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# Soil, Sediment, and Surface Water Assessment Report
# Southern Wood Piedmont Company,
# City of Wilmington, & North Carolina State Ports Authority
# Wilmington, North Carolina Facility

Prepared For

**Southern Wood Piedmont Company**
**Spartanburg, South Carolina**

Prepared By The

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ViroGroup
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TECHNOLOGY

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## ABBREVIATIONS

| | |
|---|---|
| NTA | Non-Treated Wood Storage Area A |
| NTB | Non-Treated Wood Storage Area B |
| TWSA | Treated Wood Storage Area A |
| TWSB | Treated Wood Storage Area B |
| PA | Production Area |

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# SOIL, SEDIMENT, AND SURFACE WATER ASSESSMENT REPORT SOUTHERN WOOD PIEDMONT COMPANY, CITY OF WILMINGTON, & NORTH CAROLINA STATE PORTS AUTHORITY WILMINGTON, NORTH CAROLINA FACILITY

## 1.0 INTRODUCTION

This report describes a voluntary soil, sediment, and surface water assessment performed by ViroGroup, Inc. on February 12 through 16, 1996 to delineate (to the extent reasonably possible) the impacts to soil, surface water, and sediment in areas where previous investigations suggest un-delineated impacts may exist; and to provide the necessary information for developing a risk-based remedial action plan that is protective of human health and the environment. This assessment was based on the discussions originating from the May 24, 1995 meeting between Southern Wood Piedmont Company (SWP), the City of Wilmington (City), the North Carolina State Ports Authority (NCSPA), the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR), and the Region IV United States Environmental Protection Agency (EPA). The scope of work performed during this assessment was also based on recommendations suggested in the January 31, 1995 letter from the NCDEHNR to the EPA that summarizes the Site Inspection Prioritization (NCDEHNR, 1995). The assessment was performed in accordance with ViroGroup's Soil, Sediment, and Surface Water Assessment Workplan dated January 31, 1996.

## 2.0 ASSESSMENT ACTIVITIES

The investigative methods used to perform the assessment are in accordance with the EPA REGION IV ENVIRONMENTAL COMPLIANCE BRANCH STANDARD OPERATING PROCEDURES AND QUALITY ASSURANCE MANUAL (ECBSOPQAM) dated February 1, 1991. The investigation activities and assessment locations are summarized on Figure 1.

### 2.1 Site Soil

Between February 26 and March 1, 1991, Geraghty & Miller, Inc. completed 92 soil borings and collected 48 soil samples from treated and non-treated wood storage areas at the facility. Each of the soil borings were completed to a depth of 18-inches below land surface and visually assessed for the degree of staining and odor. Randomly selected soil boring locations were sampled for select semi-volatile organic constituents and the metals, arsenic, chromium, and copper at depth intervals of 0- to 6-inches and 12- to 18-inches below land surface. The results of the Geraghty & Miller (1993a) investigation can be found in the report submitted to SWP on December 9, 1993 entitled: DATA SUMMARY REPORT FOR THE TREATED AND NON-TREATED WOOD STORAGE AREAS SOIL INVESTIGATION, SOUTHERN WOOD PIEDMONT COMPANY, WILMINGTON, NORTH CAROLINA. Summary tables and analytical results from the 1991 Geraghty & Miller investigation are presented in Attachment B and Figures 2 through 7 of this report.

The main production area and treated wood storage area B, located in the northwest portion of the site, were not included in the previous assessment completed by Geraghty & Miller, Inc. in 1991.

To complete the site wide soil investigation ViroGroup assessed the main production area and the treated wood storage area B on February 12 through 14, 1996 utilizing the same methodology as the previous soil assessment. A surveyed sampling grid on 100-foot centers was prepared. A total of 78 boreholes were completed in the grid to a depth of 18-inches (except for borehole PA9 where auger refusal was encountered at approximately 12-inches) using a three-inch diameter, clean, stainless steel hand auger. Each soil boring was described for degree of staining and odor (Figures 8 and 9) and logged according to the Unified Soil Classification Scheme (Attachment A). The majority of the soil samples consisted of sand (91%), while 4% were gravel and 5% were clay. A head-space analysis was performed to screen each sample for total volatile organic compounds (VOC's) using a photo-ionization detector/organic vapor analyzer (PID/OVA). Twenty-six of the boreholes (1/3) were randomly selected for chemical analysis using a random number table (Attachment A). A soil sample was collected from the 0- to 6-inch and 12- to 18-inch intervals (total of 52 soil samples) and submitted to the laboratory for analysis of the Wilmington site-specific wood-preserving constituent list (Attachment G). The semi-volatile constituents were analyzed by USEPA Method 8270, volatiles by USEPA Method 8240, and metals by USEPA Method 6010. The sampling, decontamination, and chain-of-custody procedures were as described in the sampling and analysis plan located in Attachment A of the soil, sediment, and surface water workplan (ViroGroup, 1996). The sampling method, decontamination method, and waste disposal method are documented on the sampling field data sheets and decontamination logs presented in Attachment A. Chain-of custody forms are located with the analytical results located in Attachment G. All sampling locations were permanently marked in the field with a steel pin and surveyed.

### 2.1.1 Main Production Area

To assess the soil in the main production area, 33 soil borings were completed and 22 soil samples were collected. Visual observations indicated that 21 of the soil borings had no staining or odor, 3 soil borings had a faint odor, and 9 soil borings were discolored (Figure 8). The discolored soils were limited to the area in the vicinity of the former treatment facility, the large storage tanks, and the former ditch. In the 22 soil samples collected, 14 semi-volatiles and 2 volatiles were detected (Figure 10; Attachment B). The semi-volatiles detected consisted of naphthalene (4 samples), acenaphthylene (1 sample), acenaphthene (4 samples), phenanthrene (10 samples), anthracene (11 samples), fluoranthene (18 samples), chrysene (16 samples), benzo(a)anthracene (16 samples), benzo(b)fluoranthene (17 samples), benzo(k)fluoranthene (15 samples), benzo(a)pyrene (16 samples), indeno(1,2,3-cd)pyrene (12 samples), carbazole (5 samples), and dibenzo(a,h)anthracene (3 samples). The two volatile organic constituents that were detected were ethylbenzene (1 sample) and xylene (6 samples). Soil sample PDA11B, collected at a depth of 12- to 18-inches below land surface near the southeast corner of the former production area, had the highest concentration of total organic wood-preserving constituents (TO) at 15,030 milligrams per kilogram dry weight (mg/kg dw). This sample is located in the area of the excavated and

backfilled ditch. The detection at this location (PDA11B) is isolated and may have been missed when the surrounding area was excavated and backfilled with clean fill material. No wood-preserving constituents were detected in the overlying sample PDA11A (0- to 6-inches below land surface) or in surrounding samples. Eighteen of the 22 samples (82%) contained detectable concentrations of arsenic. Chromium was detected in all of the samples and 19 of the samples (86%) had detectable concentrations of copper. Soil sample PDA1A, collected from the northwest corner of the former production area, had the highest levels of arsenic, chromium, and copper. Arsenic was detected at 1,300 mg/kg dw, chromium at 1,200 mg/kg dw, and copper at 1,600 mg/kg dw. Sample PDA1A is located in the vicinity of the former chromium, copper, and arsenic (CCA) treatment facility. The soil in the vicinity of the CCA treatment facility was excavated, properly disposed, and backfilled. The high CCA concentrations in PDA1A are isolated to the 0- to 6-inch depth below land surface. The CCA concentrations in the underlying 12- to 18-inch below land surface sample (PDA1B) are significantly lower. The mean concentration for arsenic, chromium, and copper (including PDA1A) in the former production area is 80 mg/kg dw, 91 mg/kg dw, and 111 mg/kg dw, respectively. Sample PDA1A, from the former CCA treatment area, caused the average concentrations to be skewed upward. The average concentration for the metals when PDA1A is not included in the data set is 22 mg/kg dw arsenic, 39 mg/kg dw chromium, and 37 mg/kg dw copper. The US Geological Survey (USGS) 1984 Professional Paper 1270 entitled: Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States documents that the maximum naturally-occurring concentration reported for arsenic is 73 mg/kg and that the upper range for chromium and copper in the eastern United States is 1,000 mg/kg and 700 mg/kg, respectively. Based on the USGS investigation, the concentrations of arsenic, chromium, and copper detected in the soil samples (excluding PDA1A) are within the acceptable range for background concentrations.

### 2.1.2 Treated Wood Storage Area B

Investigation activities in the treated wood storage area B (TWSB) included the completion of 45 soil borings and the collection of 30 soil samples. Visual observations indicated that 44 of the soil borings had no staining or odor and 1 of the soil borings was discolored (Figure 9). In the 30 soil samples collected, 11 semi-volatile constituents and 1 volatile constituent were detected (Figure 11; Attachment B). The semi-volatiles detected consisted of acenaphthene (1 sample), phenanthrene (6 samples), anthracene (4 samples), fluoranthene (22 samples), chrysene (20 samples), benzo(a)anthracene (18 samples), benzo(b)fluoranthene (20 samples), benzo(k)fluoranthene (18 samples), benzo(a)pyrene (18 samples), indeno(1,2,3-cd)pyrene (11 samples), and carbazole (1 sample). The volatile constituent detected was m+p xylene, which was present in three of the samples. Soil sample TWSB4B, located near the northwestern corner of the treated wood storage area, had the highest concentration of total organic wood-preserving constituents (986 mg/kg dw). Arsenic was detected in 60% (18 out of 30) of the samples, chromium was detected in all 30 samples, and copper was detected in 53% (16 out of 30) of the

soil samples collected from TWSB. The highest detected arsenic concentration is 42 mg/kg dw with an average concentration of 6.7 mg/kg dw in the TWSB area. The highest concentration of chromium is 39 mg/kg dw with an average concentration of 7.1 mg/kg dw. The highest concentration of copper is 110 mg/kg dw with an average concentration of 18.7 mg/kg dw. The metal concentrations in the TWSB area are all considered background concentrations as referenced by the USGS in 1984.

Subsequent to completing the grid soil sampling investigation in the main production area and the TWSB area, the workplan proposed that, after receipt of the laboratory analysis for these areas, dioxin and furan soil sampling would be conducted, if necessary. The workplan indicated that dioxin and furan soil samples would be collected in each of the NTA, NTB, TWSA, TWSB, and production areas if pentachlorophenol was detected in the site soils (dioxins and furans are remnant from the pentachlorophenol formulation process). The location of each dioxin and furan soil sample was to be selected based on the grid point(s) with the greatest pentachlorophenol concentration. If pentachlorophenol was not detected in an area, no dioxin or furan soil samples would be collected from that area. If pentachlorophenol was detected, then a soil sample(s) would be collected. Furthermore, if dioxins or furans were detected on site, then five background soil samples were to be collected in the vicinity of the site to compare regional concentrations to those concentrations present on site. Pentachlorophenol was not detected in any of the soil samples so no additional samples were collected for dioxin or furan analysis.

To evaluate the bioavailability of organic compounds on site, total organic carbon (TOC) samples were collected on February 15, 1996. Two TOC samples were collected from each of the following areas: production area; non-treated wood storage area B (NTB); and treated wood storage area A (TWSA). A total of 6 TOC samples were collected. The TOC soil samples were collected at a depth of 0- to 6-inches below land surface. In each of the production, NTB, and TWSA areas, one of the TOC samples was collected in an area influenced by wood-preserving constituents. The second TOC sample from each area was collected in an area uninfluenced by wood-preserving constituents. The average total organic carbon concentration from the 6 soil samples is 27,467 mg/kg dw. The range for total organic carbon detected at the site is 5,800 mg/kg dw to 62,000 mg/kg dw (Attachment G).

