DNREC Environmental Navigator was utilized in this analysis.

Assessment and Removal of Soil at the Former DuPont Engineering Test Center (DERS and Duffield, 1996)

Between January and February 1995, DuPont conducted a limited excavation of soils in the vicinity of the ETC. Soil removal was targeted to discrete areas based on detections of metals, polycyclic aromatic hydrocarbons (PAHs), petroleum, and pesticides. Areas A, B, C, D, E, and F were excavated to depths ranging from 1 foot below grade to over 4 feet below grade. Soils where PCBs were detected (adjacent to the electrical substation) were not excavated. All areas excavated were subsequently backfilled with clean fill and either graded and landscaped or paved with concrete or asphalt. Sidewalls and floors of the excavated areas were subjected to additional sampling to ensure that targeted contaminants were removed or reduced to acceptable levels. Because none of the target contaminants were PCBs, no confirmatory PCB sampling was conducted. The PCB-impacted soil was permitted to remain in place undisturbed since the new occupants planned to use the site as a commercial office complex.

Current Regulatory Status:

Documents from the DNREC Environmental Navigator show correspondences from March 1996 discussing whether or not to issue a No Further Action letter, but there is no record of a letter being issued in the files.

SUMMARY OF SITE PCB INFORMATION

Site Investigation PCB Findings:

PCBs were detected in surface soil at two locations, LS-1 (0.5 to 1.0 feet below ground surface (bgs)) and LS-2 (0.5 to 1 feet bgs) at concentrations of 0.3 mg/kg and 1.4 mg/kg, respectively. PCBs were not detected in the unsaturated subsurface soil. No saturated subsurface soil samples were analyzed for PCBs.

Due to the fact that there were only two detections in the subsurface saturated soil, the maximum detected value (1.4 mg/kg) was used in the calculations instead of calculating the 95% upper confidence limit (UCL) of the mean across the site. Groundwater samples were not analyzed for PCBs.

Concentrations of PCBs on Site			
Sample Matrix	Corresponding Figure	Analytical Methods	Range of Total PCBs
Surface Soil	Figure 2	Method 8082	Not detected to 1.4 mg/kg
Subsurface Soil (unsaturated)	Figure 3	Method 8082	Not Detected
Subsurface Soil (saturated)	Figure 4	Not Analyzed	Not Analyzed
Groundwater	Figure 5	Not Analyzed	Not Analyzed

A summary of all samples collected for PCB analyses are presented in Table 1.

Acreage where PCBs detected:

The estimated surface soil area impacted by PCBs is 21.9 acres in the vicinity of LS-1 and LS-2 (Figure 2). The impacted area may be overestimated due to the lack of additional PCB analytical data in the vicinity of LS-1 and LS-2. This uncertainty is reflected in the uncertainty analysis, where the average number of samples per acre is calculated as less than 1. Based on the data available and reviewed by BrightFields, the subsurface unsaturated soil is not impacted by PCBs. Since no saturated subsurface soil samples or groundwater samples were analyzed for PCBs, BrightFields cannot determine the respective areas impacted by PCBs.

According to the information available and reviewed by BrightFields, no subsurface saturated soil or groundwater samples were analyzed for PCBs so the respective areas impacted by PCBs cannot be determined. Therefore, no groundwater loading estimates were prepared for the site.

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PCB Remediation Status:

PCB remediation is not presently required for the DuPont Louviers/MBNA site.

PCB MASS LOADING SUMMARY

The PCB mass loading rate to surface water via overland flow was estimated for the DuPont Louviers/MBNA Property. No samples from the subsurface saturated zone or the groundwater were analyzed for PCBs; therefore, groundwater transport cannot be evaluated as a mechanism of transport for PCBs at the Property. A summary of the results is included below and the details of the calculations are included as attachments to this Appendix.

Overland Flow:

Overland flow has been determined on this site by using the Revised Universal Soil Loss Equation (RUSLE). The RUSLE predicts the long term average annual rate of erosion on an area based on rainfall patterns, soil type, topography, cover/canopy factors and support management practices. These specific factors are site specific and rely on local information of the site. A breakdown of the individual factors is presented below with a brief explanation of their choice.

