

PCB Mass Loading Phase II  
Fitzgerald's Auto Salvage Property  
SIRS ID: DE-1315  
Lincoln, Delaware



## **Appendix 12**

# **FITZGERALD'S AUTO SALVAGE PROPERTY LINCOLN, DELAWARE**

**SIRS IDS: DE-1315**

## **GENERAL SITE INFORMATION**

**Site Name: Fitzgerald's Auto Salvage Property**

**SIRS ID Numbers: DE-1315**

**Site Location and Description:**

The Fitzgerald's Auto Salvage Property is located at 17115 Fitzgeralds Road in Lincoln, Delaware (Figure 1). The Site is approximately 43.3 acres in size and comprised of one parcel (#1306008800). The property is bounded to the north by undeveloped land, to the east by Route 113 North and some small businesses, to the south by Fitzgeralds Road and residences, and to the west by residences and agricultural land.

Based on the 2010 Phase I Sampling Remedial Investigation/Feasibility Work Plan, surface water is expected to flow northwest towards Herring Branch. Herring Branch runs through the northwestern portion of the Site, which ultimately discharges to the Delaware Bay (approximately 15 miles away from the Site).

The property currently is owned by Jack Fitzgerald, who bought the property from his father in 1951. The site currently serves as an automobile salvage yard which collects and sells parts from damaged vehicles. Mr. Fitzgerald operates the salvage company with his two sons; John Fitzgerald and Scott Fitzgerald.

Prior to 1991, there were gasoline pumps on the property and in 1991 the underground storage tanks (UST) were removed. No other USTs were reported.

**Previous Site Uses:**

The property currently is and has been used as an automobile salvage yard since the mid-1930s. The company also conducts salvage of electronic equipment and computers in addition to automobiles.

**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.

**Storm Water Sample (DNREC, 1999)**

Available records indicate a storm water sample was collected with PCBs detected. However, the exact location of the sample could not be determined and therefore the results were not used.

**Preliminary Assessment (DNREC, 2004)**

The State of Delaware Department of Natural Resources and Environmental Control (DNREC) performed a Preliminary Assessment (PA) of the Fitzgerald's Auto Salvage Property in June 2004. The purpose of the PA was to investigate the possible release of hazardous substances at the property through the collection and analysis of historical information and interviews with property owners/tenants. The PA report indicates that a drainage ditch was observed running east to west across the center of the property and that the drainage ditch was observed to drain to a small catch basin located adjacent to Herring Branch. The catch basin is a permitted discharge point under the National Pollution Discharge Elimination System (NPDES) and requires annual sampling. According to John Fitzgerald, the catch basin has never been full enough to discharge to Herring Branch and therefore the outfall had never been sampled. DNREC observed that the water level in the catch basin appeared to be at the same level of the water in the adjacent Herring Branch indicating that stormwater was possibly infiltrating into the soils of the catch basin and ultimately, into Herring Branch.

According to site representatives interviewed during the PA, all vehicles brought to the site to be salvaged are drained of fluids prior to staging in the vehicle storage areas and this has been the procedure at the facility for approximately 15 years. Prior to that time, vehicles were not drained of fluids. Fluids collected from the vehicles are placed into above ground storage tanks (ASTs) for recycling. A portion of the used oil collected is burned for heat at the property. After the vehicles are drained of fluids, they are then staged on the property. Once the valuable parts have been stripped from the vehicles, the vehicles are crushed, bailed, and placed on trucks to be transported to offsite scrapyards.

Scrap metals brought to the property are reportedly cut down in size, bailed, and placed on trucks to be transported to offsite scrapyards. Historically, aluminum, copper, and steel were melted down in a smelter furnace located at the property. According to Scott Fitzgerald, this practice was discontinued in the mid-1980s or early 1990s.

The PA report indicates that several areas of staining were observed during the PA site visit. Additionally, the report indicates that several areas of potential concern were identified at the site based on current or past operating practices. Based on this information, DNREC recommended that additional investigations be conducted at the property.

**Site Inspection (DNREC, 2005)**

In March 2005 DNREC used the results from the 2004 PA to focus on specific areas with suspected contamination within the Fitzgerald's Auto Salvage Property.

DNREC established six areas of concern (AOC) where soil contamination was most likely. These included the Scale (AOC#1), Smelter Furnace (AOC#2), Shear (AOC#3), Holding Area/Vehicle Storage Area (AOC#4), Process Area (AOC#5), and Battery Storage Area (AOC#6). A total of 80 soil samples were collected. Additionally, a total of six sediment samples were collected; three collected from around and in the center of Herring Branch and three collected from the drainage ditch flowing into the catch basin. Soil and sediment samples were analyzed for PCBs. Aroclor 1254 was detected at concentrations ranging from ND to a maximum of 11 mg/kg. The concentrations were compared to the Risk-Based Concentration (RBC) screening level of 1.431 mg/kg and the Uniform Risk-Based Remediation Standard (URS) screening level of 3 mg/kg. AOC#1 and AOC#3 had PCB concentrations in soil above the screening levels.

Three groundwater monitoring wells were installed; at the north end of the site, north of the Former Fluids Drainage Building, and next to the vehicle crushing area. Groundwater was found to flow northwest. An on-site drinking water well was also sampled. No PCBs were detected in any of the wells. Surface water samples were collected upstream and downstream of the site at two locations. PCBs were not detected in surface water samples. Surface water sample locations were not shown on the figure and therefore were not included in this report.