## 2.2 Landfarm Soil

In voluntary cooperation with the North Carolina Department of Human Resources, Solid and Hazardous Waste Management Branch, SWP operated a landfarm to treat soil containing wood preserving constituents. Following the removal of the existing railroad spurs and plant buildings at the facility, a 5-acre area was bermed for landfarm operations (LF1 and LF2). The landfarm is located on top of a portion of the former TWSB area (Figure 1).

Soil stained with wood preserving constituents was excavated from a ditch, track areas, wood treating area, and the storage tank area on site. The excavated soil was temporarily staged in a bermed spoil pile located in the NTB area. From July 1984 to April 1990 the stockpiled soils were placed at regular intervals on the landfarm in 2-inch lifts and tilled weekly to a depth of 6-inches below land surface. Each lift was treated by adding irrigation water, 10-10-10 fertilizer, and chicken and turkey manure to promote microbial growth and wood preserving constituent degradation. The landfarm was operated from 1984 to 1990.

Composite soil samples were routinely collected by a SWP representative from each landfarm area between September 1985 to October 1988. A composite sample was taken for each of the following depths: 0- to 3-inches, 9- to 12-inches, and 21- to 24-inches below land surface. Soil from the four corners of each landfarm was mixed to make a composite sample at each depth for each landfarm (LF1 and LF2). A total of 37 sets of samples were collected from LF1 and 59 sets of samples were collected from LF2. The samples were analyzed for total nitrogen, total phosphorus, chloride, total organic carbon, soil pH, polycyclic aromatic hydrocarbons (PAH's), pentachlorophenol, phenol, and microbial counts by the Mississippi State University Forest Products research Division Laboratory (MSUFPRD) in State College, Mississippi. Total PAH concentrations declined substantially from 1985 to 1990. Degradation rates varied among the different PAHs. PAHs with two aromatic rings were found to degrade more rapidly than PAHs with four or more rings. PAHs with half-lives less than 10 days were completely degraded after 3 months, whereas, PAHs with intermediate (10 to 100 days) and long (more than 100 days) half-lives persisted (Geraghty & Miller, 1993b).

A second soil sampling investigation (1990) was completed by Geraghty & Miller, Inc. in the two landfarm areas (LF1 and LF2) to provide a baseline of current conditions for LF1 and LF2 (Geraghty & Miller, 1993b). In each landfarm area five locations were sampled (A, B, C, D, and E; Figure 1) on October 10, 1990 and submitted to the laboratory for analysis of the Wilmington site-specific landfarm constituent list (Attachment G). At each location, three samples were collected in the landfarm material and one sample was taken from the underlying substrate. In the landfarm material the first set of samples were collected at approximately 3 inches below the landfarm surface, the second set of samples were collected midway through the landfarm material, and the third set of samples were collected from the bottom 6-inches of the landfarm material. The substrate samples were taken approximately 6-inches below the base of the landfarm material. Generally, there was no observable trend in constituent concentrations between the upper, middle, and lower samples from the landfarm areas. Concentrations of constituents in the substrate samples were significantly lower than those occurring in the overlying landfarm material, indicating minimal vertical migration of constituents. Please refer to Attachment C for summary tables of the 1990 landfarm samples collected by Geraghty & Miller, Inc. in 1990.

In October 1991, Geraghty & Miller, Inc. collected soil samples from the previously sampled locations to provide data on the presence and degradation of the wood-preserving constituents in the landfarm material since the previous 1990 sampling event (Geraghty & Miller, 1993c). During the 1991 sampling event, the sampling depths were modified to include only the upper and lower layers of the landfarm material since the analytical results from the 1990 sampling event documented that the PAH concentrations in the landfarm were consistent with depth and were significantly lower in the underlying substrate. There was no observable trend in constituent concentrations between the upper and lower samples from the landfarm area. Please refer to Attachment C for a summary of the detected constituents from the landfarm in 1991.

Geraghty & Miller, Inc. (1993c) also presented a comparison between the 1990 and 1991 landfarm soil sampling results (Attachment C). Statistical analysis indicated that no statistical differences in constituent concentrations with sampling depth were present during the 1990 or the 1991 sampling events. During the 1990 to 1991 comparison and for risk assessment purposes, the PAHs were divided into two classes: carcinogenic (cPAHs) and total PAHs (tPAHs). The mean concentrations for both cPAHs and tPAHs showed a slight decrease from 1990 to 1991. cPAH concentrations decreased by an average of 14.5 percent and tPAH concentrations decreased by an average of 13.1 percent between 1990 and 1991. Two- and three-ring PAHs decreased from a range of 9 to 88 percent. The average decrease was about 33 percent. The concentrations of four-, five-, and six-ring PAHs was highly variable. Geraghty & Miller, Inc. predicted, using constituent-specific degradation half-live values, that after 30 years most of the constituents will be degraded to less than 0.001 mg/kg. The four- and five-ring PAHs will have concentrations of 2 mg/kg or less.

To evaluate the presence and continued degradation of wood-preserving constituents in the landfarm materials between 1991 and 1996, ViroGroup, Inc. collected soil samples on February 15, 1996 from each landfarm area. Statistical analysis of the previous landfarm soil sample analytical results (1990 and 1991), indicated that constituent concentrations are evenly distributed throughout the landfarm material. Due to the even distribution of wood-preserving constituents throughout each landfarm, it was determined that composite sampling would be satisfactory in evaluating the amount of degradation in the landfarm materials from 1991 to 1996. During the 1996 landfarm sampling, 1 composite soil sample was collected from each landfarm (LF1 and LF2) at each specified depth interval (upper, lower, and substrate depth intervals). A total of 3 composite soil samples were collected from each landfarm area (Attachment C). Each composite sample consisted of 5 lateral sample locations (A, B, C, D, and E; Figure 1). An upper composite sample 0- to 3-inches below the landfarm surface, a lower composite sample 2- to 8-inches above the base of the landfarm material and a substrate composite sample 2- to 6-inches below the base of the landfarm material were collected. To determine the thickness of the landfarm material a test borehole was completed at approximately the same locations as the previous boreholes using a clean, stainless steel hand auger. During the test borings, it was

observed that the landfarm material was brownish black, whereas, the substrate was yellowish brown. The average thickness of the landfarm material in LF1 was 19 inches (ranged from 13- to 22-inches thick) and in LF2 was 22-inches (ranged from 16- to 28-inches thick). Each soil boring was described for degree of staining and odor and logged according to the Unified Soil Classification Scheme (Attachment A). The soil samples were submitted to the laboratory for analysis of the Wilmington site-specific landfarm constituent list (Attachment G). The semi-volatile constituents were analyzed by USEPA Method 8270, metals by USEPA Method 6010, total Kjeldahl Nitrogen-N by USEPA Method 3-202, nitrate + nitrite-N by USEPA Method EPACE 3-183, total phosphorus by USEPA Method 365.4, pH by USEPA Method 9045, total organic carbon by USEPA Method 415.1, and chloride by USEPA Method 9251. The sampling, decontamination, and chain-of-custody procedures were as described in the sampling and analysis plan located in Attachment A of the soil, sediment, and surface water workplan (ViroGroup, 1996). The sampling method, decontamination method, and waste disposal method are documented on the sampling field data sheets and decontamination logs presented in Attachment A. Chain-of-custody forms are located with the analytical results located in Attachment G. All sampling locations were permanently marked in the field with a steel pin and surveyed.

The analytical results from the 1996 landfarm soil samples indicate a decreasing trend in constituent concentration levels since 1991. A comparison between the constituents detected in 1996 and the results obtained in 1991 are presented in Attachment C. These results indicate that all of the organic wood-preserving constituent concentrations have decreased in both landfarm areas. Total wood-preserving constituents concentrations in LF1 have decreased from 497.85 mg/kg dw in 1991 to 107.1 mg/kg dw in 1996 and in LF2 from 1,354.7 mg/kg dw to 131.5 mg/kg dw. The PAH constituents naphthalene, 2-methylnaphthalene, 1,1-biphenyl, acenaphthylene, acenapthene, dibenzofuran, fluorene, pyrene, dibenzo(a,h)anthracene, benzo (g,h,i)perylene, and pentachlorophenol were detected in the landfarm in 1991, but were not detected in 1996. The majority of the PAHs that were not detected in 1996 are two- and three-ring molecular structures with half-lives of less than 10 days. Phenanthrene, anthracene, carbazole, benzo(a)anthracene, chrysene, benzo(a)pyrene, fluoranthene, benzo(b,k)fluoranthene, and indeno(1,2,3-cd)pyrene were detected in the landfarm during the 1996 sampling. The molecular-ring structure of the nine PAH constituents detected ranged from three-rings (phenanthrene, anthracene, and carbazole) to six-rings (indeno(1,2,3-cd)pyrene). Three of the constituents (fluoranthene, chrysene, and benzo(a)anthracene) are comprised of four-rings, while the remaining two constituents (benzo(b,k)fluoranthene, and benzo(a)pyrene) have a five-ring structure. All of the remaining PAHs in the landfarm have half-lives between 10 to 100 days and greater than 100 days. Presented below are the PAHs remaining in the landfarm for 1996, the average percent degradation since 1991, and the average concentration remaining in each landfarm area:

| Constituent | Percent Degradation 1991 to 1996 | Average Concentration Remaining In Landfarm 1 | Average Concentration Remaining In Landfarm 2 |
|---|---|---|---|
| Phenanthrene | 82% | 2.40 mg/kg dw | 3.50 mg/kg dw |
| Anthracene | 95% | 2.85 mg/kg dw | 7.50 mg/kg dw |
| Carbazole | 96% | Not detected | 1.10 mg/kg dw |
| Benzo(a)anthracene | 62% | 5.45 mg/kg dw | 5.65 mg/kg dw |
| Chrysene | 59% | 7.25 mg/kg dw | 6.75 mg/kg dw |
| Benzo(a)pyrene | 50% | 6.35 mg/kg dw | 7.70 mg/kg dw |
| Fluoranthene | 73% | 9.05 mg/kg dw | 9.60 mg/kg dw |
| Benzo(b,k)fluoranthene | 53% | 16.2 mg/kg dw | 17.6 mg/kg dw |
| Indeno(1,2,3-cd)pyrene | 31% | 4.15 mg/kg dw | 6.35 mg/kg dw |

In general, the molecular composition of the wood-preserving constituents dictate the ease with which they will degrade, their relative mobility in the environment, and their toxicity levels. The more complex molecular-ring structures will degrade slower, however, they are usually less toxic and less mobile than compounds with simple one or two molecular-ring structures. Based on the comparison between the 1996 soil sample results and the results from the 1991 samples, it appears that the wood-preserving constituents have continued to degrade at a significant rate.

A comparison between the results from the 1996 lower substrate soil samples and an average of the results from the analysis of the lower substrate samples collected in 1990 is presented in Attachment C. All of the 1996 substrate sample analytical results were lower than the concentrations from the 1990 results, except for phenanthrene. The landfarm substrate was formerly treated wood storage area B (TWSB). Minimal concentrations of wood-preserving constituents can be expected, as shown in the soil sampling assessment for TWSB outside of the landfarm area. Total organic wood-preserving constituent concentrations in the substrate beneath LF1 have decreased from 17 mg/kg dw in 1990 to not-detected (ND) in 1996 and have decreased in the substrate beneath LF2 from 4.3 mg/kg dw to 2.48 mg/kg dw. None of the constituents detected in the substrate beneath LF1 in 1990 were detected in 1996. The PAH constituents phenanthrene, pyrene, benzo(g,h,i)perylene, anthracene, benzo(a)anthracene, chrysene, benzo(a)pyrene, and fluoranthene were detected in the substrate beneath LF2 in 1990. In 1996, phenanthrene was detected at 0.44 mg/kg dw, chrysene at 0.48 mg/kg dw, fluoranthene at 0.88 mg/kg dw, and benzo(b,k)fluoranthene at 0.68 mg/kg dw.