Ground Cover and Canopy:

The surface cover and flow paths were assessed through aerial photography and available contour mapping (Delaware Data Mil, 2007). The cover/management factor (C) assigned to the erodible area and associated flow paths was 0.003, which corresponds to a vegetative cover of grass like vegetation over greater than 95% of the area.

Site Sediment and Erosion Control Practices:

Based on the aerial photography evaluation and review of site documents it does not appear that any sediment and erosion control practices are being implemented on Site.

Input Factors and Results:

A breakdown of the individual factors is presented below with a brief explanation of their choice.

DuPont Louviers/MBNA

RUSLE Factors	Values Provided	Explanation of choice
R = rainfall-runoff erosivity index (10 ² ft-tonf-in/ac-hr-yr)	175	An appropriate value for R for the Site was determined using the Isoerodent Map of the Eastern U.S. from the Stormwater Phase II Final Rule Construction Rainfall Erosivity Waiver (USEPA, 2012).
K = soil erodibility (0.01 ton-ac-hr/ac-ft-tonf-in)	0.28	The soil erodibility factors were selected from the National Resource Conservation Soil Survey Geographic Database (SSURGO) and a raster was generated using the values 0.28 and 0.32, with a weighted average of 0.28.
ls = topographic factor (dimensionless)	0.18	The topographic factor was derived based on the slope and flow accumulation grids created in ArcGIS. An output LS grid was created and the average value for the grid is provided.
C = cover/management factor (dimensionless)	0.003	The cover/management factor C assigned to the erodible area was 0.003, which corresponds to a vegetative cover of grass like vegetation over greater than 95% of the area.
P = support practice factor (dimensionless)	1	No documentation was provided indicating that any sediment and erosion controls are in place.
A = average annual soil loss estimate (ton/ac-yr)	0.048	The average soil loss estimate was generated by ArcGIS using the input factors listed above.
Erodible Area (acres)	8.9	The erodible area was calculated based on the pervious surfaces within the area of concern polygon for surface soil (Figure 6).

For factors that were not consistent across the site, rasters were used to characterize the variations. Due to the methodology utilized to derive the soil loss estimate, the numbers listed above cannot simply be multiplied.

The total estimated PCB loading via overland flow for the DuPont Louviers/MBNA Property is **0.54 grams per year**. Please see attached table for specific variables.

Uncertainty Analysis Associated with Overland Flow:

Specific Areas and Degree of Uncertainty for the DuPont Louviers/MBNA

	Samples Per Acre (site)	Chemical Data Quality*	Soil Type	Site Coverage	Map Quality	Distance to Discharge Point
Site Specific Information	0.60	Aroclor Data	Soil Database	Based on a thorough site assessment	Okay Scaled Map; No Figure	Approximately 3,250 feet
Degree of Uncertainty	High	Moderate	Low	Low	Moderate	High

* Primary analysis used in the historical samples

Sources of uncertainty for the DuPont Louviers/MBNA site include: All of the data analyzed was Aroclor laboratory data. Most of the sample locations were from scaled maps and two samples did not have a sample location figure. Based on this evaluation the level of uncertainty associated with overland flow PCB mass loading from the DuPont Louviers/MBNA site is **Moderate.**

Groundwater Discharge Analysis:

No groundwater discharge analysis was performed for this site.

Site References:

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

DuPont Environmental Field Service, 1991, Report of Investigation, DuPont Louviers Site, USTs 6, 7, 8, December 1991.

DuPont Environmental Remediation Services, 1994, Phase I Environmental Site Assessment, DuPont Louviers Site, April 1994.

DuPont Environmental Remediation Services, 1994, Louviers Building Area and Engineering Test Center, Phase II Environmental Assessment, July 1994.

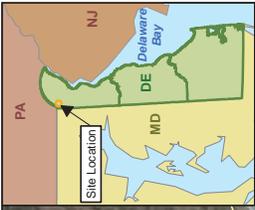
DuPont Environmental Remediation Services, 1996, Assessment and Removal of Soil at the Former Louviers Engineering Test Center, January 1996.

