

PCB Mass Loading Phase II
RSC Realty Property
SIRS IDs: DE-0121, DE-1268
Wilmington, Delaware



Appendix 28

RSC REALTY PROPERTY WILMINGTON, DELAWARE

SIRS IDs: DE-0121, DE-1268

GENERAL SITE INFORMATION

Site Name: RSC Realty Property

SIRS ID Numbers: DE-0121, DE-1268

Site Location and Description:

The RSC Realty Property is located at 100 Amer Road within the Fox Point Industrial Park in Wilmington, Delaware (Figure 1). The site is approximately 21.4 acres in size and is comprised of two tax parcels (#0615600003 and #2603900004). The property is bordered by DuPont Edgemoor to the north, the Delaware River to the east, and Calpine Mid-Atlantic, LLC to the south and west (Delaware Environmental Navigator). The property currently is owned by Ahmed E. Amer, LLC. In 2002, the site owner entered a Program Voluntary Cleanup Agreement and the site name was changed to Amer Industrial Technologies and the Site Investigation and Restoration (SIRS) identification was changed to DE-1268.

Based on the 1995 Facility Evaluation, surface water from the Site is expected to flow east to the Delaware River.

Previous Site Uses:

The Ludwig Honold Manufacturing Company operated at the site from 1975 to 1981 and Company operations at the site included electroplating, machining, welding, and assembly work. Electroplating is a process used to deposit a coating of metal onto a surface by means of electrochemical reactions. In July 1977, the manufacturing company borrowed money from the Delaware Economic Development Office (DED0) to upgrade buildings on the property. Due to defaults on the loan, DED0 took possession of the property in 1981. In July 1982, RSC Realty purchased the property from DED0. Alloy Surfaces Company, Inc., a metal finishing business and a subsidiary of RSC Realty, took occupancy at the site and discovered 135 drums, two cylinders, and three underground storage tanks (USTs) on the property and the adjacent property owned by Conrail. Eldridge Environmental was contracted by Alloy Surfaces Company, Inc. to characterize the materials found at the property. The drums were found to contain soda, waste solvents, and waste nitric acid. The USTs were found to contain No. 6 Fuel Oil with some polychlorinated biphenyls (PCBs). In October 1985, 70 drums were removed from the RSC Realty Property. The remaining drums were removed from the Conrail property in August 1986.

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.

Preliminary Assessment (DNREC, 1987)

The State of Delaware Department of Natural Resources and Environmental Control (DNREC) performed a Preliminary Assessment (PA) of the RSC Realty Property on behalf of the EPA on June 1, 1987. The report indicates that while employees of Alloy Surfaces Company, Inc. were cleaning up the property in 1984, they uncovered approximately 70 abandoned drums, two pressurized cylinders, and three underground storage tanks. Eldredge Environmental was hired to clean up and dispose of the materials on the RSC Realty Property and the adjoining Conrail right-of-way. Many of the drums were reported as damaged and empty, indicating that the drum contents may have leaked. The report indicates that no soil samples were collected at the property after the drums were removed from the site. Based on this information, DNREC recommended that a Site Investigation (SI) including soil sampling be performed at the property.

Site Visit Summary Report (NUS Corporation, 1987)

In response to DNREC's recommendation, a SI of the RSC Realty Property was performed on November 12, 1987 by the NUS Corporation Superfund Division. During the SI, a total of 15 soil samples were collected from 10 locations at the property and laboratory analysis of the samples detected PCBs at concentrations ranging from non-detect (ND) to 2.1 milligrams per kilogram (mg/kg).

Facility Evaluation Report (DNREC, 1995)

In 1995, DNREC performed a Facility Evaluation (FE) of the RSC Realty Property in order to further characterize the extent of contamination at the site, to determine if the site represented a threat to human health or the environment, and to determine if further action was necessary at the site. On June 1, 1995, a total of 30 soil samples were collected from the property at locations chosen to replicate the November 12, 1987 SI sample locations. The samples were screened using immunoassay kits for polycyclic aromatic hydrocarbons (PAHs) and PCBs. Samples were then chosen for confirmatory laboratory analysis based on the immunoassay screening results. Seven samples were submitted for laboratory PCB analysis and PCB-1260 (Aroclor 1260) was detected in all seven of the samples at concentrations ranging from 0.42 mg/kg to 25 mg/kg.