On October 9, 1990 Geraghty & Miller, Inc. (1993b) collected surficial (0- to 6-inch) dioxin and furan soil samples from the landfarm material. The soil samples were taken at each of the five locations (A, B, C, D, and E) in LF1 and LF2 and composited into two samples. The results from this initial sampling event are presented in Attachment D. The two composite surficial soil

samples were analyzed for polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) and their respective chlorinated homologues and 2,3,7,8-congeners. Both composite samples had detectable concentrations of PCDDs and PCDFs. The concentrations for each class of PCDDs ranged from 0.14/0.17 (LF1/LF2) micrograms per kilogram (μg/kg dw; part per billion) total tetrachlorodibenzodioxins to 621/932 (LF1/LF2) μg/kg dw total octachlorodibenzodioxins. The 2,3,7,8-tetrachlorodibenzodioxin congener was detected at a maximum estimated concentration of 0.004 μg/kg dw in LF1 and at 0.008 μg/kg dw in LF2. The concentrations for each class of PCDFs ranged from 0.09/0.10 (LF1/LF2) μg/kg dw total tetrachlorodibenzofurans to 147/164 (LF1/LF2) μg/kg dw total heptachlorodibenzofurans.

To evaluate the present concentrations of dioxins and furans in the landfarm material, two composite surficial soil samples were collected by ViroGroup on February 15, 1996 (Attachment D). The soil samples were collected at approximately the same location as those previously collected by Geraghty & Miller, Inc. in 1990. The dioxin and furan soil samples from the landfarm area were collected at a depth of 0- to 6-inches below land surface using a clean, stainless steel hand auger. The soil samples were submitted to Triangle Laboratories for analysis of the Wilmington site-specific dioxin and furan constituent list (Attachment G). The dioxin and furan soil samples were analyzed by USEPA Method 8290, high-resolution chromatography/high-resolution mass spectrometry. The sampling, decontamination, and chain-of-custody procedures were as described in the sampling and analysis plan located in Attachment A of the soil, sediment, and surface water workplan (ViroGroup, 1996). The sampling method, decontamination method, and waste disposal method are documented on the sampling field data sheets and decontamination logs presented in Attachment A. Chain-of-custody forms are located with the analytical results located in Attachment G. All sampling locations were permanently marked in the field with a steel pin and surveyed.

The two 1996 landfarm composite soil samples were analyzed for polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) and their respective chlorinated homologues and 2,3,7,8-congeners. Both composite samples had detectable concentrations of PCDDs and PCDFs (Attachment D). The concentrations for each class of PCDDs ranged from 61.0/91.8 (LF1/LF2) nannograms per kilogram (ng/kg dw; part per trillion) total tetrachlorodibenzodioxins to 583,460/496,210 (LF1/LF2) ng/kg dw total octachlorodibenzodioxins. The 2,3,7,8-tetrachlorodibenzodioxin congener was detected at a concentration of 2.4 ng/kg dw in LF1 and at 4.2 ng/kg dw in LF2. The concentrations for each class of PCDFs ranged from 68.9/96.5 (LF1/LF2) ng/kg dw total tetrachlorodibenzofurans to 154,750/155,250 (LF1/LF2) ng/kg dw total octachlorodibenzofurans.

A comparison of the 1990 and 1996 results for the dioxin and furan soil samples collected in the two landfarm areas indicate that the total concentrations for the dioxin and furan constituents have remained relatively consistent (Attachment D). Noteworthy changes in concentration include a

decrease in the 2,3,7,8-tetrachlorodibenzodioxin congener at LF1 from 4 ng/kg dw in 1990 to 2.4 ng/kg in 1996 and a decrease at LF2 from 8 ng/kg dw in 1990 to 4.2 ng/kg dw in 1996. Total tetrachlorodibenzodioxins decreased from 1990 concentrations in 1996 from 140 ng/kg dw to 61 ng/kg dw at LF1 and from 170 ng/kg dw to 91.8 ng/kg dw at LF2.

### 2.3 Surface Water

On January 7, 1985 surface water samples were collected by the NUS corporation during the site screening investigation (NUS, 1986). One surface water sample (SWP-RB-W) was collected from the end of the jetty (former T-head) between the two site slips. A second background surface water sample (SWP-BK-51) was collected in the overflow stream from Greenfield Lake (Greenfield Creek). No wood-preserving constituents were detected in these surface water samples (Attachment E).

Southern Wood Piedmont has collected surface water samples routinely from the Cape Fear River adjacent to the former wood treating facility since December 1985. Two upgradient and two downgradient samples are collected along the east bank of the Cape Fear River during each sampling event (Figure 1). The upgradient surface water samples are located near the U.S. Highway #74 bridge and near an old slip at the former wood treating facility. The downgradient surface water samples are located near the mouth of Greenfield Creek and near the North Carolina State Ports Authority. A total of 18 routine sampling events have occurred through July 1995 (Attachment E). One resampling event, to evaluate a detection during the routine June 1989 sampling event occurred in July 1989. The upgradient sample location near U.S. Highway #74 has been non-detect for the Wilmington site-specific constituents since initiation of surface water sampling activities. Surface water samples collected near the old slip have also been non-detect for the Wilmington site-specific constituents, except on two occasions. Copper was detected at 0.02 mg/l in June 1988 and chromium was detected at 0.011 mg/l in January 1990 near the old slip. Wilmington site-specific constituents have been detected on two occasions at the downgradient location near the mouth of Greenfield Creek. Naphthalene was detected at a concentration of 0.050 mg/l during the June 1989 sampling event. To evaluate the detection of naphthalene, a second sample was collected July 1989. The July 1989 surface water sample was non-detect for the Wilmington site-specific constituents. During the July 1990 sampling event chromium was detected at 0.046 mg/l and copper was detected at 0.052 mg/l near the mouth of Greenfield Creek. The downgradient sample location near the North Carolina State Ports Authority has been non-detect for the Wilmington site-specific constituents since initiation of sampling in December 1985.

As discussed above, surface water samples have been collected routinely from the Cape Fear River since 1985. However, no surface water samples had been collected from the on-site drainage ditch or Greenfield Creek and its tributary. On February 16, 1996, ViroGroup collected one

surface water sample from the on-site drainage ditch (SW-3), three surface water samples from Greenfield Creek (SW-1, SW-2, and SW-5), and one surface water sample (SW-4) from a southern tributary to Greenfield Creek (Figure 12). Surface water samples were also collected from the Cape Fear River on January 15, 1996 by a Southern Wood Piedmont representative. The surface water samples were submitted to the laboratory for analysis of the Wilmington site-specific wood-preserving constituent list (Attachment G). The semi-volatile constituents were analyzed by USEPA Method 8270, volatiles by USEPA Method 8240, and metals by USEPA Method 6010. The sampling, decontamination, and chain-of-custody procedures were as described in the sampling and analysis plan located in Attachment A of the soil, sediment, and surface water workplan (ViroGroup, 1996). The sampling method, decontamination method, and waste disposal method are documented on the sampling field data sheets and decontamination logs presented in Attachment A. Chain-of-custody forms are located with the analytical results located in Attachment G. All sampling locations were permanently marked in the field with a steel pin and surveyed. All of the surface water samples were non-detect for the Wilmington site-specific constituent list. Please refer to Attachment E for a surface water analytical summary table.

### 2.4 Sediment

A sediment sample (SWP-RB-S) was collected in 1985 by NUS Corporation in the Cape Fear River at the end of the on-site jetty (former T-head) between the two site slips. A second sediment sample (SWP-BK-51) was collected in the bed of the overflow stream from Greenfield Lake (Greenfield Creek). No arsenic, chromium, or copper was detected in the sediment samples collected by NUS. The sediment sample at the jetty indicated the presence of 14 identified organic compounds, one unidentified brominated compound, and three unidentified hydrocarbons (Attachment E). The Greenfield Creek sediment sample indicated the presence of eight identified organic compounds, 11 unidentified organic compounds, and one unidentified brominated compound. The pesticides 4,4'-DDE and 4,4'-DDD were detected in the Greenfield Creek sediment sample.

On December 9 and 14, 1992 ETE (ViroGroup, 1993) collected 11 sediment samples (SS-1 thru SS-11) along the on-site drainage ditch and along the north bank of Greenfield Creek (Figure 1). The sediment samples were analyzed for the Wilmington site specific wood-preserving constituent list (Attachment G). Chromium, copper, and arsenic were present in the sediment samples at background concentrations (Attachment E). The sediment samples along the on-site drainage ditch and Greenfield Creek (both upstream and downstream from the on-site drainage ditch) have detectable organic concentration levels. The 1992 sediment sampling completed during the Phase II Groundwater Quality Assessment (ViroGroup, 1993) indicated high constituent levels in the vicinity of SS-10 along Greenfield Creek (Figure 1). The high concentrations in this sediment sample was suspect because the laboratory results were a magnitude higher than the other samples collected along Greenfield Creek and the field observations were not indicative of high levels of

contamination. Therefore, ViroGroup, Inc. resampled SS-10 during the Phase III Groundwater Quality Assessment (1994) to compare the original soil sampling results (SS-10) to the resample results (SS-10A). No visible staining or odor was observed during the resampling event. Results from the resampling indicated a lower concentration of wood preserving constituents that were in agreement with the concentrations observed in other sediment samples along Greenfield Creek. The total organic wood preserving constituents in SS-10 was 6,110 mg/kg dw and for SS-10A was 45.3 mg/kg dw. As indicated, SS-10 is suspect.

The 11 sediment samples in 1992 were collected from the on-site drainage ditch and Greenfield Creek, however, no sediment samples had previously been collected in a southern tributary to Greenfield Creek or in the Cape Fear River. To evaluate the sediment in the southern tributary to Greenfield Creek and along the Cape Fear River, 13 additional sediment samples (SS-12 thru SS-24) were collected by ViroGroup, Inc. on February 15, 1996 (Figure 1). The sediment samples were collected utilizing the same methodology as the 1992 sediment assessment. Each sediment sample was described for degree of staining and odor (Figure 13) and logged according to the Unified Soil Classification Scheme (Attachment A). The sediment samples were collected from 0- to 6-inches below the base of the stream bed and submitted to the laboratory for analysis of the Wilmington site-specific wood-preserving constituent list (Attachment G). The semi-volatile constituents were analyzed by USEPA Method 8270, volatiles by USEPA Method 8240, and metals by USEPA Method 6010. The sampling, decontamination, and chain-of-custody procedures were as described in the sampling and analysis plan located in Attachment A of the soil, sediment, and surface water workplan (ViroGroup, 1996). The sediment samples were collected using either a stainless steel hand auger, in shallow water, or a 6-inch by 6-inch stainless steel Ponar™ dredge sampler, in deeper water. The sampling method, decontamination method, and waste disposal method are documented on the sampling field data sheets and decontamination logs presented in Attachment A. Chain-of-custody forms are located with the analytical results located in Attachment G. All of the surface water and sediment sample locations were located by placing survey stakes on the shoreline. Two survey stakes were placed at each sample location, such that, when lined up they indicated the direction to the surface water or sediment sample location. Along Greenfield Creek the distance between the stake closest to the bank and the sample location was recorded. The sediment samples within the Cape Fear River were collected approximately 50 feet from the stake closest to the shoreline, consistent with the 1985 NUS sediment sample. The sediment samples in the south slip were collected near the bank and at the center of the slip. The distance between the stake closest to the shoreline and the sediment samples in the slip was recorded.