DNREC recommended additional sampling and a remedial investigation (RI) to characterize the delineation of certain contaminants on the site.

**Current Regulatory Status:**

On April 19, 2010 John Fitzgerald entered into a Voluntary Cleanup Program (VCP) agreement with DNREC for Fitzgerald Auto Salvage Site and Fitzgerald Salvage and Recycling, Inc. Ten Bears Environmental, L.L.C. was contracted to perform the Remedial Investigation/Feasibility

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Study (RI/FS). DNREC received the Phase I Sampling RI/FS work plan in May 2010 and it appears that the initial investigation is still in progress.

## SUMMARY OF SITE PCB INFORMATION

### Site Investigation PCB Findings:

For purposes of the PCB loading estimates, surface soil is defined as 0 to 2 feet below ground surface (bgs). Samples collected from soil depths spanning 2 feet bgs were included in both the surface and subsurface data sets.

PCBs were detected in the surface soil in 5 samples, ranging from 0.20 mg/kg to 11 mg/kg. In the unsaturated subsurface soil, PCBs were detected in 3 samples and ranged from 0.20 mg/kg to 11 mg/kg. No PCBs were detected in the saturated subsurface soil and groundwater.

The calculated 95% upper confidence limit (UCL) of the mean of the concentration of total PCBs observed in the surface soil (for overland flow calculations) is 7.9 mg/kg. PCBs were not detected in groundwater samples.

<b>Concentrations of PCBs on Site</b>			
<b>Sample Matrix</b>	<b>Corresponding Figure</b>	<b>Analytical Methods</b>	<b>Range of Total PCBs</b>
Surface Soil	Figure 2	Method 8082 and Screening Data	Not detected to 11 mg/kg
Subsurface Soil (unsaturated)	Figure 3	Method 8082 and Screening Data	Not detected to 11 mg/kg
Subsurface Soil (saturated)	Figure 4	Screening Data	Not Detected
Groundwater	Figure 5	Method 8082	Not Detected

A summary of all samples collected for PCB analyses are presented in Tables 1 through 3.

### Acreage where PCBs detected:

The estimated surface soil impacted by PCBs is 3.7 acres (Figure 2). The estimated subsurface unsaturated soil impacted by PCBs is 3.6 acres (Figure 3). Based on the data available and reviewed by BrightFields, the subsurface saturated soil and groundwater are not impacted by PCBs.

### PCB Remediation Status:

The Remedial Investigation must be completed in order to determine whether PCB remediation is required for the Fitzgerald's Auto Salvage Property.

## **PCB MASS LOADING SUMMARY**

The PCB mass loading rate to surface water via overland flow was estimated for the Fitzgerald's Auto Salvage Property. There were no reported concentrations of PCBs in the subsurface saturated zone or in the groundwater; therefore, groundwater transport was not 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 factors (C) assigned to the erodible area and associated flow paths was 1, which corresponds to completely bare areas without a vegetative cover.

### **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.

**Fitzgerald's Auto Salvage Property**

<b>RUSLE Factors</b>	<b>Values Provided</b>	<b>Explanation of choice</b>
R = rainfall-runoff erosivity index (10 <sup>2</sup> 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)	0.18	The soil erodibility factors were selected from the National Resource Conservation Soil Survey Geographic Database (SSURGO) and a raster was generated using the values 0.15 and 0.24, with a weighted average of 0.18.
ls = topographic factor (dimensionless)	0.12	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)	1	The cover/management factor C assigned to the erodible area was 1, which corresponds to bare ground with no vegetative cover.
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)	5.6	The average soil loss estimate was generated by ArcGIS using the input factors listed above.
Erodible Area (acres)	1.1	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 Fitzgerald's Auto Salvage Property is **44 grams per year**. Please see attached table for specific variables.

**Uncertainty Analysis Associated with Overland Flow:**

**Specific Areas and Degree of Uncertainty for the Fitzgerald's Auto Salvage Property**

	<b>Samples Per Acre (site)</b>	<b>Chemical Data Quality*</b>	<b>Soil Type</b>	<b>Site Coverage</b>	<b>Map Quality</b>	<b>Average Distance to Discharge Point</b>
<b>Site Specific Information</b>	1.8	Screening Data	Soil Database	Based on aerial	Scaled Map	Approximately 1,780 feet
<b>Degree of Uncertainty</b>	Moderate to High	High	Low	High	Moderate	High

\* Primary analysis used in the historical samples

Sources of uncertainty for the Fitzgerald's Auto Salvage Property include: The majority of the data utilized for the analysis was Immunoassay screening data, with only a few samples that had Aroclor lab data. The site coverage factor was based solely on the aerial since there was no access to the site. All of the sample locations came from a moderately scaled map. Based on this evaluation the level of uncertainty associated with overland flow PCB mass loading from the Fitzgerald's Auto Salvage Property is **Moderate to High**.

**Groundwater Discharge Analysis:**

No groundwater discharge analysis was performed for this site.

**Site References:**

Delaware Department of Natural Resources and Environmental Control (DNREC), 2004, Preliminary Assessment of the Fitzgerald's Auto Salvage, September 2004.

