

PCB Mass Loading
Merkin Auto Spring Company
SIRB ID: DE-1175
Wilmington, Delaware



BrightFields, Inc.

Appendix 1-B

**MERKIN AUTO SPRING COMPANY
WILMINGTON, DELAWARE**

SIRB ID: DE-1175

GENERAL SITE INFORMATION

Site Name: Merkin Auto Spring Company

SIRB ID Number: DE-1175

Site Location and Description: The Merkin Auto Spring Company (Merkin Auto) property is located in the vicinity of the south side of the Christina River in Wilmington, Delaware (Figure 1). The property has most recently been operated as a salvage yard and is bordered by Delaware Broadcasting Company to the north, a ditch to the west, Garasches Lane to the south, and Attila Leasing Company to the east. The Merkin Auto Property is an approximately 6.04-acre property consisting of one tax parcel (Tax Parcel #26-057.00-012). Surrounding land is generally commercial and/or industrial.

Previous Site Uses: Historical maps dating from 1876 through 1901 show the area of the Merkin Auto Property as being mostly open land with a few small buildings such as houses or farm/out buildings. By 1936 the area was mostly open land, some of which is identified as marsh. According to area property owners, most of the land between Garasches Lane and the railroad tracks has been used for auto salvage since at least the early 1960s. In addition, many owners indicated that the land had been heavily filled prior to their purchase of the parcels.

It is possible that PCBs were introduced to the site as a result of the use of the property from past filling operations and/or as a salvage yard.

Site Regulatory Status: This section briefly summarizes previous investigations performed on the site through the SIRB program. A current SIRB regulatory status is also included.

Environmental Assessment of the South Wilmington (East) Quadrants 1 and 2 Study Area (DNREC, 1996)

DNREC completed the Environmental Assessment of South Wilmington (East), Quadrant 1 and 2 (DE-286) in 1996 which consisted of a large investigation effort performed by DNREC-SIRB to collect samples from various properties encompassing approximately 110 acres of South Wilmington. Quadrant 1 is the area between South Walnut Street and Buttonwood Street and is bordered to the north and south by B Street and Garasches Lane, respectively.

The Environmental Assessment Investigation took place from July 17 through July 19, 1995. A total of 51 soil samples were collected through test pit excavation and borings, a total of 13 groundwater samples, 11 sediment samples and 10 surface water samples were collected from

the East Assessment Area. The following paragraphs summarize the samples collected on the Merkin Auto property as part of this investigation.

Soil Analytical Results

On the Merkin Auto property, one test pit (TP7) was excavated and one surface and one subsurface sample was collected. Samples TP-7S and TP-7D were field screened for inorganics and organic compounds using DNREC's Mobile Laboratory, but were not sent for confirmatory laboratory for analysis. The following is a summary of DNREC's Mobile Laboratory screening results. TP-7D had concentrations of lead greater than 1,000 mg/kg. Several metals were detected in TP-7S and TP-7D. Polychlorinated Biphenols (PCBs) were detected below 0.5 mg/kg in TP-7S and TP-7D. Sample TP-7S had concentrations of polycyclic aromatic hydrocarbons (PAHs) greater than 0.5 mg/kg and TP-7D had concentrations less than 0.5 mg/kg. TP-7S and TP-7D had concentrations of DDT/DDE/DDT less than 0.5 mg/kg. Samples TP-7S and TP-7D had toxaphene detected at concentrations greater than 0.5 but less than 2 mg/kg. gasoline range organics (GRO) and diesel range organics (DRO) were detected at concentrations less than 100 mg/kg and 1,000 mg/kg, respectively in samples TP-7S and TP-7D.

No groundwater samples were collected from this property.

Two sediment samples SED-1 and SED-2 were collected at the western portion of the property in the north-south ditch. SED-1 was collected on December 4, 1995 as part of the Pusey and Jones Shipyard Assessment and was used in this investigation as a background sample for comparison. One surface water sample was collected from the north-south ditch and was analyzed for inorganic and organic constituents. Several metals were detected in SW-1 at concentrations exceeding applicable water quality criteria or three times background criteria. SW-1 was free of organic contamination with the exception of 2,4-dinitrophenol which was detected at a very low concentration. Sediment sample, SED-1 had several metals that were detected at concentrations exceeding Risk-Based Concentrations (RBC) levels and/or the three times the background concentration. Organic compounds including acetone, benzo(a)pyrene, dibenz(a,h)anthracene, DDE, DDD, DDT and Aroclor-1260 were detected in SED-1 at concentrations exceeding RBC benchmarks or three times the background concentration. SED-2 was only screened at DNREC's mobile laboratory and was not sent for laboratory analysis. Several metals were detected in SED-2, some of which exceeded applicable RBC criteria. Screening data indicated that PAHs, PCBs, DDT/DDE/DDT, and toxaphene were detected in SED-2 at concentrations less than 0.5 mg/kg. SED-2 also contained less than 100 mg/kg of GRO and less than 1,000 mg/kg of DRO.