Phase II Environmental Site Assessment (WIK, 1998)

In 1998, a Phase II Environmental Site Assessment was performed by WIK Associates, Inc. to further characterize the extent of contamination at the site. On December 17, 1997 and December 31, 1997, WIK supervised the installation of sixteen (16) Geo-Probe borings at the property to depths ranging between 8.0 feet below ground surface (fbgs) to 20 feet bgs. Groundwater was encountered in the borings at depths ranging between 4 feet bgs and 20 feet bgs. During the Phase II, 16 surface soil samples, 12 subsurface soil samples, and one surface water sample were collected from the property. Four surface samples and four subsurface samples were submitted to GLA Laboratories to be analyzed for PCBs. Analytical results for the samples indicated that PCB-1260 (Aroclor 1260) was detected in one surface soil sample at a concentration of 0.36 mg/kg; PCBs were not detected in any of the subsurface soil samples.

Current Regulatory Status:

The current property owner, Ahmad Amer, entered into a VCP agreement with DNREC on May 15, 2002 to conduct a remedial investigation (RI) at the property. At this time, the site name was changed to Amer Industrial Technologies and the SIRS ID was changed to DE-1268. Amer contracted Tetra Tech, Inc. to perform the RI. Tetra Tech submitted the draft RI work plan for the property on July 31, 2002. According to information obtained from the DNREC Environmental Navigator, the RI was not completed.

SUMMARY OF SITE PCB INFORMATION

Site Investigation PCB Findings:

PCBs were detected in 16 surface samples collected across the Site ranging from 0.19 mg/kg to 25 mg/kg. PCBs were also detected in three subsurface unsaturated soil at concentrations ranging from 0.61 to 1.3 mg/kg. No soil samples were collected and analyzed for PCBs in the subsurface saturated zone. In addition, there were no groundwater samples collected that were analyzed for PCBs.

The calculated 95% upper confidence limit (UCL) of the mean of the concentration of total PCBs observed in the surface soil samples (for overland flow calculations) is 9.15 mg/kg. There were no samples collected and analyzed for PCBs in the subsurface soil in contact with groundwater nor was there any groundwater samples collected and analyzed for PCBs. Therefore, no groundwater loading estimates were prepared for this Site.

Concentrations of PCBs on Site			
Sample Matrix	Corresponding Figure	Analytical Methods	Range of Total PCBs
Surface Soil	Figure 2	Method 8082	Not detected to 25 mg/kg
Subsurface Soil (unsaturated)	Figure 3	Method 8082	Not detected to 1.3 mg/kg
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 area impacted by PCBs is 19.6 acres (Figure 2) and the estimated subsurface unsaturated area impacted by PCBs is 8.1 acres (Figure 3). 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.

PCB Remediation Status:

PCB remediation is not presently required for the RSC Realty site.

PCB MASS LOADING SUMMARY

The PCB mass loading rate to surface water via overland flow was estimated for the RSC Realty Property. PCBs were not analyzed for in any subsurface saturated soil or groundwater samples; therefore, groundwater transport cannot be evaluated as a mechanism of transport for PCBs at the RSC Realty 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 0.013, which corresponds to areas instituting a vegetative cover with approximately 80% coverage primarily consisting of grass, tall weeds, and short brush and approximately 25% canopy.

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.

RSC Realty Property

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)	0.37	The soil erodibility factor was selected from the National Resource Conservation Soil Survey Geographic Database (SSURGO).
ls = topographic factor (dimensionless)	0.08	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)	0.013	The cover/management factor C assigned to the erodible area was 0.013, which corresponds to approximately a 80% cover with grass, tall weeds, and short brush with 25% canopy.
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)	0.088	The average soil loss estimate was generated by ArcGIS using the input factors listed above.
Erodible Area (acres)	13.4	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 RSC Realty Property is **9.7 grams per year**. Please see attached table for specific variables.

Uncertainty Analysis Associated with Overland Flow:

Specific Areas and Degree of Uncertainty for the RSC Realty Property

	Samples Per Acre (site)	Chemical Data Quality*	Soil Type	Site Coverage	Map Quality	Average Distance to Discharge Point
Site Specific Information	1.2	Aroclor Data	Soil Database	Derived from aerial photography	Scaled Map	Directly Adjacent
Degree of Uncertainty	Moderate to High	Moderate	Low	High	Moderate	Low

* Primary analysis used in the historical samples

Areas of uncertainty for the RSC Realty Property include the following: BrightFields estimated the coverage management factor based on data obtained from the aerial photography. All sample locations were georeferenced utilizing scaled drawings; however, coordinates for the sample locations were not provided. Based on this evaluation the level of uncertainty associated with overland flow PCB mass loading from the RSC Realty Property is **Moderate**.

Groundwater Discharge Analysis:

No groundwater discharge analysis was performed for this site.

Site References:

Department of Natural Resources and Environmental Control (DNREC), 1987, Draft Preliminary Assessment of the Ludlow Industrial Park Drum Site, DE-121, June 1987.

DNREC, 1995, Facility Evaluation Report for the RSC Realty Property, DE-121, 1995.