DuPont Environmental Sampling Service, 1988, Louviers Site, August 1988.

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Figures



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Historic Sample Locations
 and Aerial Photograph (2012)
 DuPont Louvers/MBNA
 Newark, Delaware

By	Date	Scale	File Name:
Drawn	ADS 6/19/2014	1:2,280	Fig1SiteLoc.mxd
Checked	JEH 6/19/2014		Fig. No.
Project #	0985.69.51		Figure 1
	0	95	190

0 95 190 Feet

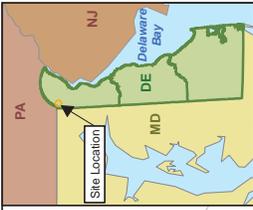
W N E S



- Soil Sample
- Surface Water
- ▭ Former Building Location
- ▭ DuPont Louvers/MBNA Site Boundary (60.34 acres)
- ▭ Tax Parcels

Source: Delaware DNR/DEH - Aerial 2012; Tax Parcels

Fig. 1: Site Location Map (2012). GIS File: C:\GIS\Projects\Site\Map\Map1.mxd; Data: C:\GIS\Projects\Site\Map\Map1.gdb; Data Source: C:\GIS\Projects\Site\Map\Map1.gdb; Data Source: C:\GIS\Projects\Site\Map\Map1.gdb



THOMPSON STATION RD

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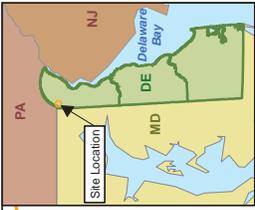
PCB Distribution in Surface Soil (0' - 2' bgs)
 DuPont Louvers/MBNA
 Newark, Delaware

By	Date	Scale	File Name
ADS	6/19/2014	1:1,680	Fig2BatSurf.mxd
JPR	6/19/2014	Fig. No.	Figure 2
Project #	0985.69.51	Figure 2	
0 70 140		Feet	



Notes:
 0.30 (0.5 - 1) - Total PCB Concentration (mg/kg) and Sample Depth.
 ND - Not Detected.
 Source: Delaware DataMIL - Tax Parcels;
 New Castle County - Buildings.

X Removed during Excavation
 ● Soil, No PCB data available
 ● Soil Sample
 [Green Hatched] Estimated PCB Distribution
 [Orange Line] DuPont Louvers/MBNA Site Boundary
 [Grey Shape] Buildings
 [White Area] Tax Parcels