Remedial Investigation Report South Wilmington Salvage Yards (Environmental Alliance, 2001)

In November 2000, Environmental Alliance completed a Remedial Investigation (RI) on behalf of the South Wilmington Salvage Yards (SWSY). The SWSY RI involves eight properties (approximately 26 acres) in the vicinity of the Christina River in South Wilmington. The eight properties addressed by this RI include:

- A-1 Auto Parts
- Don Wilson's Auto Parts
- Merkin Auto Spring Co., Inc.
- Junior's Auto Parts
- Two Guys Auto Parts
- American Tank Trailer Cleaning Co.
- Casper's Auto Parts
- Shuster's Auto Salvage

During this investigation, a total of 30 surface soil samples and 4 deep soil samples were collected across the study area. The samples were field screened using a Photo Ionization Detector (PID); submitted for screening at DNREC's laboratory for VOCs, SVOCs, metals, PCBs and pesticides; and select samples were submitted for confirmation analysis at Lancaster Laboratories. The samples selected for confirmation analysis were analyzed for VOCs, SVOCs, metals, PCBs/pesticides, ethylene glycol, tetraethyl lead, total petroleum hydrocarbons diesel range organics (TPH-DRO), volatile petroleum hydrocarbons (VPH), and/or extractable petroleum hydrocarbons (EPH). Additionally, synthetic precipitation leaching procedure (SPLP) and toxicity characteristic leaching procedure (TCLP) metal analysis was performed on select soil samples.

Groundwater samples were collected from four soil borings locations (GP02 at Two Guy's Auto Parts, GP-11 at Merkin Auto Spring Co., Inc., GP-14 at American Tank Trailer Cleaning Co., and GP-15 at Casper's Auto Parts. In addition, groundwater samples were collected from three of the four previously existing monitoring wells in the study region. The wells incorporated into this RI include MW-4 (A-1 Auto Parts), MW-5 (across the street from Don Wilson's Auto) and MW-7 (Shuster's Auto Salvage).

A total of 7 sediment samples were collected from the potential tributary that transects Garasches Lane and the drainage ditch south of the A.M. Domino, A-1 Auto Parts, and Two Guys Auto Parts properties.

A total of 5 surface water samples were collected where surface water was present. The following is a summary of analytical results that were collected from the Merkin Auto property as part of this investigation.

Soil Analytical Results

Several of the proposed RI soil samples could not be sampled due to accessibility to those locations and/or subsurface material causing sample refusal. Six surface soil samples were collected from locations GP-08 through GP-11 and EX-01 and EX-02. One deep soil sample was collected from GP-11. No PID readings were detected in any of the soil samples. PAHs were detected in all soil samples. Additionally, mineral spirits were detected in the GP-09 sample. Metals screening results for the soil samples indicated antimony (GP-10), arsenic (all sample locations), chromium-total (GP-09, GP-10, GP-11 3-4' and EX-01), iron (all sample locations except EX-02), and lead (GP-09, GP-11 0-0.5', GP-11 3-4', and EX-01) were detected above their respective URS levels. All other metals were either non-detect, or were below their respective URS level. All other DNREC laboratory screening results for the soil samples were not detected. Soil sample GP-09 was analyzed at Lancaster Laboratories for TCL VOCs and arsenic and lead analyses. Arsenic was detected above its restricted use URS. All other parameters were either not detected or were below their respective URS criteria.

Groundwater Analytical Results

A groundwater sample was collected from the GP-11 location and was analyzed for TCL, VOCs, TCL, SVOCs, and total metals. Iron and manganese were detected above their respective URS levels. All other parameters analyzed for were not detected or were below URS criteria.