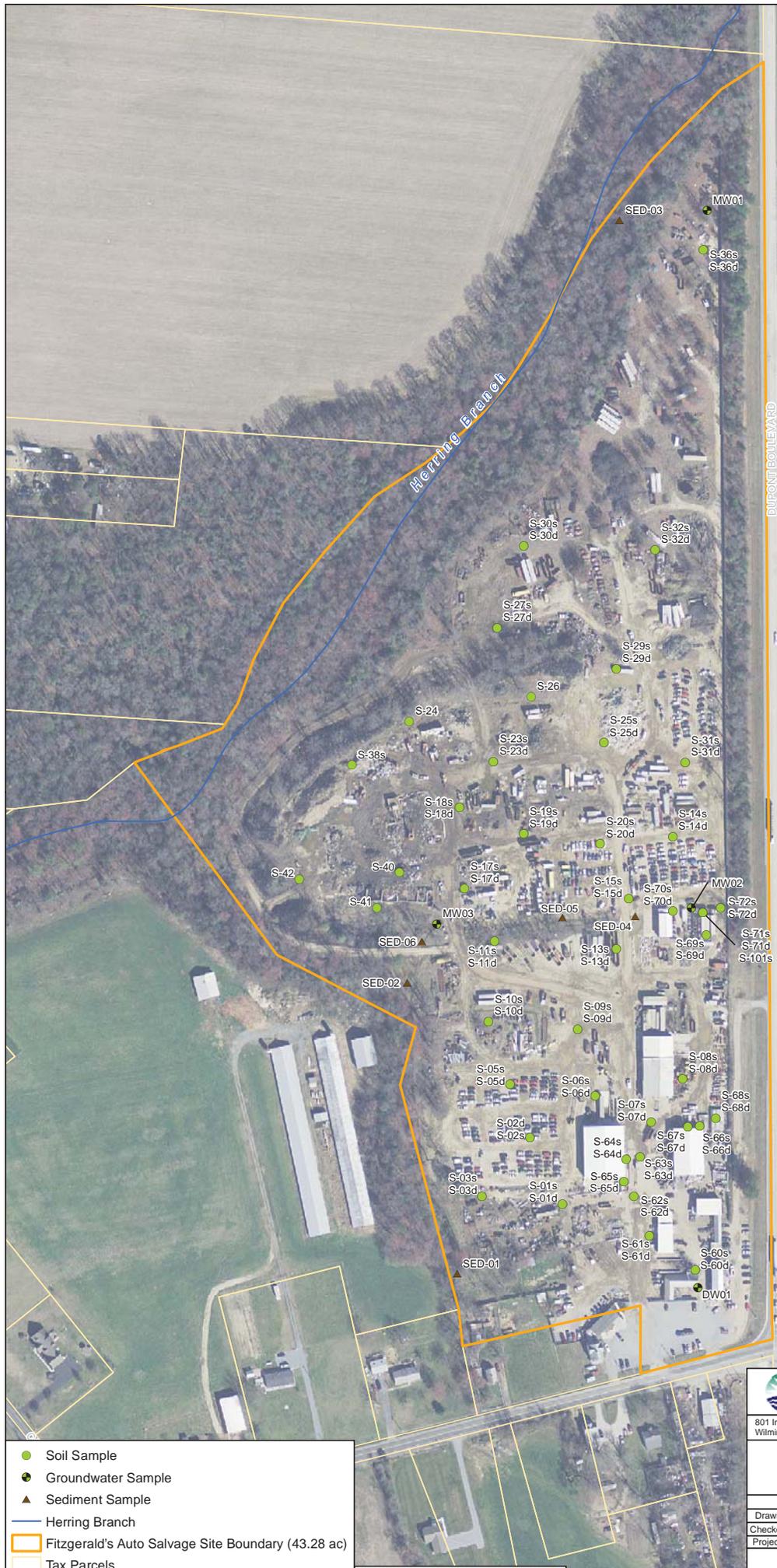
DNREC, 2005, Site Inspection, Fitzgerald's Auto Salvage, September 2005.

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

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# Figures



- Soil Sample
- Groundwater Sample
- ▲ Sediment Sample
- Herring Branch
- Fitzgerald's Auto Salvage Site Boundary (43.28 ac)
- Tax Parcels

Source: Delaware DataML - Aerial 2012, Tax Parcels.