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

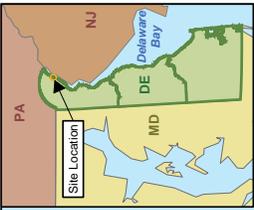
NUS Corporation, 1987, Site Visit Summary Report, Ludlow Industrial Park Drum Site, December 1987.

WIK, 1998, Phase II Environmental Site Assessment, Fox Point Industrial Park, February 1998.

PCB Mass Loading Phase II
RSC Realty Property
SIRS IDs: DE-0121, DE-1268
Wilmington, Delaware



Figures

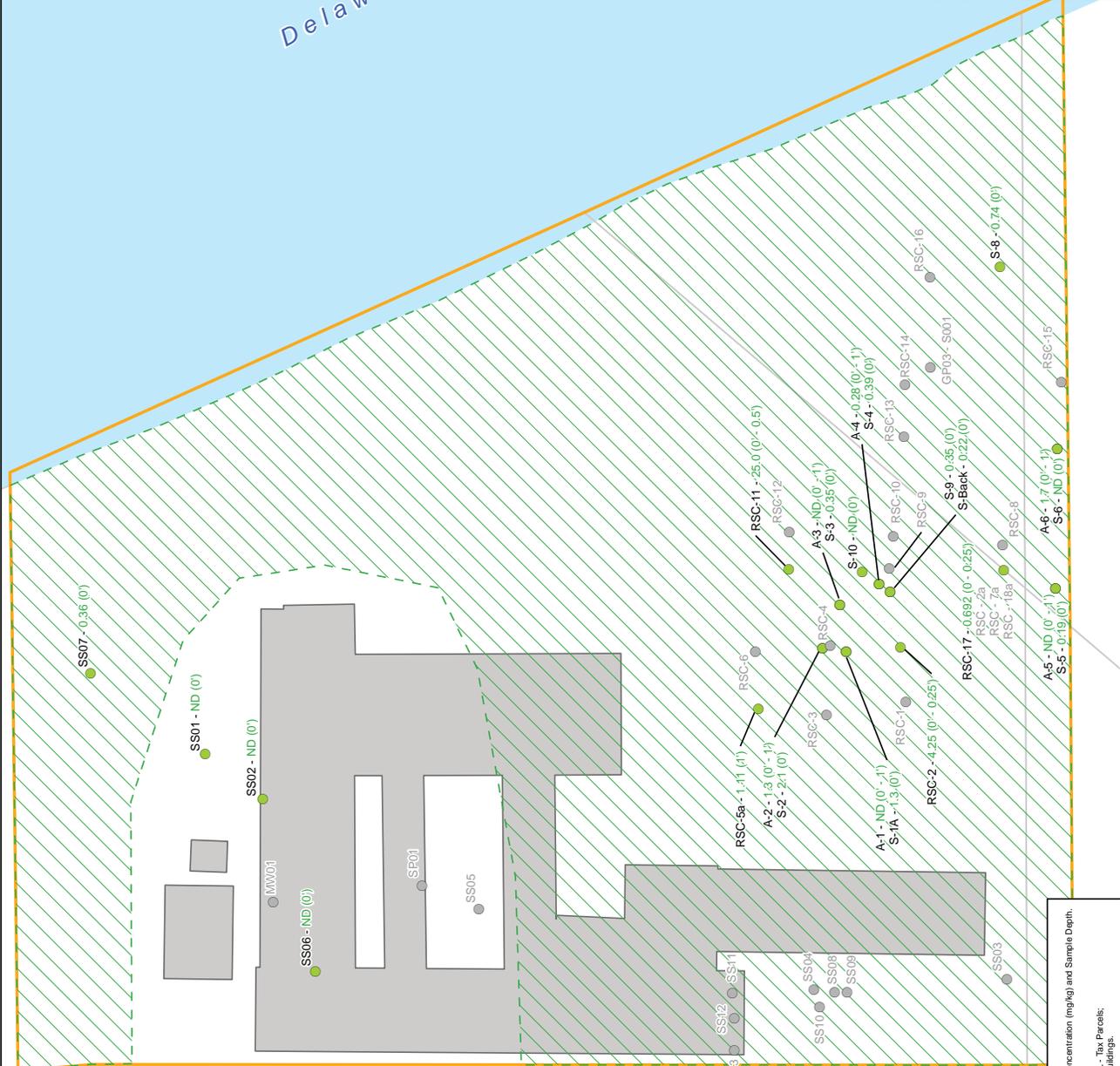


Delaware River

BrightFields, Inc.
 Environmental Evaluation
 Investigation, and Remediation
 801 Industrial Street, Suite 1
 Wilmington, Delaware 19801
 302-656-9600
 302-656-9700 fax