Sediment Analytical Results

Sediment samples SED-A3 and SED-A4 were collected in the northwest and southwest portions of the property, respectively. PAHs were detected in both SED-A3 and SED-A4. All other DNREC screening results were not detected except for metals. The screening results for SED-3 and SED-4 indicated that arsenic, barium, chromium (total), copper, iron, lead, manganese, mercury, nickel (SED-A4 only), thallium (SED-A3), vanadium, and zinc. Above their respective background levels. Sediment samples SED-A3 and SED-A4 were not selected for laboratory analysis.

Surface Water Analytical Results

A surface water sample was collected at the SW-A4 location, but was not analyzed due to its isolated location that suggests it is perched water associated with storm water conveyance and not a true surface water body.

Summary and Conclusions

Environmental Alliance concluded the following for the Merkin Auto portion of the RI:

- Although metals (arsenic) and PAHs (below URS levels) are reported in soils, evaluation of the detected constituents in the site-specific risk assessment does not indicate they pose a concern based on current site usage and industrial nature of the SWSY area. Based on the reported arsenic concentration of 12.8 mg/kg the lifetime carcinogenic risk for arsenic is 3.5×10^{-6} , which is below the HSCA target value of 1×10^{-5} risk. Chronic risk for arsenic is 0.02, which is below the HSCA target hazard index of 1.
- The cumulative risk for the property Constituent of Concern (arsenic only) is also 3.5×10^{-6} , which is below the HSCA target value of 1×10^{-5} risk.
- The metals reported in sediment indicate a moderate impact that is attributed to the degraded nature of the SWSY area and not necessarily associated with an individual property.
- The groundwater aquifer sampled is not a potable source of water and public water is available to the SWSY area, therefore, exposure to groundwater is eliminated and not considered a concern.

Current Regulatory Status:

A Remedial Investigation Report was submitted to DNREC SIRB on June 13, 2001. On May 10, 2002 DNREC issued a response letter concerning the Remedial Investigation Report. The letter commented that Environmental Alliance should analyze additional samples at the laboratory. Environmental Alliance attempted to negotiate with the owners concerning additional laboratory fees, but no owners agreed about the additional laboratory analysis. In 2006 DNREC issued a Memorandum of Agreement. This document stated that a groundwater management zone shall be established in this area, no new public or domestic water supply wells shall be allowed or permitted, monitoring/observation/containment recovery wells may be

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installed in the GMZ area after review and approval, and permits may only be issued by the DWR and DAWM.

SUMMARY OF SITE PCB INFORMATION

Site Investigation PCB Findings:

PCBs were not detected above their analytical reporting limits in any samples collected from the Merkin Auto Property. No samples collected on the Merkin Auto site were analyzed using confirmatory laboratory analytical procedures. Samples on the site were only screened using immunoassay kits. The detection limit for this analysis was 0.5 mg/kg. No samples collected indicated a concentration above this detection limit.

| Concentrations of PCBs on Site | | | |
|--------------------------------|----------------------|--------------------|---------------------|
| Sample Matrix | Corresponding Figure | Analytical Methods | Range of Total PCBs |
| Surface Soil | Figure 2 | Immunoassay Kits | Not detected |
| Subsurface Soil (unsaturated) | Figure 3 | None | Not Analyzed |
| Subsurface Soil (saturated) | Figure 4 | Immunoassay Kits | Not detected |
| Ground Water | Figure 5 | Method 8082 | Not detected |

A summary of all samples collected for PCBs are presented in the attached Tables 1 through 3.

Acreage where PCBs detected:

Historical information indicates that there are no areas impacted by PCBs on the Merkin Auto property.

PCB Remediation Status:

A Memorandum of Agreement has been established by DNREC to restrict the use of groundwater in the area. No soil remediation is currently planned.

PCB MASS LOADING SUMMARY

PCB mass loading calculations were not performed on the Merkin Auto Site due to the available PCB data indicate that there are no impacted areas. Groundwater and overland flow are not a mechanism of transport for PCBs on this site, since there are no reported concentrations of PCBs above the analytical procedure detection limit.

OVERLAND FLOW:

Based on the information available there is no potential for PCB impacted materials to be transported by overland flow processes.

Ground Cover and Canopy:

A site inspection was performed to estimate the current site ground cover and canopy on August 28, 2008. The evaluation incorporated the use of aerial photography as well as the site visit due to the limited access to the site.

Site Sediment and Erosion Control Practices:

There are currently no erosion and sediment controls in place at the Merkin Auto property.