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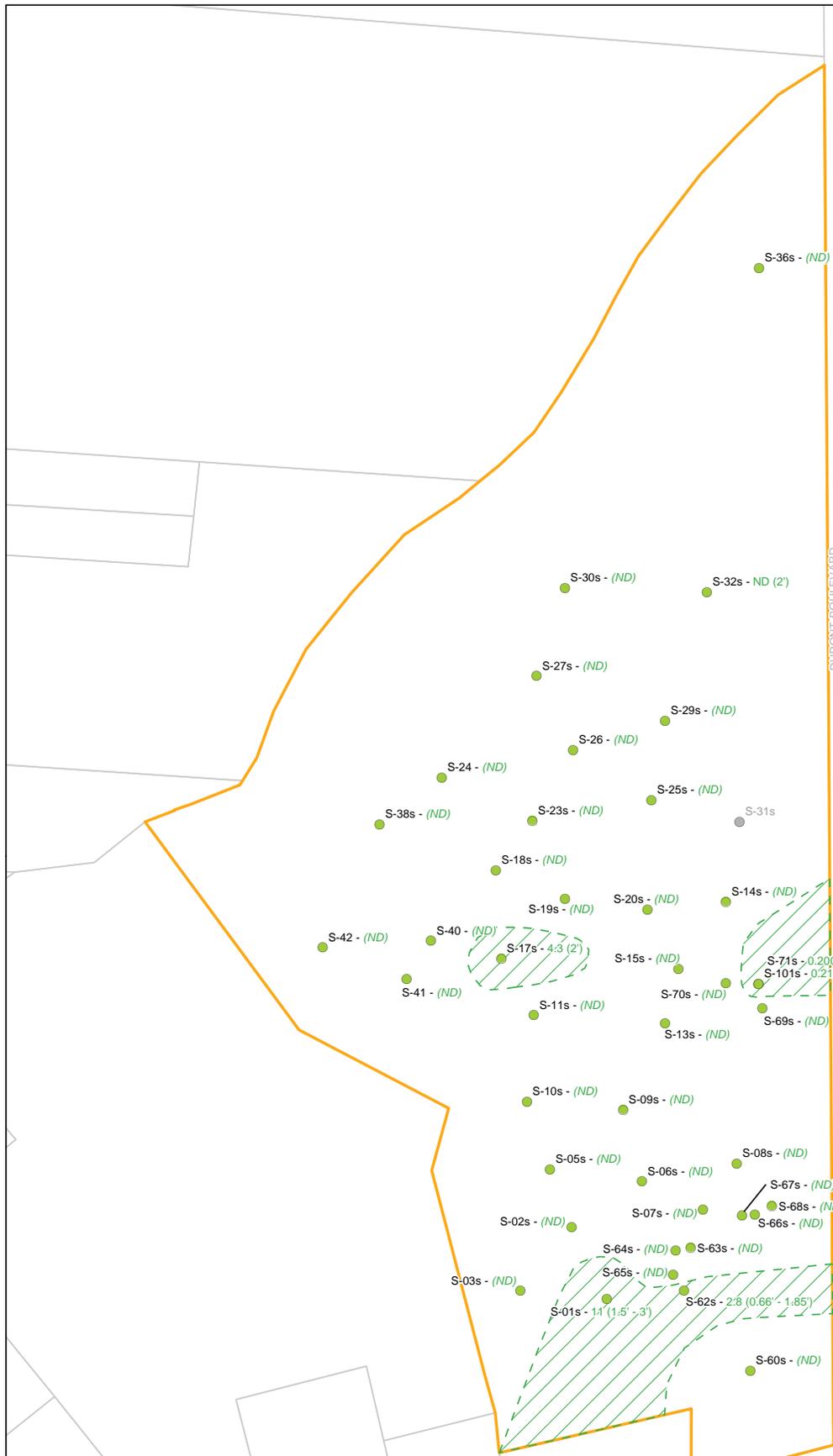
Historic Sample Locations  
and Aerial Photograph (2012)  
Fitzgerald's Auto Salvage  
Lincoln, Delaware

By	Date	Scale	File Name:
Drawn	ADS 6/2/2014	1:2,400	Fig1SiteLoc.mxd
Checked	JEH 6/2/2014	Fig. No.	
Project #	0985.69.51	Figure 1	

0      100      200  
Feet



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- Soil Sample, No PCB data available
- Soil Sample
- ▨ Estimated PCB Distribution
- ▭ Fitzgerald's Auto Salvage Site Boundary
- ▭ Tax Parcels

Notes:  
 0.58 (0) - Total PCB Concentration (mg/kg) and Sample Depth.  
 ND - Not Detected  
 Screening data is in parentheses and italicized.  
 Source: Delaware DataMIL - Tax Parcels.