PCB Distribution in Surface Soil (0' - 2' bgs)
 RSC Realty
 Wilmington, Delaware

By	Date	Scale	File Name
ADS	12/17/2013	1:1,440	Fig2DistSurf.mxd
Checked	JPR	12/17/2013	Fig. No.
Project #	0985.69.51		Figure 2
	0	60	120
			Feet



LUDWIG ACCESS RD

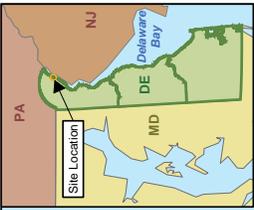
LOCKE RD

Notes:
 0.36 (0) - Total PCB Concentration (mg/kg) and Sample Depth.
 ND - Not Detected

Source: Delaware Databases - Tax Parcels;
 New Castle County - Buildings;
 RSC Realty - Buildings

Fig. 2: PCB Distribution in Surface Soil (0' - 2' bgs)

- Soil Sample, No PCB data available
- Soil Sample
- Estimated PCB Distribution
- RSC Realty Site Boundary
- Buildings
- Tax Parcels
- Surface Water



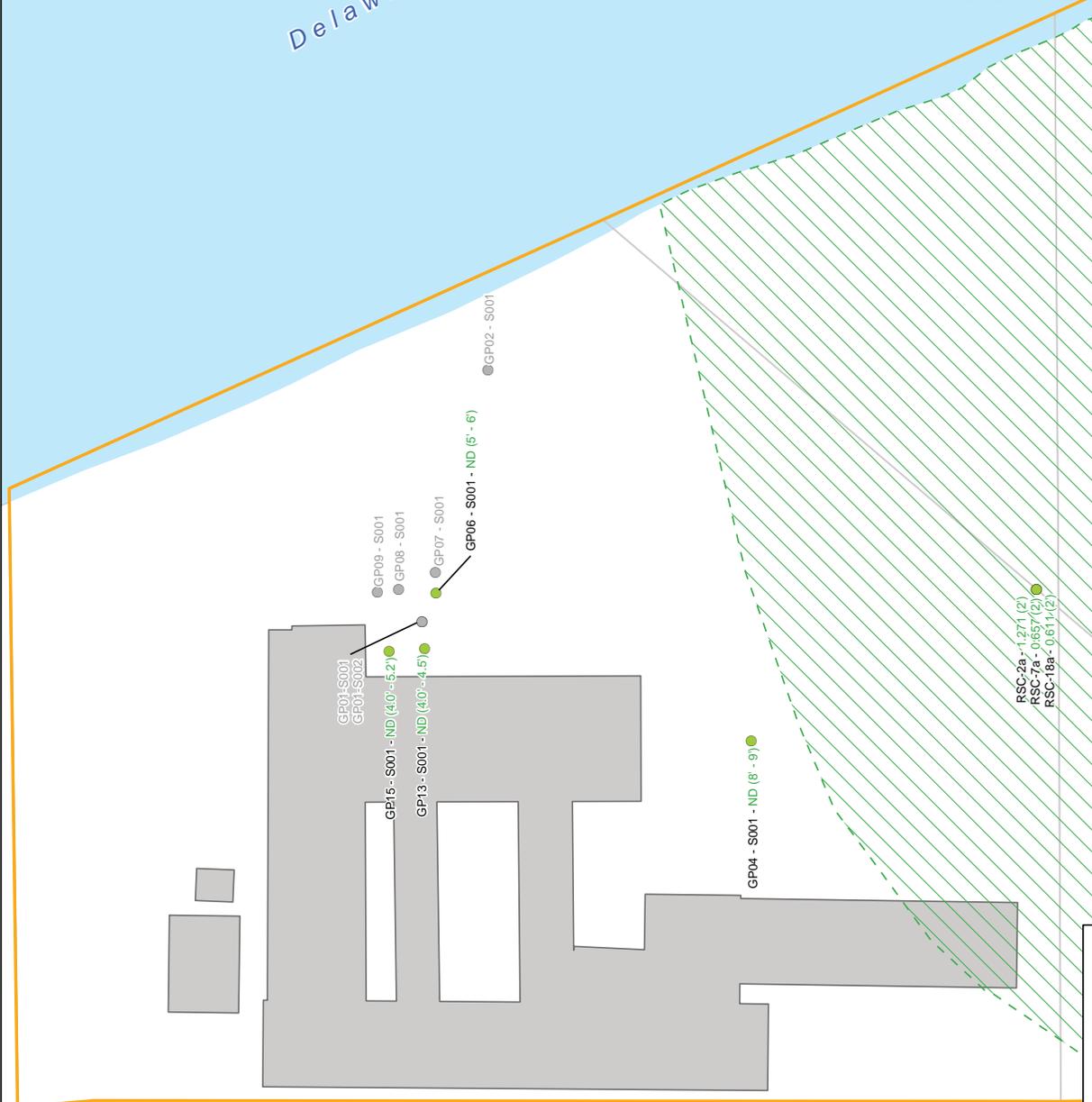
Delaware River

BrightFields, Inc.
 Environmental Evaluation
 Investigation, and Remediation
 801 Industrial Street, Suite 1
 Wilmington, Delaware 19801
 302-656-9600
 302-656-9700 fax