GROUNDWATER DISCHARGE ANALYSIS

Due to the information available there is no potential for PCB impacted materials to be transported by groundwater flow processes.

Overall Uncertainty Evaluation:

Specific Areas and Degree of Uncertainty for the Merkin Auto Property

| | Samples Per Acre (site) | Chemical Data Quality* | Topography | Soil Type | Site Coverage | Map Quality | Distance to Discharge Point |
|---------------------------|-------------------------|------------------------|----------------------------|---|---|-------------------|-----------------------------|
| Site Specific Information | 1.2 | Immunoassay Kits | Estimated using topography | Very poor logs with very little on-site samples | Based on a limited site assessment and aerial photography | Sketched drawings | N/A |
| Degree of Uncertainty | Moderate to High | High | Moderate | Low | Moderate to High | High | High |

* Primary analysis used in the historical samples



Areas of uncertainty for the Merkin Auto property include the following: due to restricted access a thorough assessment of the property could not be conducted. Assumptions were made from aerial photographs to assess the land cover. Sample coverage of the site was not extensive. For all samples screened on-site PCBs were not detected above their associated detection limit, but historical information revealed that sediment samples collected directly adjacent to the site had elevated PCB concentrations. Based on these evaluations the overall level of uncertainty associated with PCB mass loading from the Merkin Auto property is **high**.



Site References:

Environmental Alliance, 2001, Remedial Investigation Report, South Wilmington Salvage Yards
June 13, 2001.

Delaware Department of Natural Resources and Environmental Control (DNREC) – Superfund
Branch, 1996, Environmental Assessment of the South Wilmington (East) Quadrants 1 and 2
Study Area, April 1996.

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Figures



Legend

- Sediment Sample Location
- Sediment/Surface Water Sample Location
- Soil Boring Location
- Test Pit Location
- Tax Parcel
- Merkin Auto Property Boundary

Total Site Area= 6.04 acres



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Investigation, and Remediation

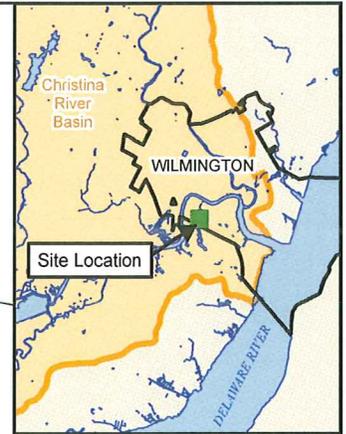
801 Industrial Street, Suite 1
Wilmington, Delaware 19801

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Historic Sample Locations and
Aerial Photograph (2007)
Merkin Auto
Wilmington, Delaware

| | By | Date | Scale: | File Name: |
|-----------|------------|---------|----------|-------------------|
| Drawn | SMD | 8/18/08 | 1:1800 | merkin aerial.mxd |
| Checked | JPR | 8/18/08 | Fig. No. | |
| Project # | 0985.26.51 | | Figure 1 | |





Note: Samples in gray indicate that no sample was collected from this depth or the sample was not analyzed for PCBs

| Legend | |
|----------|--|
| 0.150 | Total PCB Concentration (mg/Kg) |
| >0.5<1.0 | Screening Data |
| | Sediment Sample Location |
| | Sediment/Surface Water Sample Location |
| | Soil Boring Location |
| | Test Pit Location |
| | Existing Building |
| | Tax Parcel |
| | Merkin Auto Property Boundary |