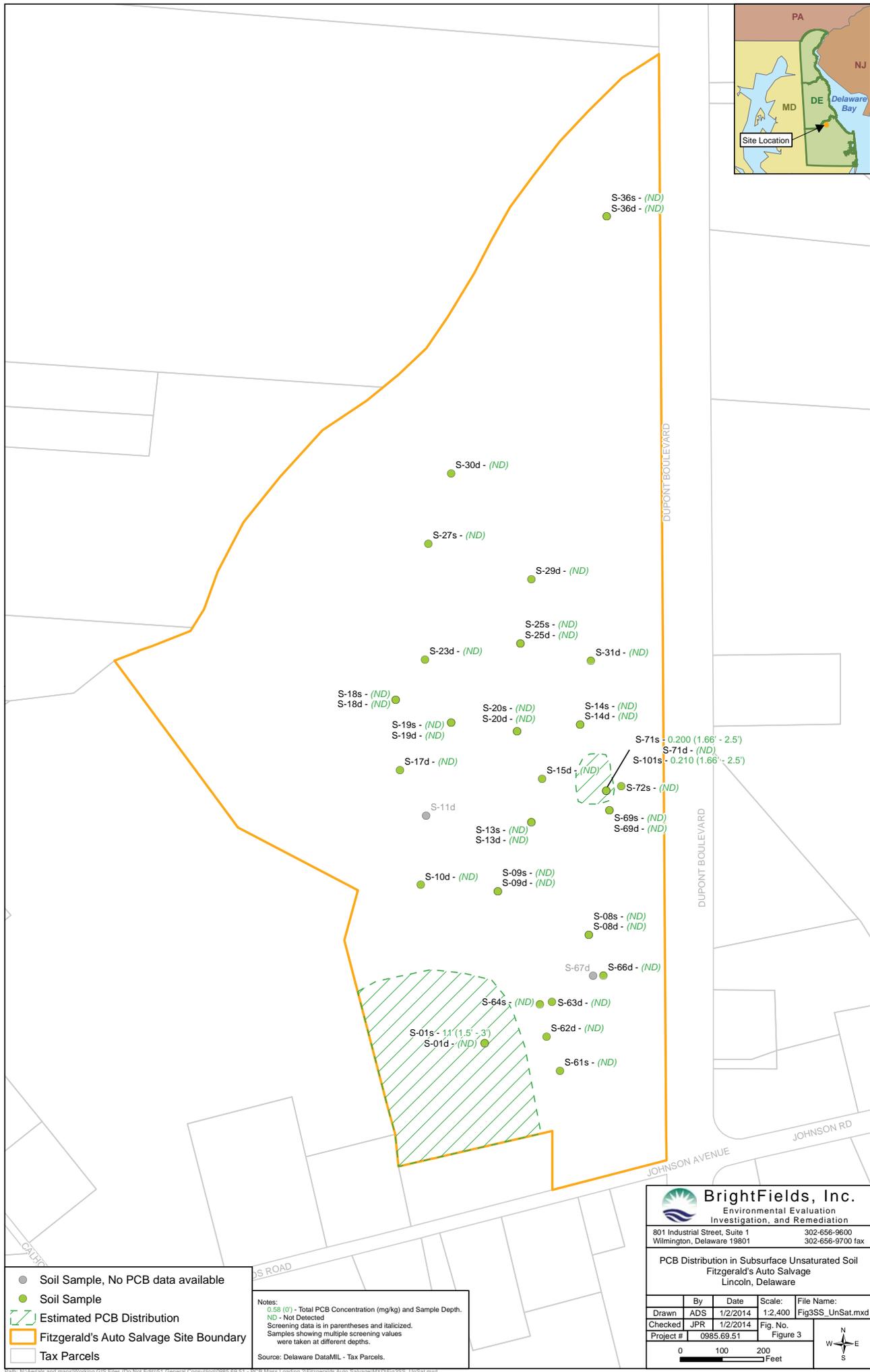
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PCB Distribution in Surface Soil (0' - 2' bgs)  
 Fitzgerald's Auto Salvage  
 Lincoln, Delaware

Drawn	By	Date	Scale:	File Name:
ADS	ADS	11/13/2013	1:2,400	Fig2DistSurf.mxd
Checked	JPR	11/13/2013	Fig. No.	Figure 2
Project #	0985.69.51		Figure 2	

0 100 200 Feet

W N E  
S



- Soil Sample, No PCB data available
- Soil Sample
- ▨ Estimated PCB Distribution
- ▭ Fitzgerald's Auto Salvage Site Boundary
- ▭ Tax Parcels

Notes:  
 0.58 (0') - Total PCB Concentration (mg/kg) and Sample Depth.  
 ND - Not Detected  
 Screening data is in parentheses and italicized.  
 Samples showing multiple screening values were taken at different depths.  
 Source: Delaware DataMIL - Tax Parcels.