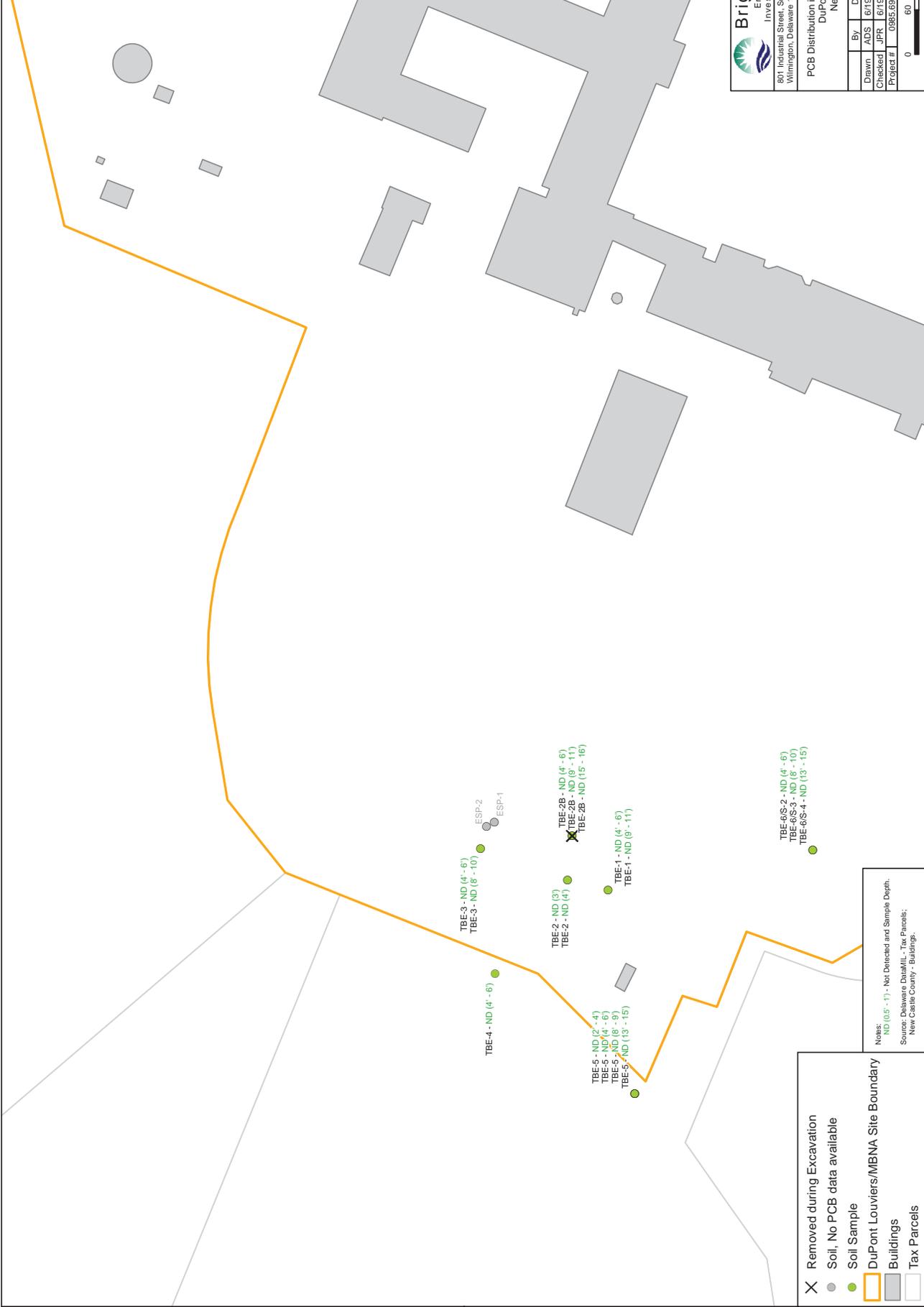


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PCB Distribution in Subsurface Unsaturated Soil
 DuPont Louviers/MBNA
 Newark, Delaware

By	Date	Scale	File Name
ADS	6/19/2014	1:1,440	FigSSS_UnSat.mxd
Checked	JPR	6/19/2014	Fig. No.
Project #	0985.69.51	Figure 3	
	0	60	120
			Feet