In order to provide continuity in the discussion on the sediment sample results, the 11 sediment samples collected in 1992 are discussed with the results from the 13 sediment samples collected in 1996. Visual observations indicated that 13 of the sediment samples had no staining or odor, 4 sediment samples had a faint odor, and 7 of the sediment samples were discolored (Figure 13).

The discolored sediments were limited to the on-site drainage ditch, Greenfield Creek, and at the background location along the Cape Fear River adjacent to the Highway 74 bridge north of the site. The sediment samples SS-12 and SS-13, from the southern tributary to Greenfield Creek, contained a strong hydrogen sulfide or sewage type odor. When these sediment samples were collected, the water in the creek appeared cloudy with a bluish-gray color that was distinctively different from Greenfield Creek and the on-site drainage ditch. In the 24 sediment samples collected, 13 semi-volatiles and 6 volatiles were detected (Figure 14; Attachment E). The semi-volatiles detected consisted of naphthalene (3 samples), acenaphthene (11 samples), phenanthrene (9 samples), anthracene (10 samples), fluoranthene (20 samples), chrysene (17 samples), benzo(a)anthracene (15 samples), benzo(b)fluoranthene (10 samples), benzo(k)fluoranthene (8 samples), benzo(a)pyrene (11 samples), indeno(1,2,3-cd)pyrene (5 samples), carbazole (5 samples), and dibenzo(a,h)anthracene (2 samples). The five volatile organic constituents that were detected were dichloromethane, ethyl benzene, x/p-xylene, o-xylene, toluene, and 1,2-dichloropropane. Dichloromethane was used by the laboratory in 1992 as the solvent during the extraction process and was only detected in the 1992 sediment samples. The dichloromethane is believed to have been introduced by the laboratory during analysis of the 1992 sediment samples (ViroGroup, 1993). 1,2-Dichloropropane was detected only in SS-15 located at the upgradient property boundary to the site. 1,2-Dichloropropane is not usually associated with wood-preserving sites. Sediment sample SS-9, located at the mouth of Greenfield Creek, had the highest concentration of total organic wood-preserving constituents (TO) at 357.3 mg/kg dw (Figure 14). Other concentrations of total organic wood-preserving constituents were detected in the former ditch at SS-5 (167.1 mg/kg dw), SS-6 (150.4 mg/kg dw), and SS-7 (203.3 mg/kg dw), at the background Cape Fear River location adjacent to the Highway 74 bridge at SS-14 (145.06 mg/kg dw), and in the south slip at SS-19 (153.1 mg/kg dw) and SS-21 (193 mg/kg dw). Eighteen of the 24 sediment samples (75%) contained detectable concentrations of arsenic. Chromium was detected in 23 of the sediment samples (96%) and all of the sediment samples had detectable concentrations of copper. The average concentration for the metals in the sediment is 4.6 mg/kg dw arsenic, 18.9 mg/kg dw chromium, and 19.3 mg/kg dw copper. Based on the 1984 USGS investigation, the concentrations of arsenic, chromium, and copper detected in the sediment samples are in the acceptable range for background concentrations.

To determine sediment grain size, total organic carbon (TOC) content, and the bioavailability of the metals in the sediments, nine sediment samples were collected for grain size analysis, total organic carbon analysis, and acid-volatile sulfide with simultaneous extracted metals (AVS-SEM) analysis. These nine sediment samples were collected in the following locations: two from the on-site drainage ditch at sediment sample locations SS-7 and SS-8; three from Greenfield Creek at sediment sample locations SS-1, SS-9, and SS-11; and four from the Cape Fear River at the Highway 74 bridge (SS-14), the T-head (SS-18), the southern slip (SS-20), and the mouth of Greenfield Creek (SS-23).

Coarse grain sediments were the predominant size in all of the samples. However, there is a direct correlation between the sediment grain size and the flow velocity of the water body from where the sediment samples were collected. A comparison between grain size distribution in the sediment samples collected in the drainage ditch, Greenfield Creek, and the Cape Fear River, indicate that the grain size decreases as the average velocity of the water body increases. The results from the grain size analysis are presented in Attachment G. The TOC soil samples were collected at a depth of 0- to 6-inches below the sediment bed. The average total organic carbon concentration from the 9 sediment samples is 36,756 mg/kg dw. The range for total organic carbon detected in the sediments is 3,000 mg/kg dw to 99,000 mg/kg dw (Attachment G). Please refer to Attachment G for the results of the AVS-SEM analysis.

Multiple sources of potential contamination to the Cape Fear River exist in this vicinity due to the heavy industrialization along its banks and along the banks of tributary creeks. Urbanization along Greenfield Creek, including a City waste water treatment facility and a chemical bulk storage tank farm present potential sources of contamination that may discharge to Greenfield Creek and to the Cape Fear River. The distribution of various constituents detected in sediment samples collected along Greenfield Creek suggested the likelihood that multiple sources exist.

### 2.5 Quality Assurance/Quality Control

Decontamination was completed between each borehole and between each discrete sample as described in Appendix B of the ECBSOPQAM (EPA, 1991) and in Section II.(A) of the Wilmington Sampling & Analysis (S&A) Plan (Attachment A of the workplan). Please refer to Attachment A which contains a copy of decontamination records that were completed between each discrete sample.

Soil sample collection procedures were as described in Section 4.11 of the ECBSOPQAM and in Section III of the Wilmington S&A plan.

Section 4.8 of the ECBSOPQAM and Section IV of the Wilmington S&A plan were followed during the collection of all surface water and sediment samples.

Sample containers, sample preservation, sample holding times, and permissible sample type were as listed in ECBSOPQAM Appendix A. Shipping was as listed in ECBSOPQAM Appendix C and as described in Section II.(C) of the Wilmington S&A plan. Chain-of-custody procedures were as described in Section 3.3 of the ECBSOPQAM and Section II.(B) of the Wilmington S&A plan.

Semi-volatile organic compounds were analyzed by USEPA Method 8270 and volatile organic compounds by USEPA Method 8240. Arsenic, chromium, and copper were analyzed by USEPA Method 6010. Total Kjeldahl nitrogen was analyzed by USEPA Method 351.2, nitrate + nitrite-

N by USEPA Method 353.1, total phosphorus by USEPA Method 365.1, total organic carbon by USEPA Method 415.1, chloride by USEPA Method 325.1, pH by USEPA Method 150.1, and AVS-SEM by USEPA Method 68-03-3534/6010. Dioxins and furans were analyzed by USEPA Method 8290.

Quality assurance/quality control (QA/QC) field samples were collected. Field QA/QC samples included: (1) one duplicate sample per medium per container type per field day; (2) an equipment rinsate blank, per sampling procedure, as appropriate, and; (3) a VOA trip blank, as necessary. A duplicate soil sample was collected at TWSB15, duplicate sediment samples were collected at SS-12 and SS-16, and a duplicate surface water sample was collected at SW-4. All of the duplicate samples were a reasonable match with the original sample. The duplicate sample results are reported with the respective matching original sample results in the attachments and on the figures in this report. Equipment blanks (4) and trip blanks (2) were non-detect and are reported in Attachment F.

Laboratory QA/QC procedures were as described in SW-846, EPA Test Methods for Evaluating Solid Waste for each EPA approved analytical methodology utilized during this investigation. Laboratory QA/QC included at a minimum:

1) A statement that samples were received in good condition and at the required temperature and that analysis of the samples complied with all procedures outlined in the USEPA methodology. Any deviations would be reported on the chain-of-custody forms by the laboratory. No deviations were reported.

2) Laboratory sheets for the analytical results, including sample identification, sampling dates, date samples received by laboratory, extraction dates, analysis dates, analytical methods used, dilution factors, and sample quantitative limits are included with the analytical results from the laboratory (Attachment G).

3) Laboratory sheets for all laboratory quality control samples, including results for bias and precision and control limits used (Attachment G). The following minimum laboratory quality control samples were required: (1) at least one matrix spike and one matrix spike duplicate per sample delivery group or 12-hour period, whichever is less; (2) at least one method blank per sample delivery group or 12-hour period, whichever is less; (3) system monitoring compounds, surrogate recovery analysis and laboratory control samples. All samples which exceeded control limits/acceptance criteria were flagged in the laboratory report.

4) Complete chain-of-custody with associated air bill attached (Attachment G).

5) The laboratory report includes the names and qualifications of the individuals who performed each analysis, the quality assurance officer who reviewed the data, and the laboratory manager (Attachment G).

6) The laboratory report also includes certification that the laboratory is either certified under 15A NCAC Subchapter 2H.0800, or that it is a contract laboratory under EPA's Contract Laboratory Program (Attachment G).

### 2.6 Investigation Derived Waste Management

Investigation derived waste (IDW) materials were generated during the field activities. Waste types included liquids, solids, and sludge. Since some of these materials may be hazardous wastes, it was handled, stored, and disposed of properly. Materials that became IDW included:

- Personnel protective equipment (PPE) - coveralls, gloves, etc.
- Cleaning fluids - spent solvent, wash water, etc.
- Disposable equipment (DE) - plastic ground and equipment covers, aluminum foil, sample containers, sample boxes, tape, etc.

Due to the low volume of waste that was generated at the site, IDWs were placed in 55-gallon drums. The liquid IDW and solid IDW was stored in separate drums. The drums were sealed to prevent accumulation of precipitation. A hazardous waste label was placed on each of the drums on the first day in which any waste was added to the container. A waste generation form was also completed at this time to notify SWP of waste generation. The IDW materials are presently being stored on-site awaiting proper disposal. The drums will not be stored more than 90 days from the first date of accumulation. At the end of the field activities, a sample (labeled "Drum") was collected and submitted to Savannah Laboratories for analysis of the Wilmington site-specific wood preserving constituents to determine the proper off-site disposal method. The results from the analysis are presented in Attachment F. The waste containers were labeled with the proper D.O.T. placards and will be manifested when shipped off-site to an approved waste disposal facility.

All non-hazardous IDW was disposed at the local sanitary landfill at the end of investigation activities. Soil cuttings from hand auguring were returned to the borehole from which they were excavated.

### 2.7 Health and Safety Plan

A health and safety plan that conformed to OSHA 1910.120 requirements was observed during the implementation of the field activities. A copy of the plan was submitted to Chief E.E. Benton

with the City of Wilmington Fire Department and Ms. Joyce Michaelis, Inpatient Registration Supervisor with the New Hanover Regional Medical Center. The health and safety plan that was followed is located in Attachment D of the workplan for this report (ViroGroup, 1996).

## 3.0 SUMMARY

This assessment was based on the discussions originating from the May 24, 1995 meeting between Southern Wood Piedmont Company (SWP), the City of Wilmington (City), the North Carolina State Ports Authority (NCSPA), the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR), and the Region IV United States Environmental Protection Agency (EPA). The scope of work performed during this assessment was also based on recommendations suggested in the January 31, 1995 letter from the NCDEHNR to the EPA that summarizes the Site Inspection Prioritization (NCDEHNR, 1995). The assessment was performed in accordance with ViroGroup's Soil, Sediment, and Surface Water Assessment Workplan dated January 31, 1996.