PCB Distribution in Subsurface Unsaturated Soil
 RSC Realty
 Wilmington, Delaware

By	Date	Scale	File Name:
ADS	12/17/2013	1:1,140	FigGSS_Unsat.mxd
Checked	JPR	12/17/2013	Fig. No.
Project #	0985.69.51		Figure 3

0 60 120 Feet



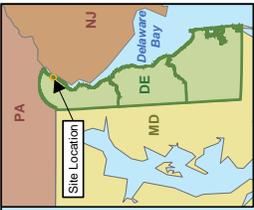
LUDWIG ACCESS RD

LOCKE RD

Notes:
 0.36 (0) - Total PCB Concentration (mg/kg) and Sample Depth;
 ND - Not Detected
 Source: Delaware Dismill, Tax Parcels;
 New Castle County - Buildings.

- Soil Sample, No PCB data available
- Soil Sample
- Estimated PCB Distribution
- RSC Realty Site Boundary
- Buildings
- Tax Parcels
- Surface Water

File: \\na\work\env\mde\work\GIS\PRJ\DOE\EST_General\Consum\0985.69.51 - PCB Mass Loading 2R3E - RSC.mxd FigGSS_Unsat.mxd

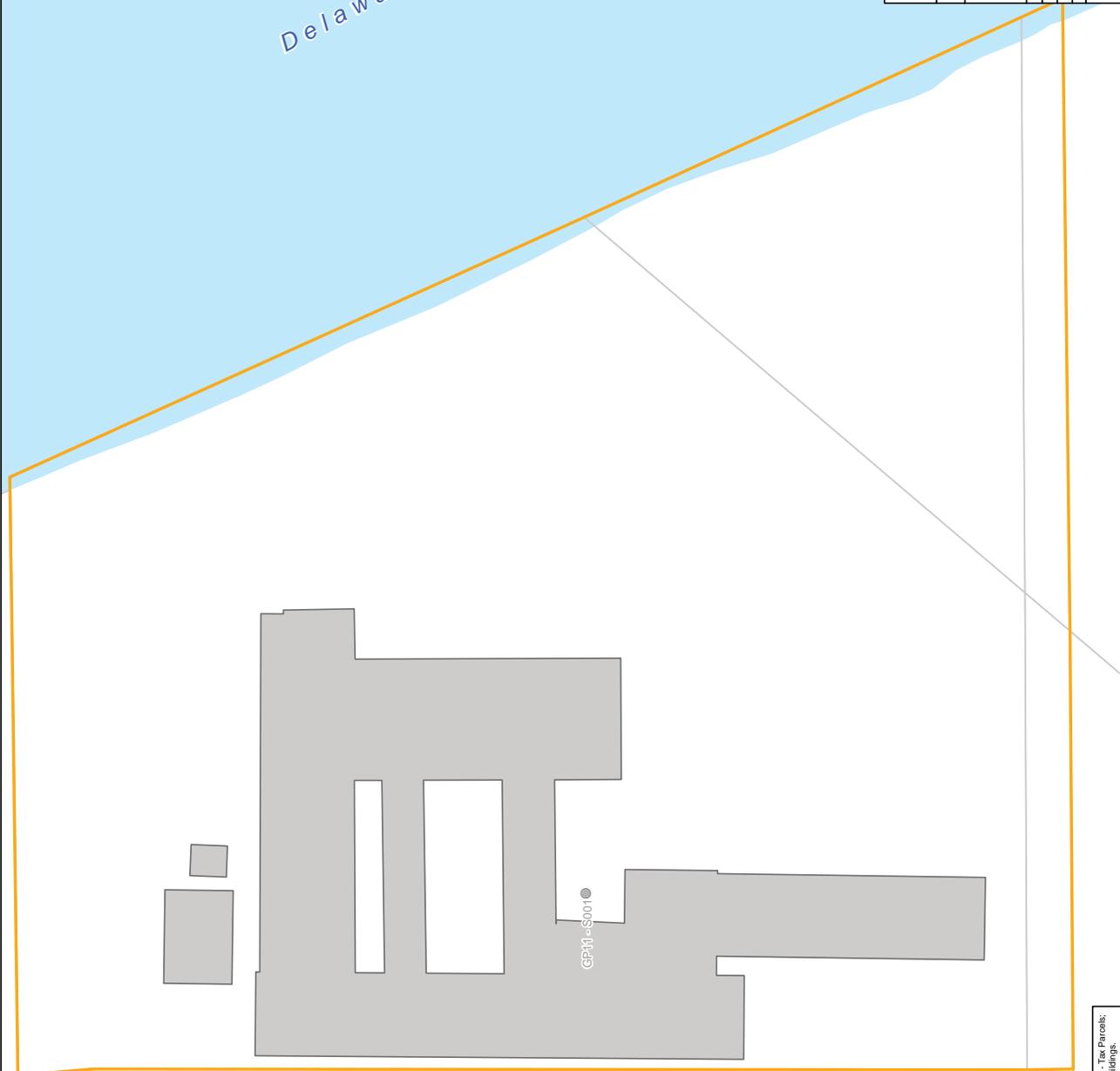


Delaware River

BrightFields, Inc.
 Environmental Evaluation
 Investigation, and Remediation
 801 Industrial Street, Suite 1
 Wilmington, Delaware 19801
 302-656-9600
 302-656-9700 fax

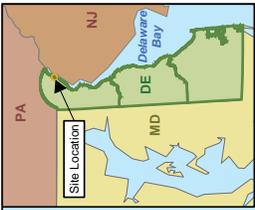
PCE Distribution in Subsurface Saturated Soil
 RSC Realty
 Wilmington, Delaware

By	Date	Scale	File Name
ADS	12/17/2013	1:1,440	Fig4SS_Sat.mxd
Checked	JPR	12/17/2013	Fig. No.
Project #	0985,69.51		Figure 4
	0	60	120
			Feet



- Soil Sample, No PCB data available
- ▭ RSC Realty Site Boundary
- ▭ Buildings
- ▭ Tax Parcels
- ▭ Surface Water