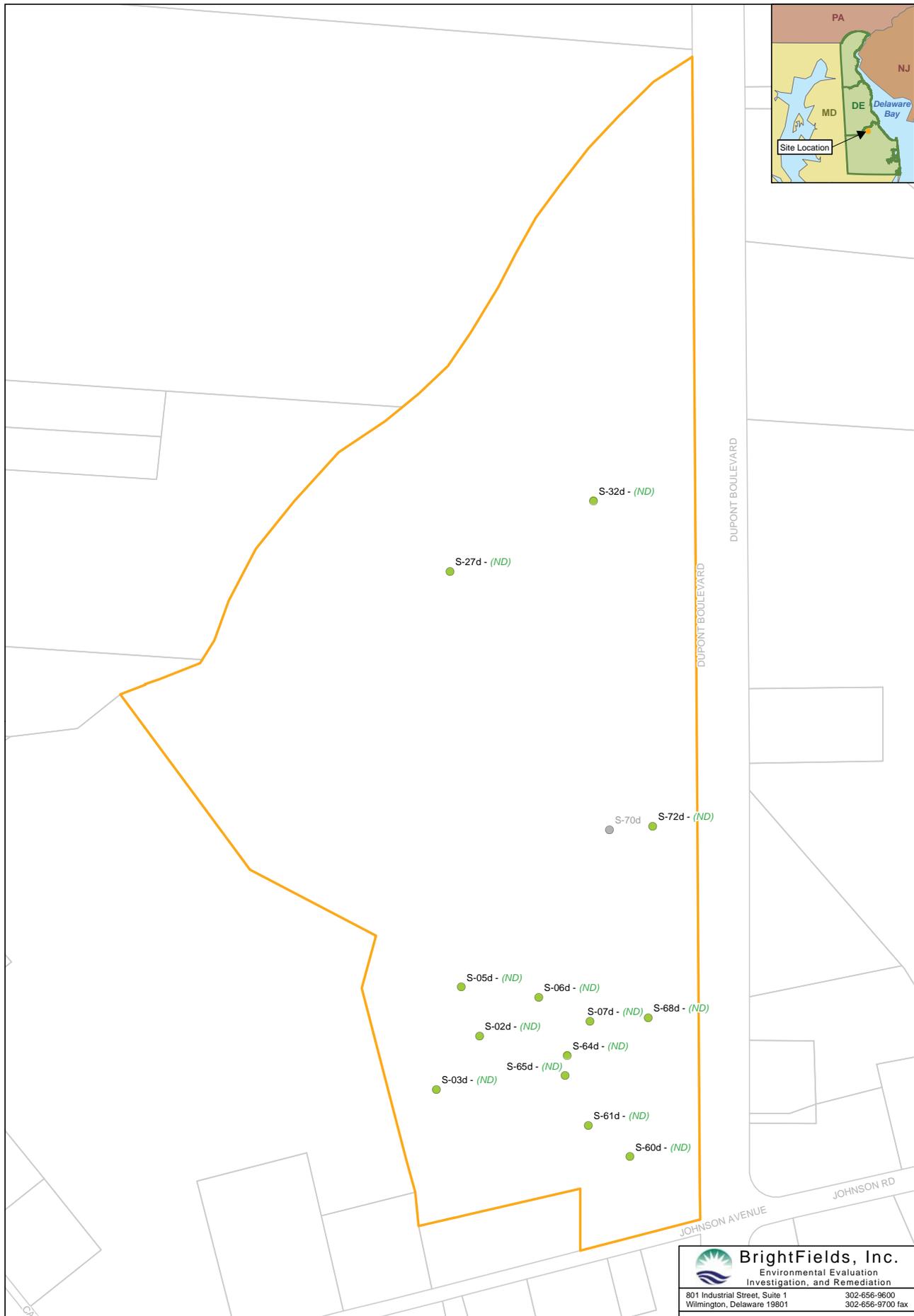
**BrightFields, Inc.**  
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PCB Distribution in Subsurface Unsaturated Soil  
 Fitzgerald's Auto Salvage  
 Lincoln, Delaware

By	Date	Scale:	File Name:
Drawn	ADS	1/2/2014	1:2,400 Fig3SS_UnSat.mxd
Checked	JPR	1/2/2014	Fig. No.
Project #	0985.69.51		Figure 3

0 100 200 Feet

W N E  
S



- Soil Sample, No PCB data available
- Soil Sample
- Estimated PCB Distribution
- Fitzgerald's Auto Salvage Site Boundary
- Tax Parcels

Notes:  
 ND - Not Detected  
 Screening data is in parentheses and italicized.  
 Source: Delaware DataMIL - Tax Parcels.

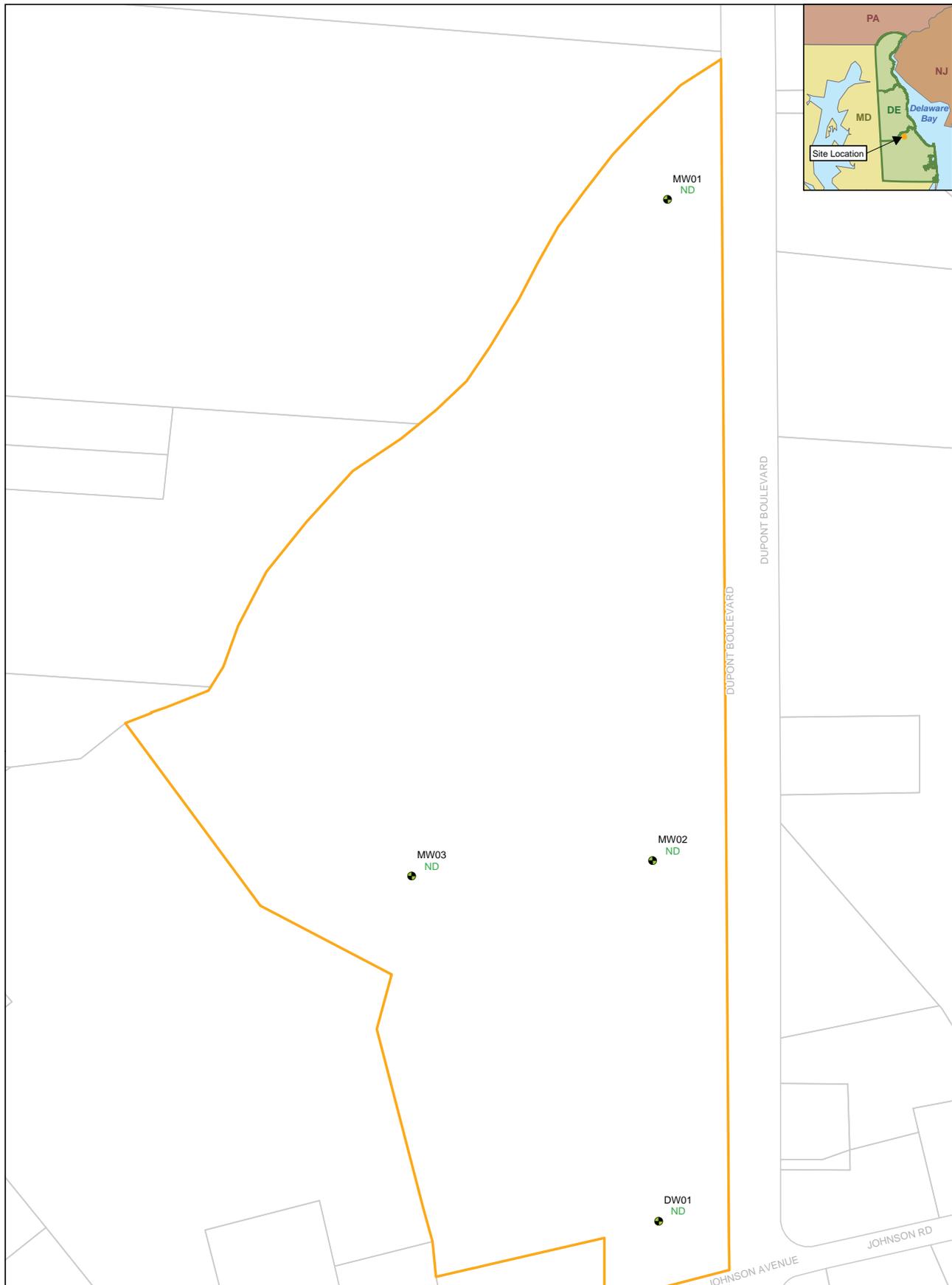
**BrightFields, Inc.**  
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PCB Distribution in Subsurface Saturated Soil  
 Fitzgerald's Auto Salvage  
 Lincoln, Delaware