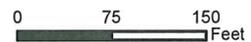


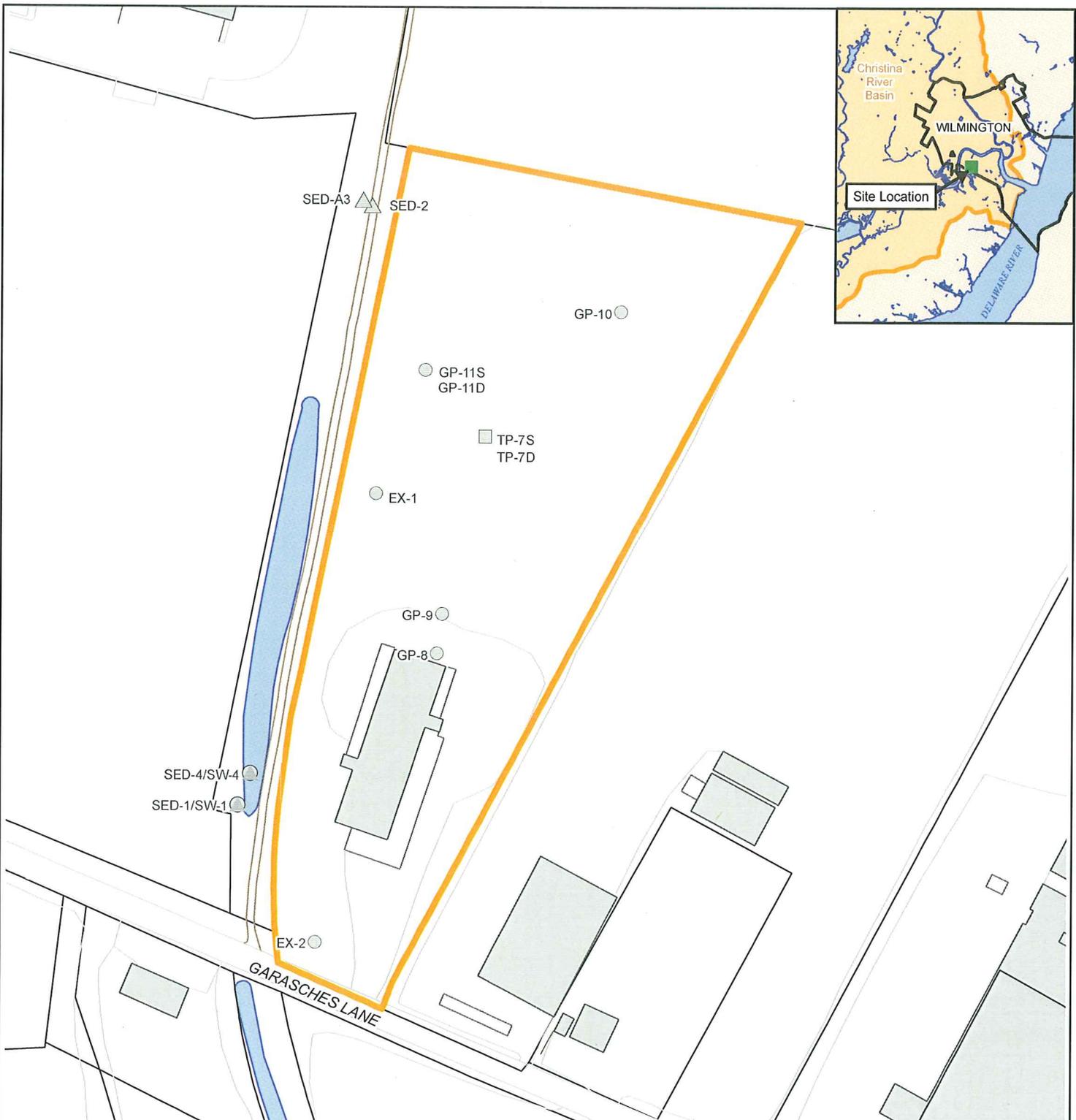
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PCB Distribution in Surface Soil (0'-2' bgs)
Merkin Auto
Wilmington, Delaware

| | By | Date | Scale: | File Name: |
|-----------|------------|---------|----------|----------------|
| Drawn | SMD | 8/18/08 | 1:1800 | merkin 0-2.mxd |
| Checked | JPR | 8/18/08 | Fig. No. | Figure 2 |
| Project # | 0985.26.51 | | | |





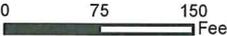
Note: Samples in gray indicate that no sample was collected from this depth or the sample was not analyzed for PCBs