To complete the remaining portions of the site wide soil investigation, ViroGroup assessed the main production area and the treated wood storage area B on February 12 through 14, 1996. A total of 78 boreholes were completed in a grid pattern to a depth of 18-inches. Each soil boring was described for degree of staining and odor and logged according to the Unified Soil Classification Scheme. Twenty-six of the boreholes (1/3) were randomly selected for chemical analysis using a random number table. A soil sample was collected from the 0- to 6-inch and 12- to 18-inch intervals (total of 52 soil samples) and submitted to the laboratory for analysis of the Wilmington site-specific wood-preserving constituent list. In the main production area, 33 soil borings were completed and 22 soil samples were collected. Visual observations indicated that 21 of the soil borings had no staining or odor, 3 soil borings had a faint odor, and 9 soil borings were discolored. In the 22 soil samples collected, 14 semi-volatiles and 2 volatiles were detected as indicated. The semi-volatiles detected consisted of naphthalene (4 samples), acenaphthylene (1 sample), acenaphthene (4 samples), phenanthrene (10 samples), anthracene (11 samples), fluoranthene (18 samples), chrysene (16 samples), benzo(a)anthracene (16 samples), benzo(b)fluoranthene (17 samples), benzo(k)fluoranthene (15 samples), benzo(a)pyrene (16 samples), indeno(1,2,3-cd)pyrene (12 samples), carbazole (5 samples), and dibenzo(a,h)anthracene (3 samples). The two volatile organic constituents that were detected were ethylbenzene (1 sample) and xylene (6 samples). Eighteen of the 22 samples contained detectable concentrations of arsenic. Chromium was detected in all of the samples and 19 of the samples had detectable concentrations of copper. Soil sample PDA1A, collected from the northwest corner of the former production area, had the highest levels of arsenic, chromium, and copper. Arsenic was detected at 1,300 mg/kg dw, chromium at 1,200 mg/kg dw, and copper at 1,600 mg/kg dw. Sample PDA1A is located in the vicinity of the former chromium, copper, and arsenic (CCA) treatment facility. The soil in the vicinity of the CCA treatment facility was

excavated, properly disposed, and backfilled. The high CCA concentrations in PDA1A are isolated to the 0- to 6-inch depth below land surface. The average concentration for the metals in the production area when PDA1A is not included in the data set is 22 mg/kg dw arsenic, 39 mg/kg dw chromium, and 37 mg/kg dw copper indicating that the concentrations of arsenic, chromium, and copper detected in the soil samples are within the acceptable range for background concentrations.

Investigation activities in the treated wood storage area B (TWSB) included the completion of 45 soil borings and the collection of 30 soil samples. Visual observations indicated that 44 of the soil borings had no staining or odor and 1 of the soil borings was discolored. In the 30 soil samples collected, 11 semi-volatile constituents and 1 volatile constituent were detected. The semi-volatiles detected consisted of acenaphthene (1 sample), phenanthrene (6 samples), anthracene (4 samples), fluoranthene (22 samples), chrysene (20 samples), benzo(a)anthracene (18 samples), benzo(b)fluoranthene (20 samples), benzo(k)fluoranthene (18 samples), benzo(a)pyrene (18 samples), indeno(1,2,3-cd)pyrene (11 samples), and carbazole (1 sample). The volatile constituent detected was m+p xylene, which was present in three samples. Arsenic was detected in 18 out of 30 samples, chromium was detected in all 30 samples, and copper was detected in 16 out of 30 samples. The average concentration of arsenic is 6.7 mg/kg dw, of chromium is 7.1 mg/kg dw, and of copper is 18.7 mg/kg dw. The metal concentrations in the TWSB area are all considered background concentrations.

The workplan proposed that dioxin and furan soil sampling would be conducted if pentachlorophenol was detected in the site soils (dioxins and furans are remnant from the pentachlorophenol formulation process). No pentachlorophenol was detected in the site soils, therefore, no dioxin or furan soil samples were collected.

To evaluate the bioavailability of organic compounds on site, total organic carbon (TOC) samples were collected on February 15, 1996. Two TOC samples were collected at a depth of 0- to 6-inches below land surface from each of the production area, non-treated wood storage area B (NTB), and treated wood storage area A (TWSA) on site. The average total organic carbon concentration from the 6 soil samples is 27,467 mg/kg dw.

ViroGroup, Inc. collected soil samples on February 15, 1996 from each landfarm area to evaluate the presence and continued degradation of wood-preserving constituents in the landfarm materials from 1991 to 1996. An upper composite sample 0- to 3-inches below the landfarm surface, a lower composite sample 2- to 8-inches above the base of the landfarm material and a substrate composite sample 2- to 6-inches below the base of the landfarm material was collected from each landfarm (LF1 and LF2). The average thickness of the landfarm material was 19 inches in LF1 and 22-inches in LF2. The analytical results from the 1996 landfarm soil samples indicate a decreasing trend in constituent concentration levels since 1991. Total wood-preserving constituent

concentrations in LF1 have decreased from 497.85 mg/kg dw in 1991 to 107.1 mg/kg dw in 1996 and in LF2 from 1,354.7 mg/kg dw to 131.5 mg/kg dw. A comparison between the results from the 1996 lower substrate soil samples and the results from the 1990 lower substrate samples indicated that all of the 1996 substrate sample analytical results were lower than the concentrations from the 1990 results, except for phenanthrene. Total organic wood-preserving constituent concentrations in the substrate beneath LF1 have decreased from 17 mg/kg dw in 1990 to not-detected (ND) in 1996 and have decreased in the substrate beneath LF2 from 4.3 mg/kg dw to 2.48 mg/kg dw.

To compare the present concentrations of dioxins and furans in the landfarm material to concentrations detected in 1990, two composite surficial soil samples were collected by ViroGroup on February 15, 1996. The dioxin and furan soil samples were collected at a depth of 0- to 6-inches from the landfarm and submitted to Triangle Laboratories for analysis by USEPA Method 8290, high-resolution chromatography/high-resolution mass spectrometry. The comparison of the 1990 and 1996 results for the dioxin and furan soil samples collected in the two landfarm areas indicated that the total concentrations for the dioxin and furan constituents have remained relatively consistent. Noteworthy changes in concentration included a decrease in the 2,3,7,8-tetrachlorodibenzodioxin congener at LF1 from 4 ng/kg dw in 1990 to 2.4 ng/kg in 1996 and a decrease at LF2 from 8 ng/kg dw in 1990 to 4.2 ng/kg dw in 1996.

One surface water sample from the on-site drainage ditch, three surface water samples from Greenfield Creek, and one surface water sample from a southern tributary to Greenfield Creek were collected on February 16, 1996 by ViroGroup. Surface water samples were also collected from the Cape Fear River on January 15, 1996 by a Southern Wood Piedmont Representative. All of the surface water sample were non-detect for the Wilmington site-specific constituent list.

No sediment samples had previously been collected in a southern tributary to Greenfield Creek or in the Cape Fear River. To evaluate the sediment in the southern tributary to Greenfield Creek and along the Cape Fear River, 13 additional sediment samples (SS-12 thru SS-24) were collected by ViroGroup, Inc. on February 15, 1996. The sediment samples were collected from 0- to 6-inches below the base of the stream bed and submitted to the laboratory for analysis of the Wilmington site-specific wood-preserving constituent list. In order to provide continuity to the the sediment sample results, the 11 sediment samples collected in 1992 are described with the results from the 13 sediment samples collected in 1996. Visual observations indicated that 13 of the sediment samples had no staining or odor, 4 sediment samples had a faint odor, and 7 of the sediment samples were discolored. The discolored soils were limited to the on-site drainage ditch, Greenfield Creek, and at the background location along the Cape Fear River adjacent to the Highway 74 bridge north of the site. The sediment samples SS-12 and SS-13, from the southern tributary to Greenfield Creek, contained a strong hydrogen sulfide or sewage type odor. When these sediment samples were collected, the water in the southern tributary appeared cloudy with

a bluish-gray color that was distinctively different from Greenfield Creek and the on-site drainage ditch. In the 24 sediment samples collected, 13 semi-volatiles and 6 volatiles were detected as indicated. The semi-volatiles detected consisted of naphthalene (3 samples), acenaphthene (11 samples), phenanthrene (9 samples), anthracene (10 samples), fluoranthene (20 samples), chrysene (17 samples), benzo(a)anthracene (15 samples), benzo(b)fluoranthene (10 samples), benzo(k)fluoranthene (8 samples), benzo(a)pyrene (11 samples), indeno(1,2,3-cd)pyrene (5 samples), carbazole (5 samples), and dibenzo(a,h)anthracene (2 samples). The five volatile organic constituents that were detected were dichloromethane, ethyl benzene, x/p-xylene, o-xylene, toluene, and 1,2-dichloropropane. Sediment sample SS-9, located at the mouth of Greenfield Creek, had the highest concentration of total organic wood-preserving constituents (TO) at 357.3 mg/kg dw. The Cape Fear River background sediment sample at the Highway 74 bridge has a total organic wood-preserving concentration of 145.06 mg/kg dw. Eighteen of the 24 sediment samples contained detectable concentrations of arsenic. Chromium was detected in 23 of the sediment samples and all of the sediment samples had detectable concentrations of copper. The average concentration for the metals in the sediment is 4.6 mg/kg dw arsenic, 18.9 mg/kg dw chromium, and 19.3 mg/kg dw copper. The concentrations of arsenic, chromium, and copper detected in the sediment samples are in the acceptable range for background concentrations.

To determine sediment grain size, total organic carbon (TOC) content, and the bioavailability of the metals in the sediments, nine sediment samples were collected for grain size analysis, total organic carbon analysis, and acid-volatile sulfide with simultaneous extracted metals (AVS-SEM) analysis. Coarse grain sediments were the predominant size in all of the samples. A comparison between grain size distribution in the sediment samples collected in the drainage ditch, Greenfield Creek, and the Cape Fear River, indicate that the grain size decreases as the flow velocity of the water body decreases. The average total organic carbon concentration from the 9 sediment samples is 36,756 mg/kg dw.