Source: Delaware DataMill - Tax Parcels, New Castle County - Buildings



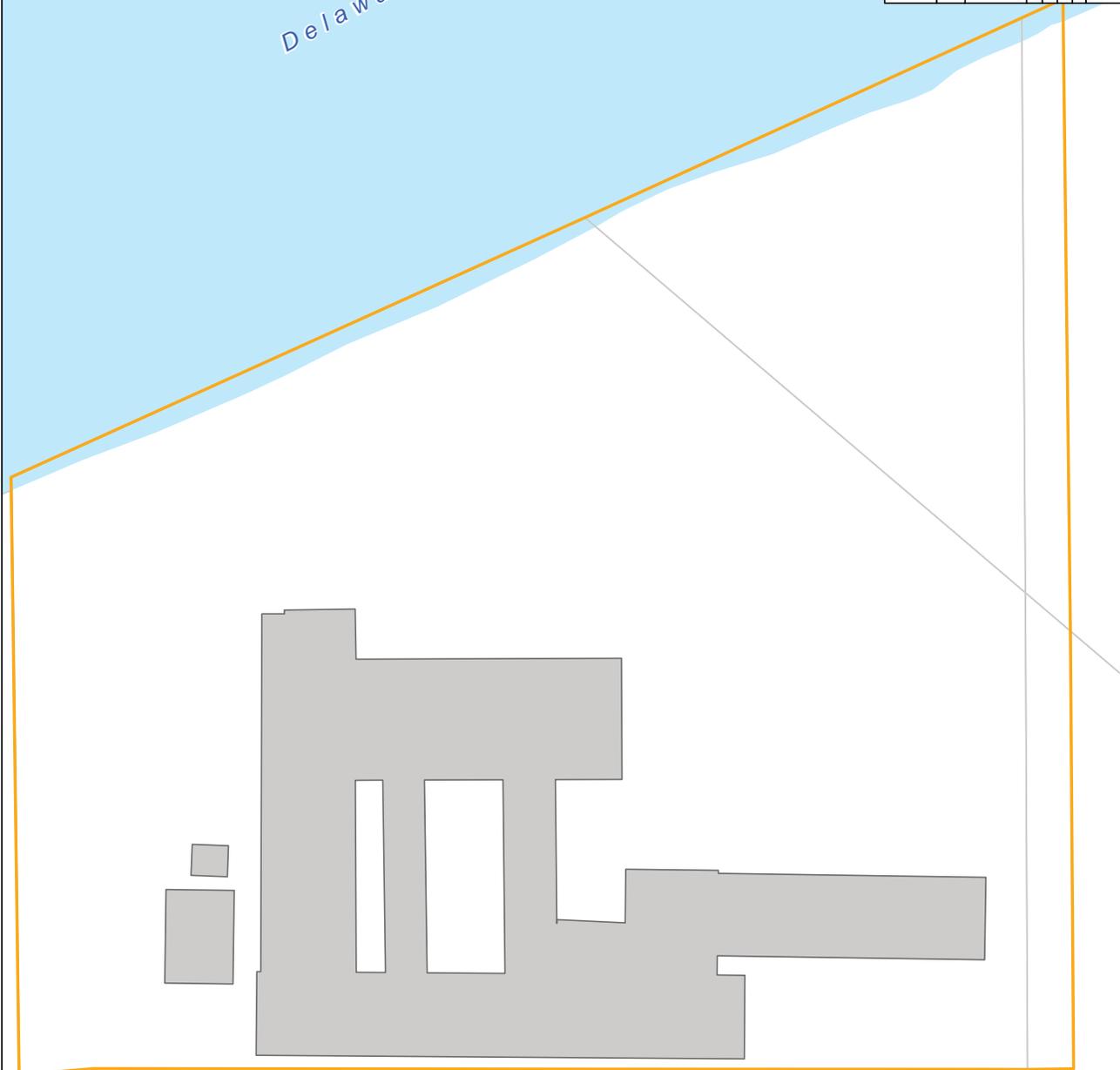
Delaware River

BrightFields, Inc.
 Environmental Evaluation
 Investigation, and Remediation
 801 Industrial Street, Suite 1
 Wilmington, Delaware 19801
 302-656-9600
 302-656-9700 fax

PCB Distribution in Groundwater
 RSC Realty
 Wilmington, Delaware

By	Date	Scale	File Name
ADS	12/17/2013	1:1,440	FigsGW.mxd
Checked	JPR	12/17/2013	Fig. No.
Project #	0985,69.51		Figure 5

0 60 120 Feet



LUDWIG ACCESS RD

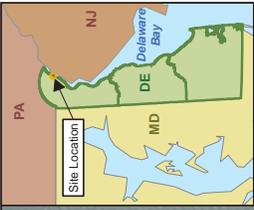
LOCKE RD

AMER RD

RSC Realty Site Boundary

- Buildings
- Tax Parcels
- Surface Water

Note: No Groundwater data available.
 Source: Delaware DataMIL - Tax Parcels
 New Castle County - Buildings.



Delaware River

Overland Flow
Distance = 0 ft

BrightFields, Inc.
Environmental Evaluation
Investigation, and Remediation
801 Industrial Street, Suite 1
Wilmington, Delaware 19801
302-656-9600
302-656-9700 fax

Soil Loss Estimates
RSC Realty
Wilmington, Delaware

By	Date	Scale	File Name
ADS	6/18/2014	1:1,440	Fig6SoilLoss.mxd
Checked	KEP	6/18/2014	Fig. No.
Project #	0985.69.51		Figure 6

0 60 120 Feet



LUDWIG ACCESS RD
LOCKE RD

Overland Flow
RSC Realty Site Boundary
Tax Parcels
Tons/Year/Acre of Soil Loss Estimated
High : 12
Low : 0

FIG. 6: SOIL LOSS ESTIMATES. SOURCE: DELAWARE DATA.MXD - Aerial 2012. THE PARCELS. SOURCE: DELAWARE DATA.MXD - Aerial 2012. THE PARCELS. SOURCE: DELAWARE DATA.MXD - Aerial 2012. THE PARCELS.

PCB Mass Loading Phase II
RSC Realty Property
SIRS IDs: DE-0121, DE-1268
Wilmington, Delaware