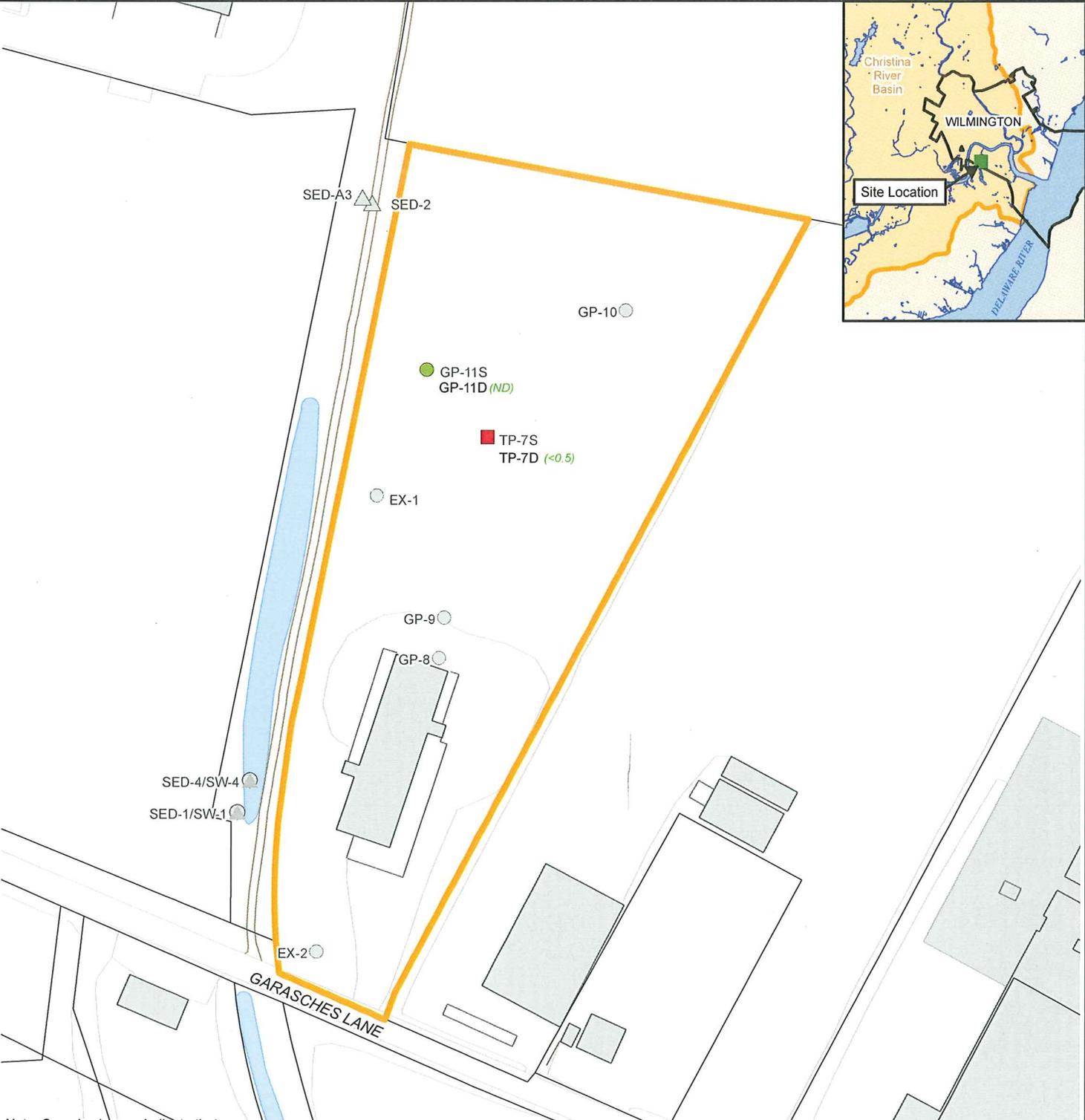
Legend

- Sediment Sample Location
- Sediment/Surface Water Sample Location
- Soil Boring Location
- Test Pit Location
- Merkin Auto Property Boundary
- Tax Parcel
- Existing Building



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| | | | | |
|---|------------|----------------------------------|---|------------------|
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| PCB Distribution in Subsurface Unsaturated Soil Merkin Auto Wilmington, Delaware | | | | |
| | By | Date | Scale: | File Name: |
| Drawn | SMD | 8/18/08 | 1:1800 | merkin unsat.mxd |
| Checked | JPR | 8/18/08 | Fig. No. | Figure 3 |
| Project # | 0985.26.51 | | | |
|  | | |  | |



Note: Samples in gray indicate that no sample was collected from this depth or the sample was not analyzed for PCBs

Legend

- (*<0.5*) Screening Result
- ▲ Sediment Sample Location
- Sediment/Surface Water Sample Location
- Soil Boring Location
- Test Pit Location
- Existing Building
- Tax Parcel
- Merkin Auto Property Boundary