## 4.0 REFERENCES

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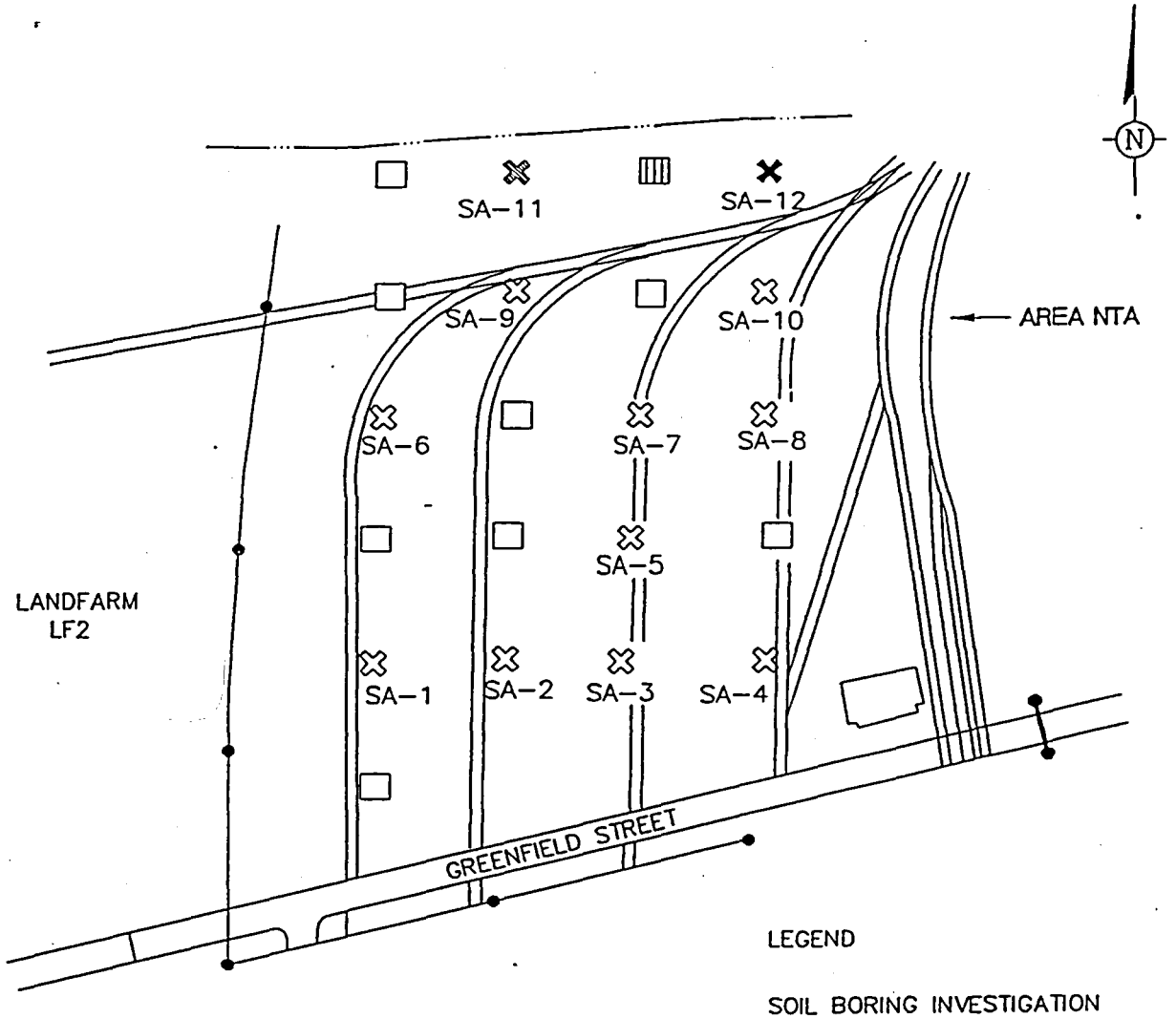


LEGEND

SOIL BORING INVESTIGATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SOIL, ODOR

SOIL SAMPLING LOCATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SOIL, ODOR

- OVERHEAD ELEC. AND POLE
- DRAINAGE DITCH

0 150 FT

GERAGHTY & MILLER, INC.
*Environmental Services*

SOIL BORING INVESTIGATION LOCATIONS IN THE FORMER NON-TREATED WOOD STORAGE AREA SA

SOUTHERN WOOD PIEDMONT COMPANY
WILMINGTON, NORTH CAROLINA

FIGURE
2

| DWG DATE: 15 JUN 92 | PRJCT NO.: NC090.03 | FILE NO.: - | DRAWING: NC09003G | CHECKED: M. RADECKE | APPROVED: M. RADECKE | DRAFTER: T. GREER |
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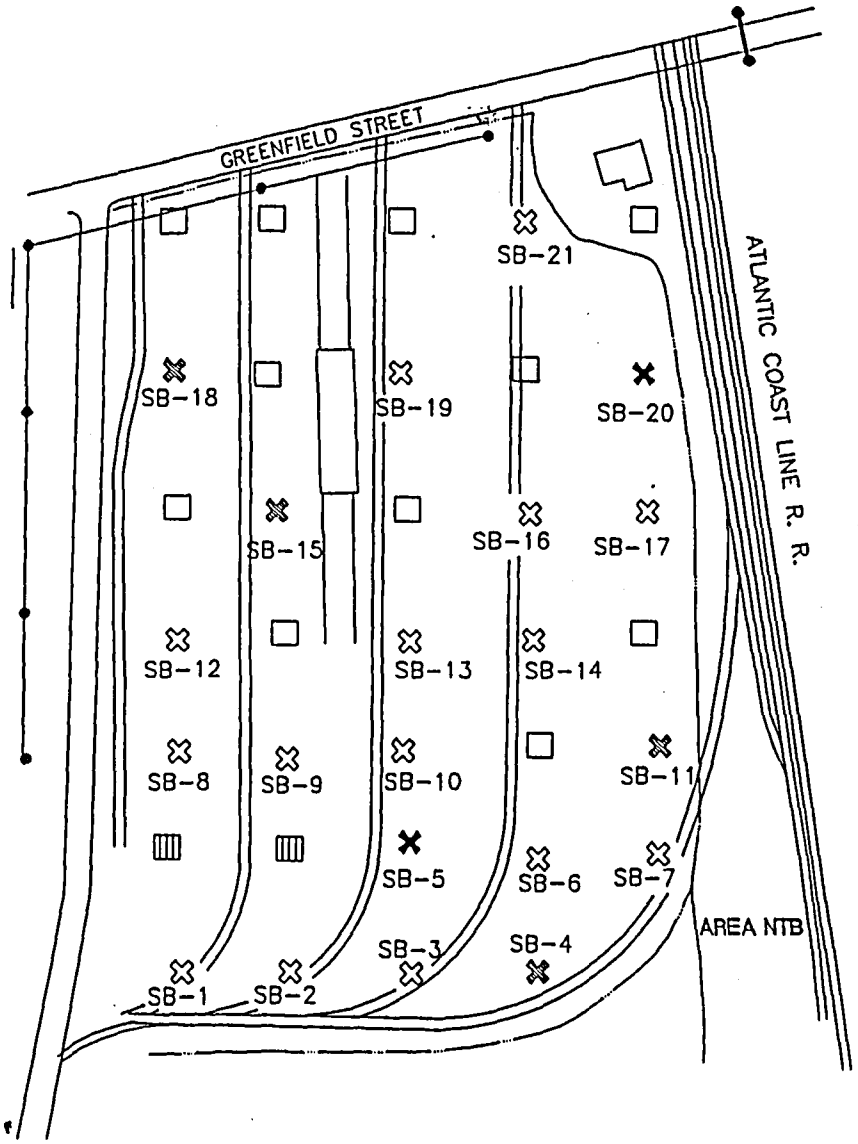

LEGEND

SOIL BORING INVESTIGATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SOIL, ODOR

SOIL SAMPLING LOCATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SOIL, ODOR

- OVERHEAD ELEC. AND POLE
- DRAINAGE DITCH

0 175 FT

GERAGHTY & MILLER, INC.
*Environmental Services*

SOIL BORING INVESTIGATION LOCATIONS IN THE FORMER TREATED WOOD STORAGE AREA SB

SOUTHERN WOOD PIEDMONT COMPANY
WILMINGTON, NORTH CAROLINA

FIGURE 3

| DWG DATE: 15 JUN 92 | PRJCT NO.: NC090.03 | FILE NO.: - | DRAWING: NC09003H | CHECKED: M. RADECKE | APPROVED: M. RADECKE | DRAFTER: T. GREER |
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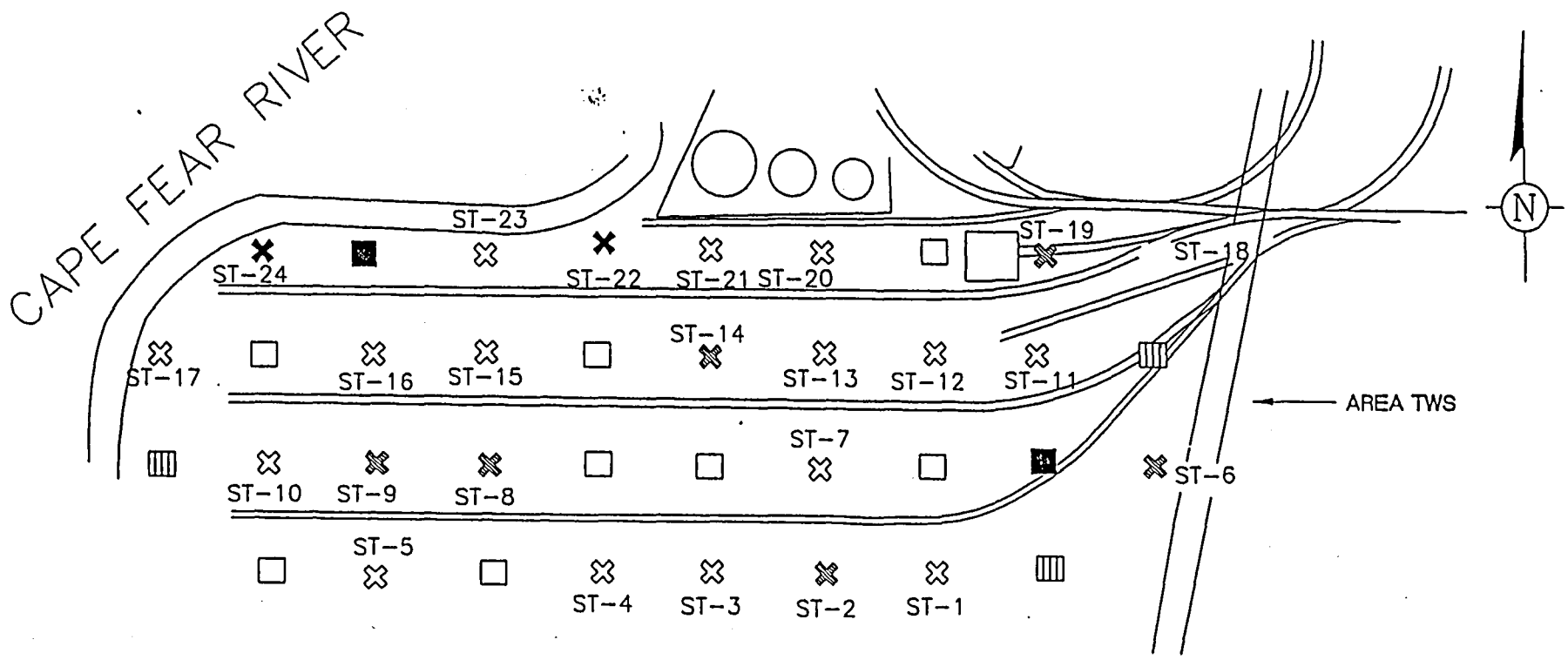



LEGEND

SOIL BORING INVESTIGATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SOIL, ODOR

SOIL SAMPLING LOCATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SOIL, ODOR