Drawn	By	Date	Scale:	File Name:
ADS	ADS	1/2/2014	1:2,400	Fig4SS_Sat.mxd
Checked	Project #	Fig. No.		
JPR	0985.69.51	Figure 4		

0 100 200 Feet

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Groundwater Sample  
 Fitzgerald's Auto Salvage Site Boundary  
 Tax Parcels

Notes:  
 ND - Not Detected  
 Source: Delaware DataML - Tax Parcels.

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**PCB Distribution in Groundwater**  
**Fitzgerald's Auto Salvage**  
 Lincoln, Delaware

Drawn	ADS	1/2/2014	Scale:	File Name:
Checked	JPR	1/2/2014	1:2,400	Fig5GW.mxd
Project #	0985.69.51	Figure 5		

0 100 200 Feet

Path: N:\Metals and maps\Working GIS Files (Do Not Edit)\51 General Consulting\0885.69.51 - PCB Mass Loading 2\Fitzgeralds Auto Salvage\MXD\Fig5GW.mxd



→ Overland Flow  
 — Herring Branch  
 [Orange Outline] Fitzgerald's Auto Salvage Site Boundary  
 [White Outline] Tax Parcels  
 Tons/Year/Acre of Soil Loss Estimated  
 High : 152  
 Low : 0

Source: Delaware DataMIL - Aerial 2012, Tax Parcels.

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Soil Loss Estimates  
 Fitzgerald's Auto Salvage  
 Lincoln, Delaware

Drawn	By	Date	Scale:	File Name:
ADS	ADS	6/19/2014	1:2,400	Fig6SoilLoss.mxd
Checked	By	Date	Fig. No.	
KEP	KEP	6/19/2014	Figure 6	
Project #	0985.69.51			

0 100 200 Feet  
 N  
 W — E  
 S

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PCB Mass Loading Phase II  
Fitzgerald's Auto Salvage Property  
SIRS ID: DE-1315  
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# Tables

**Table 1**  
**PCB Screening Results For Soil**  
**Fitzgerald's Auto Salvage Property (DE-1315)**  
**Lincoln, DE**

Sample Identification	Sample Depth (feet bgs)	Sampling Company	Report Name	Report Date	Total PCBs	
					DNREC-SIRS Screening Level (January 2014) (mg/kg)	NCA
S-01s	1.5' - 3'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	PCBs detected	
S-01d	10' - 12'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-02s	<2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-02d	13.66' - 15.33'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-03s	1.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-03d	14.5' - 16'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-05s	0.15' - 1.66'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-05d	15.5' - 16'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-06s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-06d	15.25'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-07s	0.5' - 2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-07d	10' - 12'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-08s	1.25' - 2.75'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-08d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-09s	0.85' - 2.33'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-09d	10' - 12'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-10s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-10d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-11s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-13s	0.92' - 2.42'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-13d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-14s	1.35' - 2.85'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-14d	9.5' - 11.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-15s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-15d	9.85'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-17s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	PCBs detected	
S-17d	9.92' - 12'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-18s	1.08' - 2.58'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-18d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-19s	0.66' - 2.15'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-19d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-20s	0.66' - 2.15'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-20d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-23s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-23d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-24	<2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-25s	0.65' - 2.08'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-25d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-26	<2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-27s	1.5' - 3'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-27d	6.08' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-29s	0.5' - 2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-29d	9.25' - 10.92'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	
S-30s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	ND	