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**PCB Distribution in Subsurface Saturated Soil
 Merkin Auto
 Wilmington, Delaware**

| | | | | |
|-----------|------------|---------|----------|----------------|
| | By | Date | Scale: | File Name: |
| Drawn | SMD | 8/18/08 | 1:1800 | merkin sat.mxd |
| Checked | JPR | 8/18/08 | Fig. No. | Figure 4 |
| Project # | 0985.26.51 | | | |

0 75 150 Feet



● GP-11
(ND)

○ SED-A4/SW-4

○ SED-1/SW-1

GARASCHESS LANE

Note: Samples in gray indicate that no sample was collected from this depth or the sample was not analyzed for PCBs

Legend

- (ND) Screening Result
- Soil Boring Sample Location
- Surface Water Sample Location
- ▭ Merkin Auto Property Boundary
- ▭ Tax Parcel
- ▭ Existing Building



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Investigation, and Remediation

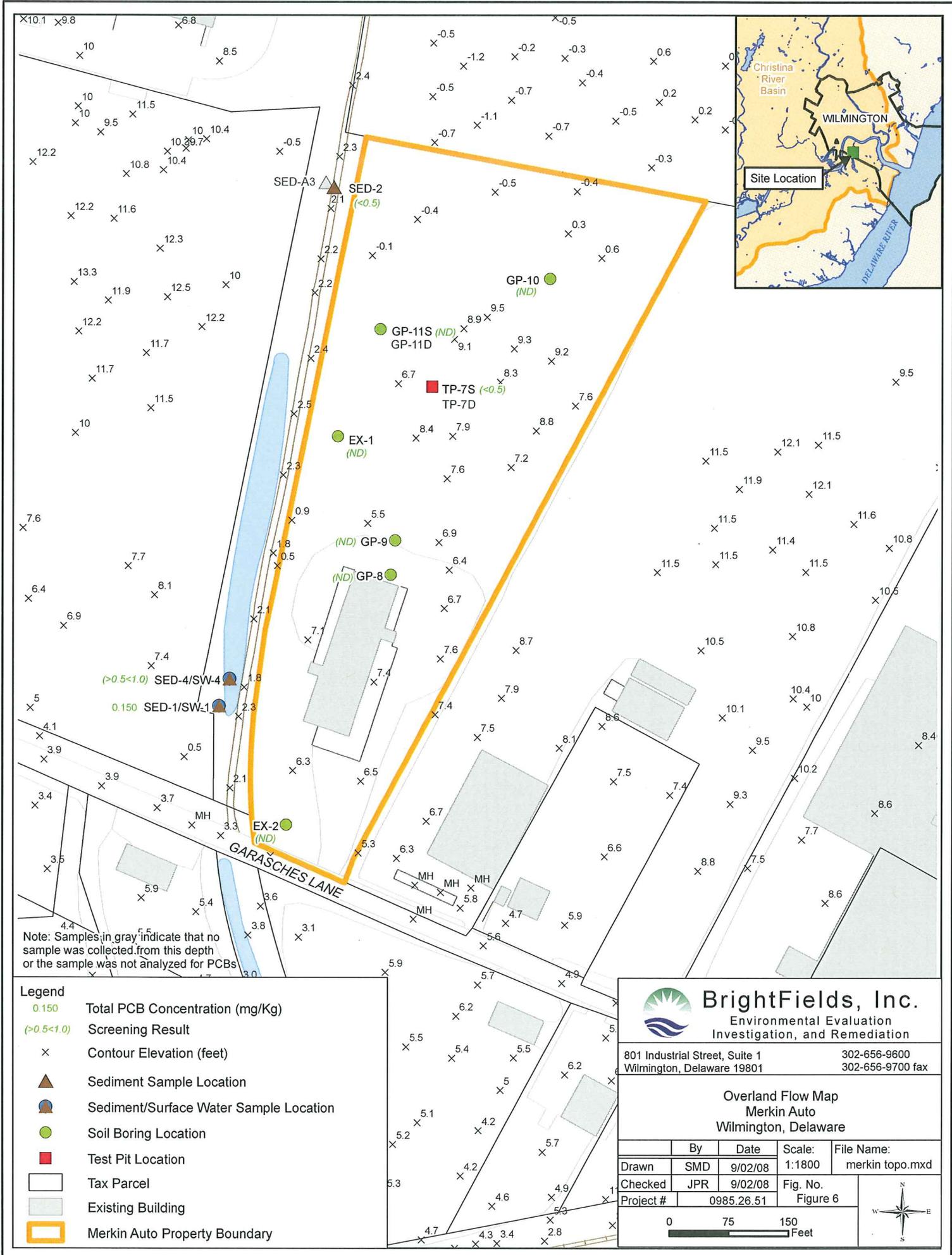
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PCB Distribution in Groundwater
Merkin Auto
Wilmington, Delaware