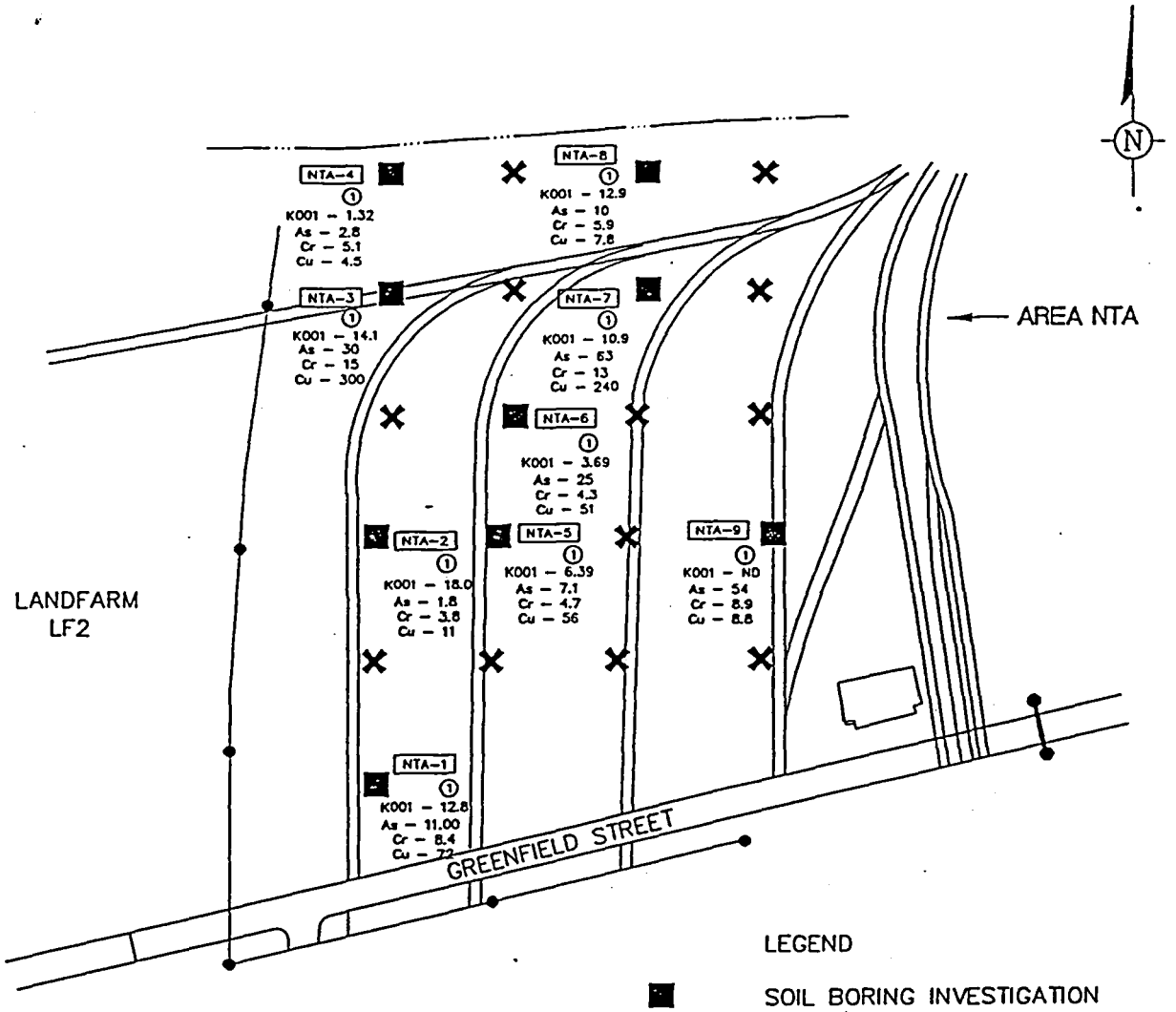
0 150 FT

GERAGHTY & MILLER, INC.
*Environmental Services*

SOIL BORING INVESTIGATION LOCATIONS IN THE FORMER TREATED WOOD STORAGE AREA ST

SOUTHERN WOOD PIEDMONT COMPANY
WILMINGTON, NORTH CAROLINA

FIGURE 4




LEGEND

■ SOIL BORING INVESTIGATION

THE FOLLOWING DESIGNATIONS APPLY FOR ALL NTA SAMPLING LOCATIONS:

(1) DENOTES DEPTH AT 0"–6"

K001 – TOTAL DETECTABLE K001 (mg/kg dw)
As – TOTAL ARSENIC (mg/kg dw)
Cr – TOTAL CHROMIUM (mg/kg dw)
Cu – TOTAL COPPER (mg/kg dw)
ND – NOT DETECTED

✕ SOIL BORING INVESTIGATION LOCATION

—●— OVERHEAD ELEC. AND POLE

—··— DRAINAGE DITCH

0 150 FT

GERAGHTY & MILLER, INC.
*Environmental Services*

TOTAL DETECTED K001, ARSENIC, CHROMIUM, AND COPPER MEASURED IN SOIL SAMPLES THAT WERE COLLECTED IN THE FORMER NON-TREATED WOOD STORAGE AREA NTA

SOUTHERN WOOD PIEDMONT COMPANY
WILMINGTON, NORTH CAROLINA

FIGURE
5

| DWG DATE: 15 JUN 92 | PRJCT NO.: NC090.03 | FILE NO.: - | DRAWING: NC09003D | CHECKED: M. RADECKE | APPROVED: M. RADECKE | DRAFTER: T. GREER |
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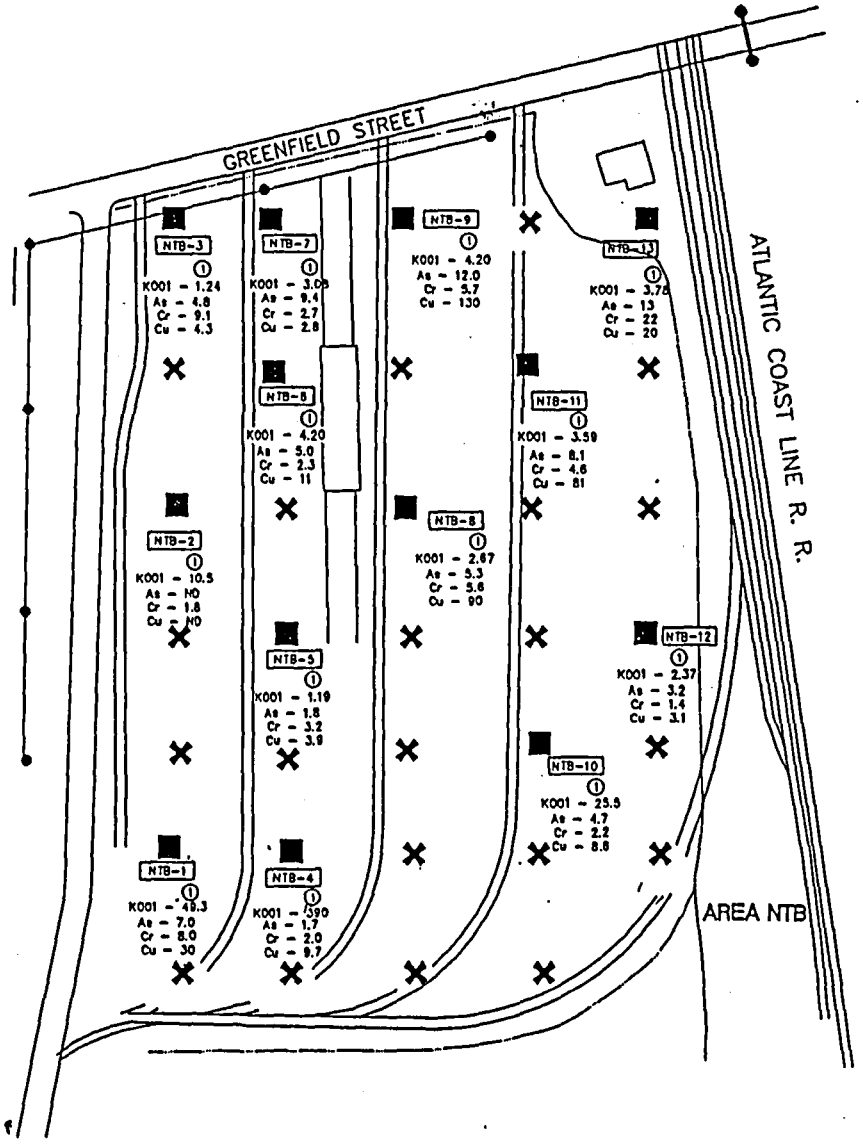


N

## LEGEND

■ SOIL SAMPLING LOCATION

THE FOLLOWING DESIGNATIONS APPLY FOR ALL NTB SAMPLING LOCATIONS:

(1) DENOTES DEPTH AT 0"-6"

K001 - TOTAL DETECTABLE K001 (mg/kg dw)
As - TOTAL ARSENIC (mg/kg dw)
Cr - TOTAL CHROMIUM (mg/kg dw)
Cu - TOTAL COPPER (mg/kg dw)

✕ SOIL BORING INVESTIGATION LOCATION (NOT SAMPLED FOR CHEMICAL ANALYSIS)

ND - NOT DETECTED

DRAINAGE DITCH

OVERHEAD ELEC. AND POLE

0 175 FT

GERAGHTY & MILLER, INC.
*Environmental Services*

TOTAL DETECTED K001, ARSENIC, CHROMIUM, AND COPPER MEASURED IN SOIL SAMPLES THAT WERE COLLECTED IN THE FORMER NON-TREATED WOOD STORAGE AREA NTB

SOUTHERN WOOD PIEDMONT COMPANY
WILMINGTON, NORTH CAROLINA

FIGURE
6

| DWG DATE: 15 JUN 92 | PRJCT NO.: NC090.03 | FILE NO.: - | DRAWING: NC09003E | CHECKED: M. RADECKE | APPROVED: M. RADECKE | DRAFTER: T. GREER |
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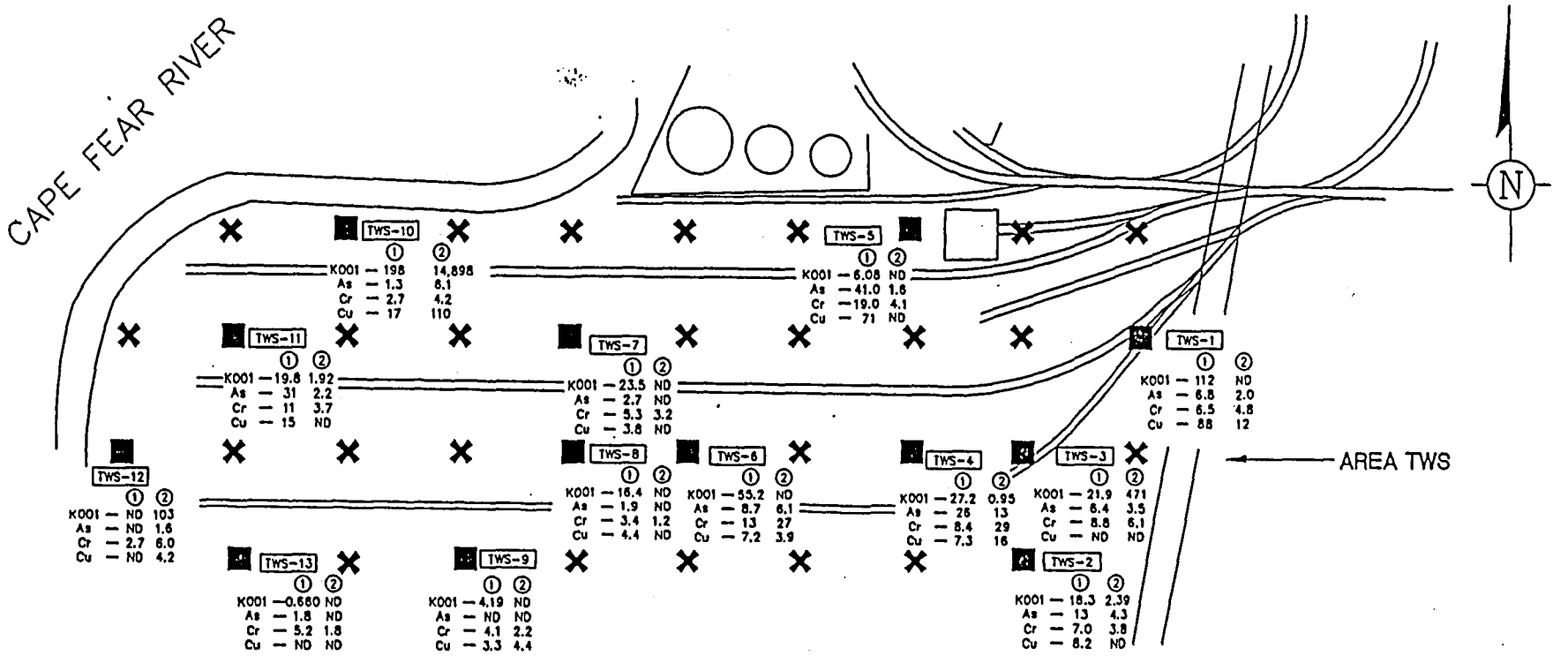