**Table 1**  
**PCB Screening Results For Soil**  
**Fitzgerald's Auto Salvage Property (DE-1315)**  
**Lincoln, DE**

Sample Identification	Sample Depth (feet bgs)	Sampling Company	Report Name	Report Date	Total PCBs	
					DNREC-SIRS	Screening Level (January 2014) (mg/kg) NCA
S-30d	8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-31s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-31d	8.92' - 10.92'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-32s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-32d	10.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-36s	0.66' - 2.15'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-36d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-38s	<2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-40	<2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-41	<2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-42	<2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-60s	0' - 1.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-60d	8.5' - 10.66'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-61s	5.58' - 6.08'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-61d	8.92' - 12'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-62s	0.66' - 1.85'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-62d	10' - 12'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		PCBs detected
S-63s	1.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-63d	7.08'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-64s	1.33' - 2.85'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-64d	10.33' - 12'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-65s	1.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-65d	11.66'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-66s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-66d	9.25' - 10.08'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-67s	0.66' - 1.85'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-68s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-68d	10.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-69s	0.58' - 2.08'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-69d	6' - 8'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-70s	2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-71s	1.66' - 2.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-71d	8.85' - 10.85'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-72s	2.85' - 4'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-72d	10.75' - 12'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND
S-101s	1.66' - 2.5'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05		ND

**Note: All results reported in mg/kg.**

**Qualifiers:**

- bgs - Below ground surface
- NCA - No criteria available
- ND - Not detected

Table 2  
 PCB Analytical Results For Soil  
 Fitzgerald's Auto Salvage Property (DE-1315)  
 Lincoln, DE

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)	Aroclor-1262 DNREC-SIRS Screening Level (mg/kg)	Aroclor-1268 DNREC-SIRS Screening Level (mg/kg)
S-01s	1.5' - 3'	DNREC	Site Inspection Fitzgerald's Auto Salvage	Sep-05	0.73	U	0.73	U	0.73	U	0.73	NCA	U
S-17s	2'	DNREC	Site Inspection Fitzgerald's Auto Salvage	Sep-05	0.36	U	0.36	U	0.36	U	0.36	U	0.36
S-23s	2'	DNREC	Site Inspection Fitzgerald's Auto Salvage	Sep-05	0.075	U	0.075	U	0.075	U	0.075	U	0.075
S-32s	0.66' - 1.85'	DNREC	Site Inspection Fitzgerald's Auto Salvage	Sep-05	0.14	U	0.14	U	0.14	U	0.14	U	0.14
S-71s	1.66' - 2.5'	DNREC	Site Inspection Fitzgerald's Auto Salvage	Sep-05	ND								
S-101s	1.66' - 2.5'	DNREC	Site Inspection Fitzgerald's Auto Salvage	Sep-05	0.076	U	0.076	U	0.076	U	0.076	U	0.076

Note: All results reported in mg/kg.

Qualifiers:

- bgs - Below ground surface
- NCA - No criteria available
- U - Sample not detected above the laboratory method detection limit
- J - Estimated value
- ND - Not detected

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

Table 3  
 PCB Analytical Results For Groundwater  
 Fitzgerald's Auto Salvage Property (DE-1315)  
 Lincoln, 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*	Aroclor-1262 DNREC-SIRS Screening Level (January 2014) (ug/L) NCA	Aroclor-1268 DNREC-SIRS Screening Level (January 2014) (ug/L) NCA
DW01	>2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	0.5	U	U	U	U	U	U	U	U
MW01	6' - 16'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	0.52	U	U	U	U	0.52	U	U	0.52
MW02	>2'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	0.51	U	U	U	U	0.51	U	U	0.51
MW03	6' - 16'	DNREC	Site Inspection Fitzgeralds Auto Salvage	Sep-05	0.57	U	U	U	U	0.57	U	U	0.57

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
- NCA - No criteria available

PCB Mass Loading Phase II  
Fitzgerald's Auto Salvage Property  
SIRS ID: DE-1315  
Lincoln, Delaware



**BrightFields, Inc.**

# **Site Photographs (Not Available)**

PCB Mass Loading Phase II  
Fitzgerald's Auto Salvage Property  
SIRS ID: DE-1315  
Lincoln, Delaware



# Overland Flow Calculations

**PCB Loading Calculations from the Revised Universal Soil Loss Equation (RUSLE)  
Fitzgerald's Auto Salvage Property (DE-1315)  
Lincoln, DE**

Surface PCB Concentration 7.9 mg/kg

<b>Symbol</b>	<b>Factor</b>	<b>Value</b>	<b>Units</b>
R	Rainfall/Runoff Erosivity Index	175	10 <sup>2</sup> ft-tonf-in/ac-hr-yr
K	Soil Erodibility	0.18	0.01 ton-ac-hr/ ac-ft-tonf-in
	Erodible Area	1.1	Acres
LS	Topographic Factor	0.12	Dimensionless
C	Cover and Management Factor	1	Dimensionless
P	Support Practice Factor	1	Dimensionless
A	Average Annual Soil Loss	5.6	ton/ac-yr

**PCB Loading via Overland Flow** 44 **grams/year - PCBs**

PCB Mass Loading Phase II  
Fitzgerald's Auto Salvage Property  
SIRS ID: DE-1315  
Lincoln, Delaware



# **Groundwater Transport Calculations**

## **(Not Applicable)**