| | By | Date | Scale: | File Name: |
|-----------|------------|---------|----------|---------------|
| Drawn | SMD | 8/18/08 | 1:1800 | merkin gw.mxd |
| Checked | JPR | 8/18/08 | Fig. No. | |
| Project # | 0985.26.51 | | Figure 5 | |





Note: Samples in gray indicate that no sample was collected from this depth or the sample was not analyzed for PCBs

- Legend**
- 0.150 Total PCB Concentration (mg/Kg)
 - >0.5<1.0 Screening Result
 - x Contour Elevation (feet)
 - ▲ Sediment Sample Location
 - Sediment/Surface Water Sample Location
 - Soil Boring Location
 - Test Pit Location
 - ▭ Tax Parcel
 - ▭ Existing Building
 - ▭ Merkin Auto Property Boundary

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Overland Flow Map
 Merkin Auto
 Wilmington, Delaware

| | | | | |
|-----------|------------|---------|----------|-----------------|
| | By | Date | Scale: | File Name: |
| Drawn | SMD | 9/02/08 | 1:1800 | merkin topo.mxd |
| Checked | JPR | 9/02/08 | Fig. No. | |
| Project # | 0985.26.51 | | Figure 6 | |

0 75 150 Feet

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Wilmington, Delaware



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Tables

Table 1
 PCB Analytical Results For Groundwater
 Merkin Auto Spring Company Property
 Wilmington, DE
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| Sample ID Sampling Date Units Report Issued | DNREC URS for Protection of Human Health ug/L | GP11 11/21/01 ug/L EA (2001) |
|--|---|---------------------------------------|
| PCBs | | |
| Atroclor-1016 | 0.1 | ND |
| Atroclor-1221 | 0.03 | ND |
| Atroclor-1232 | 0.03 | ND |
| Atroclor-1242 | 0.03 | ND |
| Atroclor-1248 | 0.03 | ND |
| Atroclor-1254 | 0.03 | ND |
| Atroclor-1260 | 0.03 | ND |

EA (2001) - Salvage Yards Remedial Investigation Report

Qualifiers

ND - The compound was not detected above the indicated laboratory detection limit

NR - Not analyzed

nca - no criteria available

bold - concentration is above DNREC URS unrestricted use criteria

shaded - concentration is above DNREC URS restricted use criteria

Table 2
 DNREC PCB Soil Screening Data
 Merking Auto Spring Company Property
 Wilmington, DE
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| Sample ID | Sample Depth | Investigation Report | Sample Date | DNREC URS for Protection of Human Health (Non-critical Water Unrestricted Use (mg/kg)) | Total PCBs (mg/kg) |
|-----------|--------------|----------------------|--------------|---|-----------------------|
| TP-7S | 0.5' | DNREC (1998) | 7/17/95 | 1 | <0.5 |
| TP-7D | 6' | DNREC (1998) | 7/17-7/19/95 | 1 | <0.5 |
| GP-11S | 0-0.5' | EA (2001) | 11/21/00 | 1 | ND |
| GP-10 | 0-0.5' | EA (2001) | 11/20/00 | 1 | ND |
| EX-1 | 0-0.5' | EA (2001) | 11/20/00 | 1 | ND |
| GP-9 | 0-0.5' | EA (2001) | 11/21/00 | 1 | ND |
| GP-8 | 0-0.5' | EA (2001) | 11/21/00 | 1 | ND |
| EX-2 | 0.5-1.5' | EA (2001) | 11/20/00 | 1 | ND |
| GP-11D | 3-4' | EA (2001) | 11/21/00 | 1 | ND |

DNREC (1998) - South Wilmington
 Assessment Quadrants 1 & 2

EA (2001) - Salvage Yards Remedial
 Investigation Report

Qualifiers:

ND - compound was not detected

Bold - concentration exceeds URS

nca - no criteria available

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Site Photographs

(Not Applicable)

PCB Mass Loading
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Overland Flow Calculations

(Not Applicable)

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Groundwater Transport Calculations

(Not Applicable)