Removed during Excavation

Soil, No PCB data available

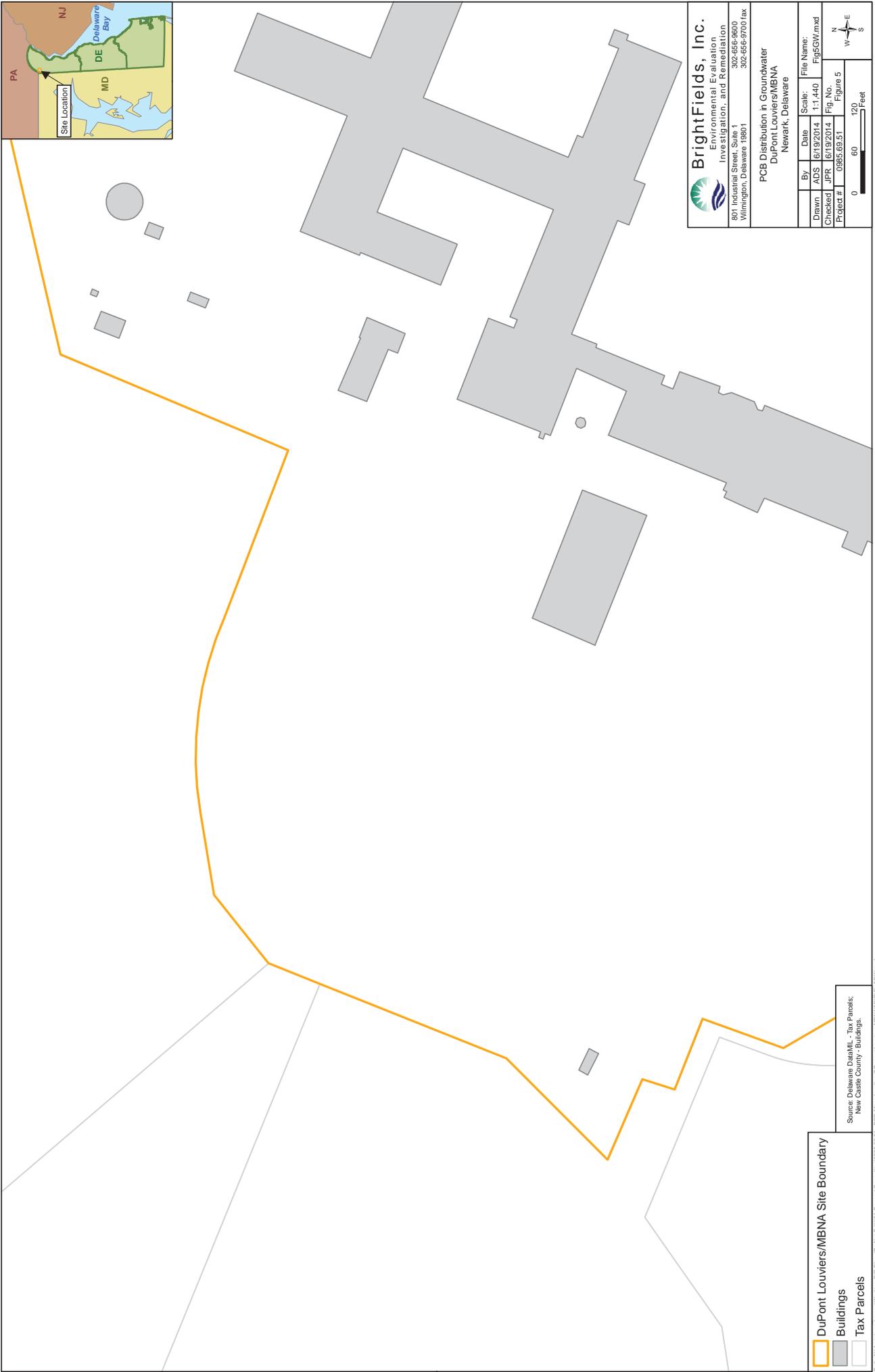
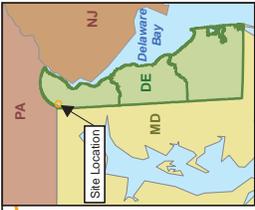
Soil Sample

DuPont Louviers/MBNA Site Boundary

Buildings

Tax Parcels

Notes:
 ND (0.5' - 1') - Not Detected and Sample Depth.
 Source: Delaware DataMILL - Tax Parcels;
 New Castle County - Buildings.



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PCB Distribution in Groundwater
 DuPont Louviers/MBNA
 Newark, Delaware

By	Date	Scale	File Name
ADS	6/19/2014	1:1,440	Fig5GW.mxd
Checked	JPR	6/19/2014	Fig. No.
Project #	0985.69.51	Figure 5	
0	60	120	0
			Feet