Table

Table 1
PCB Analytical Results For Soil
RSC Realty Property (DE-0121, DE-1268)
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
A-1	0' - 1'	NUS Corporation	Site Investigation	May-88	0.096	U	0.096	U	0.096	U	0.19
A-2	0' - 1'	NUS Corporation	Site Investigation	May-88	0.096	U	0.096	U	0.096	U	1.3
A-3	0' - 1'	NUS Corporation	Site Investigation	May-88	ND						
A-4	0' - 1'	NUS Corporation	Site Investigation	May-88	0.096	U	0.096	U	0.096	U	0.28
A-5	0' - 1'	NUS Corporation	Site Investigation	May-88	0.098	U	0.098	U	0.098	U	0.2
A-6	0' - 1'	NUS Corporation	Site Investigation	May-88	0.093	U	0.093	U	0.093	U	0.19
GP04 - S001	8' - 9'	WIK	1988 Phase II	Feb-98	0.05	U	0.05	U	0.05	U	0.05
GP06 - S001	5' - 6'	WIK	1988 Phase II	Feb-98	0.05	U	0.05	U	0.05	U	0.05
GP13 - S001	4.0' - 4.5'	WIK	1988 Phase II	Feb-98	0.15	U	0.15	U	0.15	U	0.15
GP15 - S001	4.0' - 5.2'	WIK	1988 Phase II	Feb-98	0.15	U	0.15	U	0.15	U	0.15
RSC-11	0' - 0.5'	DNREC	Facility Evaluation Report	1995	2.8	U	2.8	U	2.8	U	25
RSC-17	0 - 0.25'	DNREC	Facility Evaluation Report	1995	0.038	U	0.038	U	0.038	U	0.69
RSC-18a	2'	DNREC	Facility Evaluation Report	1995	0.36	U	0.039	U	0.039	U	0.27
RSC-2	0' - 0.25'	DNREC	Facility Evaluation Report	1995	0.038	U	0.038	U	0.038	U	4.2
RSC-2a	2'	DNREC	Facility Evaluation Report	1995	0.039	U	0.039	U	0.039	U	1.3
RSC-5a	1'	DNREC	Facility Evaluation Report	1995	0.27	U	0.27	U	0.27	U	1.1
RSC-7a	2'	DNREC	Facility Evaluation Report	1995	0.24	U	0.039	U	0.039	U	0.42
S-10	0'	NUS Corporation	Site Investigation	May-88	0.092	U	0.092	U	0.092	U	0.18
S-1A	0'	NUS Corporation	Site Investigation	May-88	0.1	U	0.1	U	0.1	U	1.3
S-2	0'	NUS Corporation	Site Investigation	May-88	0.097	U	0.097	U	0.097	U	2.1
S-3	0'	NUS Corporation	Site Investigation	May-88	0.093	U	0.093	U	0.093	U	0.35
S-4	0'	NUS Corporation	Site Investigation	May-88	0.099	U	0.099	U	0.099	U	0.39
S-5	0'	NUS Corporation	Site Investigation	May-88	0.09	U	0.09	U	0.09	U	0.19
S-6	0'	NUS Corporation	Site Investigation	May-88	0.093	U	0.093	U	0.093	U	0.19
S-8	0'	NUS Corporation	Site Investigation	May-88	0.1	U	0.1	U	0.1	U	0.74
S-9	0'	NUS Corporation	Site Investigation	May-88	0.091	U	0.091	U	0.091	U	0.35
S-Back	0'	NUS Corporation	Site Investigation	May-88	0.092	U	0.092	U	0.092	U	0.22
SS01	0'	WIK	1988 Phase II	Feb-98	0.1	U	0.1	U	0.1	U	0.1
SS02	0'	WIK	1988 Phase II	Feb-98	0.1	U	0.1	U	0.1	U	0.1
SS06	0'	WIK	1988 Phase II	Feb-98	50	U	50	U	50	U	50
SS07	0'	WIK	1988 Phase II	Feb-98	0.05	U	0.05	U	0.05	U	0.36

Note: All results reported in mg/kg.

Qualifiers:

- bgs - Below ground surface
- U - Sample not detected above the laboratory method detection limit
- ND - Not detected
- Bold and shaded - Exceeds DNREC-SIRS January 2014 Screening Levels

PCB Mass Loading Phase II
RSC Realty Property
SIRS IDs: DE-0121, DE-1268
Wilmington, Delaware



Site Photographs



The entrance to the site with both paved and grassy areas.



Mixed grass and pavement which slopes down towards the Delaware River in the distance.



The northern most building on site.



Thick vegetation bordering the paved area to the east.

PCB Mass Loading Phase II
RSC Realty Property
SIRS IDs: DE-0121, DE-1268
Wilmington, Delaware



Overland Flow Calculations

**PCB Loading Calculations from the Revised Universal Soil Loss Equation (RUSLE)
RSC Realty Property (DE-0121, DE-1268)
Wilmington, DE**

Surface PCB Concentration 9.2 mg/kg

Symbol	Factor		Units
R	Rainfall/Runoff Erosivity Index	175	10 ² ft-tonf-in/ac-hr-yr
K	Soil Erodibility	0.37	0.01 ton-ac-hr/ ac-ft-tonf-in
	Erodible Area	13.4	Acres
LS	Topographic Factor	0.08	Dimensionless
C	Cover and Management Factor	0.013	Dimensionless
P	Support Practice Factor	1	Dimensionless
A	Average Annual Soil Loss	0.088	ton/ac-yr

**PCB Loading via Overland
Flow** 9.7 **grams/year - PCBs**

PCB Mass Loading Phase II
RSC Realty Property
SIRS IDs: DE-0121, DE-1268
Wilmington, Delaware



Groundwater Transport Calculations (Not Applicable)