DuPont Louviers/MBNA Site Boundary

Buildings

Tax Parcels

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

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Table

Table 1
PCB Analytical Results For Soil
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Sample Identification	Sample Depth (feet bgs)	Sampling Company	Report Name	Report Date	Aroclor-1016 DNREC-SIRS Screening Level (mg/kg)	Aroclor-1221 DNREC-SIRS Screening Level (mg/kg)	Aroclor-1232 DNREC-SIRS Screening Level (mg/kg)	Aroclor-1242 DNREC-SIRS Screening Level (mg/kg)	Aroclor-1248 DNREC-SIRS Screening Level (mg/kg)	Aroclor-1254 DNREC-SIRS Screening Level (mg/kg)	Aroclor-1260 DNREC-SIRS Screening Level (mg/kg)
ETC-1	0' - 0.5'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
ETC-3A	1.5' - 2'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
ETC-11	0' - 0.5'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
ETC-22	0' - 0.5'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
ETC-25	0' - 0.5'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
ETC-26	0' - 0.5'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
LS-1	0.5' - 1'	DuPont	Louviers Building Area and Engineering Test Center Phase II Environmental Assessment	Jul-94	0.2	U	0.2	U	0.2	U	0.2
LS-2	0.5' - 1'	DuPont	Louviers Building Area and Engineering Test Center Phase II Environmental Assessment	Jul-94	0.2	U	0.2	U	0.2	U	0.2
Sp1A	0'	DuPont and Duffield Associates	Assessment and Removal of Soil at the Former DuPont Engineering Test Center	Jan-96	0.2	U	0.2	U	0.2	U	1.4
Sp1B	0'	DuPont and Duffield Associates	Assessment and Removal of Soil at the Former DuPont Engineering Test Center	Jan-96	0.2	U	0.2	U	0.2	U	0.2
Sp1C	0'	DuPont and Duffield Associates	Assessment and Removal of Soil at the Former DuPont Engineering Test Center	Jan-96	0.2	U	0.2	U	0.2	U	0.2
Sp1D	0'	DuPont and Duffield Associates	Assessment and Removal of Soil at the Former DuPont Engineering Test Center	Jan-96	0.2	U	0.2	U	0.2	U	0.2
Sp1E	0'	DuPont and Duffield Associates	Assessment and Removal of Soil at the Former DuPont Engineering Test Center	Jan-96	0.2	U	0.2	U	0.2	U	0.2
TBE-1	0' - 2'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-1	4' - 6'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-1	9' - 11'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-2	3'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-2	4'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-2A	0' - 2'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-2B	0' - 2'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-2B	15' - 16'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-2B	4' - 6'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-2B	9' - 11'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-3	0' - 2'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-3	4' - 6'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-3	8' - 10'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-4	0' - 2'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-4	4' - 6'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-5	13' - 15'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-5	2' - 4'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-5	4' - 6'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-5	8' - 9'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-GS-1	0' - 2'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-GS-2	4' - 6'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-GS-3	8' - 10'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	U	0.2
TBE-GS-4	13' - 15'	Duffield Associates	Duffield Phase II	1994	0.2	U	0.2	U	0.2	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
- Bold and Shaded - Exceeds DNREC-SIRS January 2014 Screening Levels

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Site Photographs



Parking lot in the eastern corner of the site which slopes and then back up in the southwestern direction.



Gently sloped parking lot lined with trees in the southern corner of the site.



Parking lot in the southern corner of the site which is sloped down away from the buildings.



Drainage ditch in the southwestern portion of the site between two parking lots.



The western corner of the site at the edge of the parking lot where there is a grassy hill and a wooded area. There is also another drainage ditch which runs parallel to the parking lot edge.



A side view of the drainage ditch looking northeast.



An additional parking lot in the distance located at a lower elevation in the northern corner of the site.



The additional parking lot in the northernmost region of the site which is sloped down towards the north.

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Land outside of the main building in the northwestern portion of the site sloped down steeply towards the north.

PCB Mass Loading Phase II
DuPont Louviers/MBNA
SIRS ID: DE-1049
Newark, Delaware



Overland Flow Calculations

**PCB Loading Calculations from the Revised Universal Soil Loss Equation (RUSLE)
 DuPont Louviers/MBNA (DE-1049)
 Newark, DE**

Surface PCB Concentration 1.4 mg/kg

Symbol	Factor	Value	Units
R	Rainfall/Runoff Erosivity Index	175	10 ² ft-tonf-in/ac-hr-yr
K	Soil Erodibility	0.28	0.01 ton-ac-hr/ ac-ft-tonf-in
	Erodible Area	8.9	Acres
LS	Topographic Factor	0.18	Dimensionless
C	Cover and Management Factor	0.003	Dimensionless
P	Support Practice Factor	1	Dimensionless
A	Average Annual Soil Loss	0.048	ton/ac-yr

**PCB Loading via Overland
 Flow** 0.54 **grams/year - PCBs**

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Groundwater Transport Calculations (Not Applicable)