## LEGEND

■ SOIL SAMPLING LOCATION

THE FOLLOWING DESIGNATIONS APPLY FOR ALL TWS SAMPLING LOCATIONS

① DENOTES DEPTH AT 0"–6"

② DENOTES DEPTH AT 12"–18"

K001 – TOTAL DETECTABLE K001 (mg/kg dw)
As – TOTAL ARSENIC (mg/kg dw)
Cr – TOTAL CHROMIUM (mg/kg dw)
Cu – TOTAL COPPER (mg/kg dw)
ND – NOT DETECTED
✖ – SOIL BORING INVESTIGATION LOCATION (NOT SAMPLED FOR CHEMICAL ANALYSIS)

0 150 FT

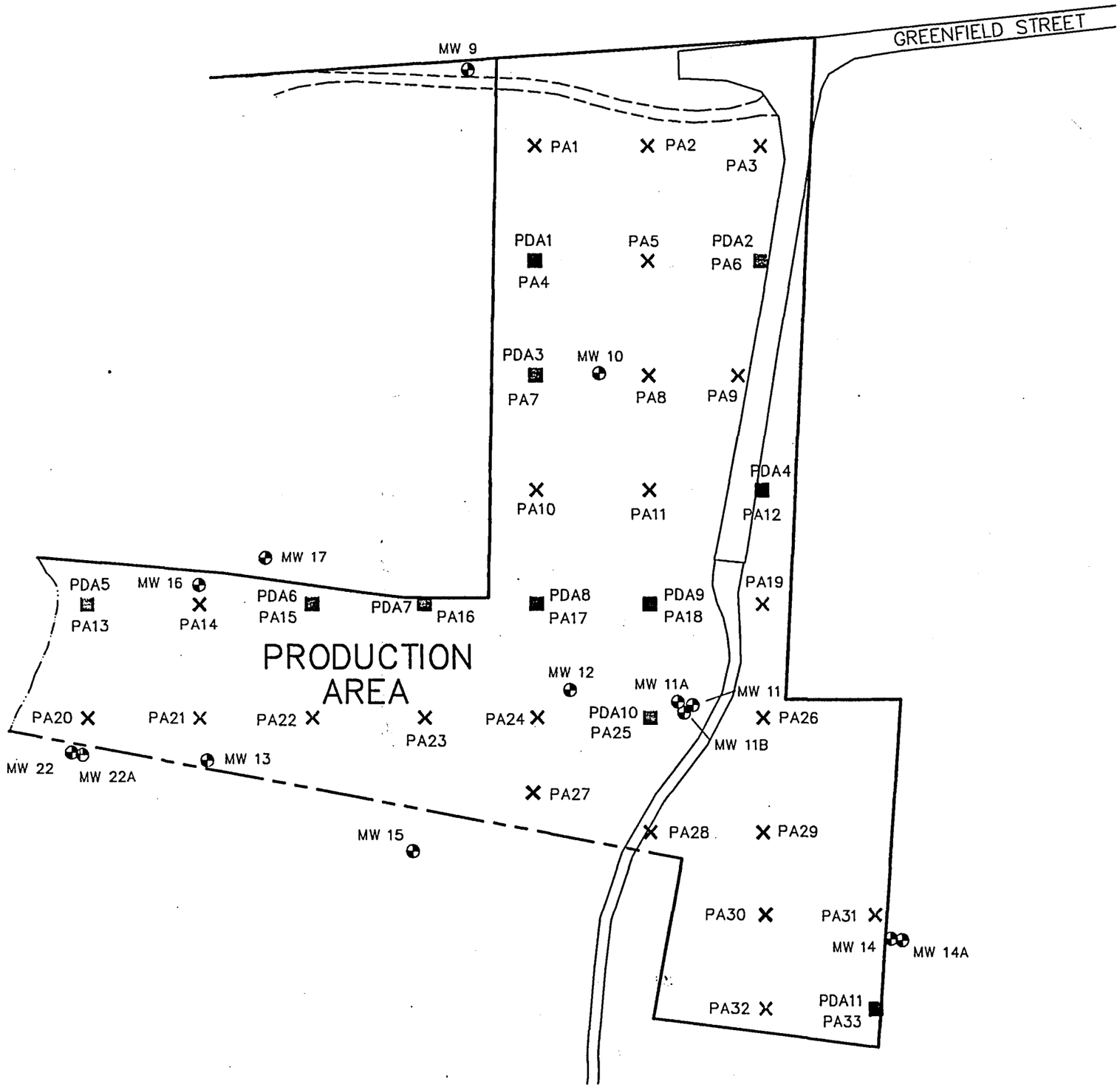
GERAGHTY & MILLER, INC.
*Environmental Services*

TOTAL DETECTED K001, ARSENIC, CHROMIUM, AND COPPER MEASURED IN SOIL SAMPLES THAT WERE COLLECTED IN THE FORMER TREATED WOOD STORAGE AREA TWS

SOUTHERN WOOD PIEDMONT COMPANY
WILMINGTON, NORTH CAROLINA

FIGURE 7

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |




## LEGEND

SOIL BORING INVESTIGATION (2/14/96)

- × NO ODOR
- × FAINT ODOR
- × DISCOLORED SOIL, ODOR

PDA1 SOIL SAMPLING LOCATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SOIL, ODOR
- PERMANENT MONITORING WELLS

PA PRODUCTION AREA


ViroGroup Air•Water•Soil TECHNOLOGY
ViroGroup, Inc.
1446 Pisgah Church Road
Ladyglen, SC 29072
Phone 803-867-8270
FAX 803-867-3845
Wats 1-800-788-0854


SOUTHERN WOOD PIEDMONT, CITY OF WILMINGTON, AND NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON, NORTH CAROLINA FACILITY

SOIL BORING INVESTIGATION LOCATIONS IN THE FORMER PRODUCTION AREA (PA)

| | | | |
|---|---|---|---|
| DRAWN BY: | CAB | DATE: | 3/18/96 |
| DESIGNED BY: | GLF | CADD NO: | 530PRODA |
| APPROVED BY: | GBK | PROJECT NO: | 12-53020.CO |
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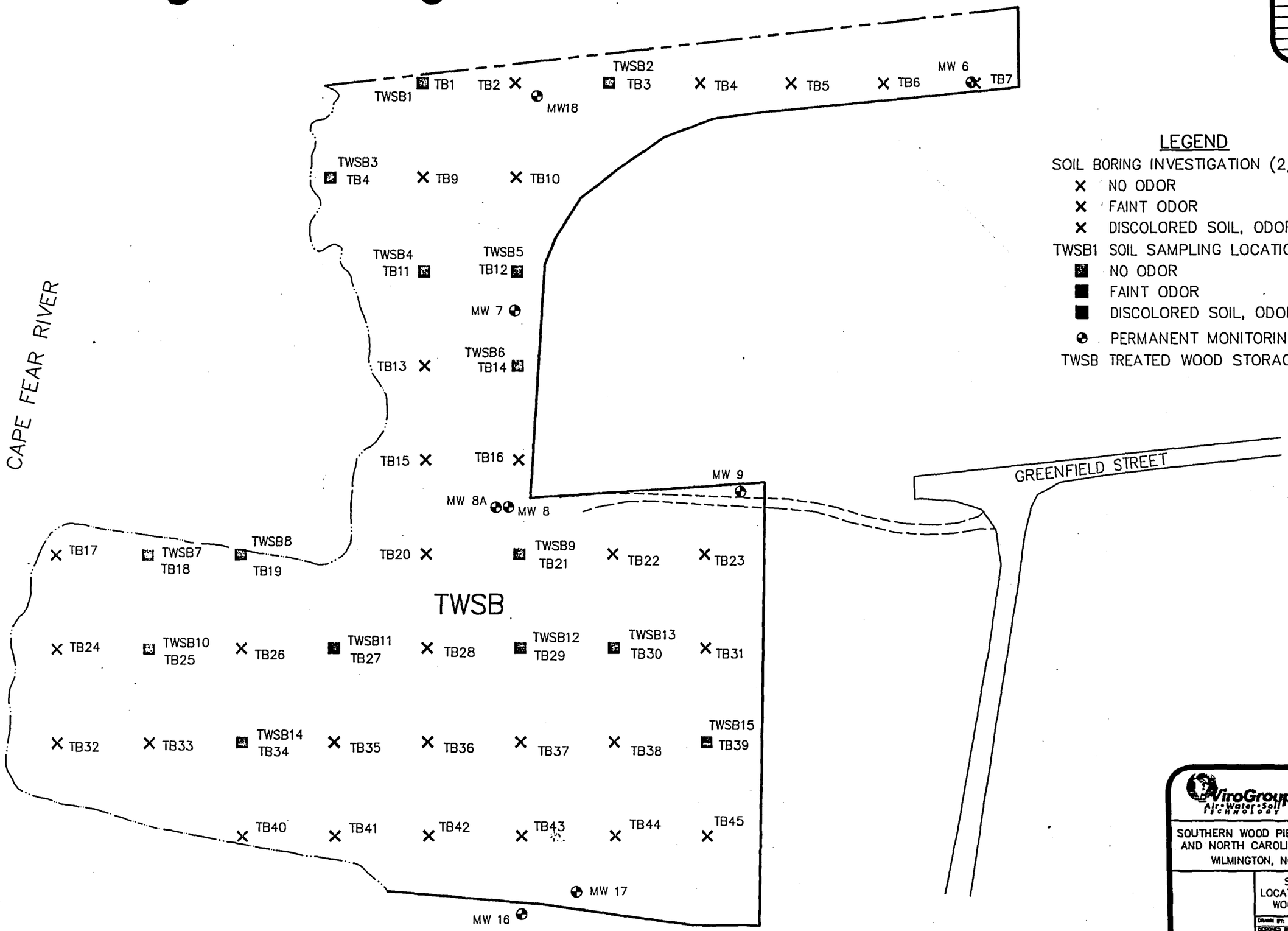


## LEGEND

SOIL BORING INVESTIGATION (2/14/96)

- × NO ODOR
- × FAINT ODOR
- × DISCOLORED SOIL, ODOR

TWSB1 SOIL SAMPLING LOCATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SOIL, ODOR
- PERMANENT MONITORING WELLS

TWSB TREATED WOOD STORAGE AREA B


ViroGroup Air•Water•Soil TECHNOLOGY

ViroGroup, Inc.
1445 Pisgah Church Road
Lexington, SC 29072
Phone 803-957-4270
FAX 803-957-3846
Waste 1-800-788-0634


SOUTHERN WOOD PIEDMONT, CITY OF WILMINGTON, AND NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON, NORTH CAROLINA FACILITY

SOIL BORING INVESTIGATION LOCATIONS IN THE FORMER TREATED WOOD STORAGE AREA B (TWSB)

| | | | |
|---|---|---|---|
| DRAWN BY: | CAB | DATE: | 3/18/96 |
| DESIGNED BY: | GLF | CADD NO: | 530TWSB |
| APPROVED BY: | GBK | PROJECT NO: | 12-53020.00 |
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| NO. | REVISION | DATE | BY |
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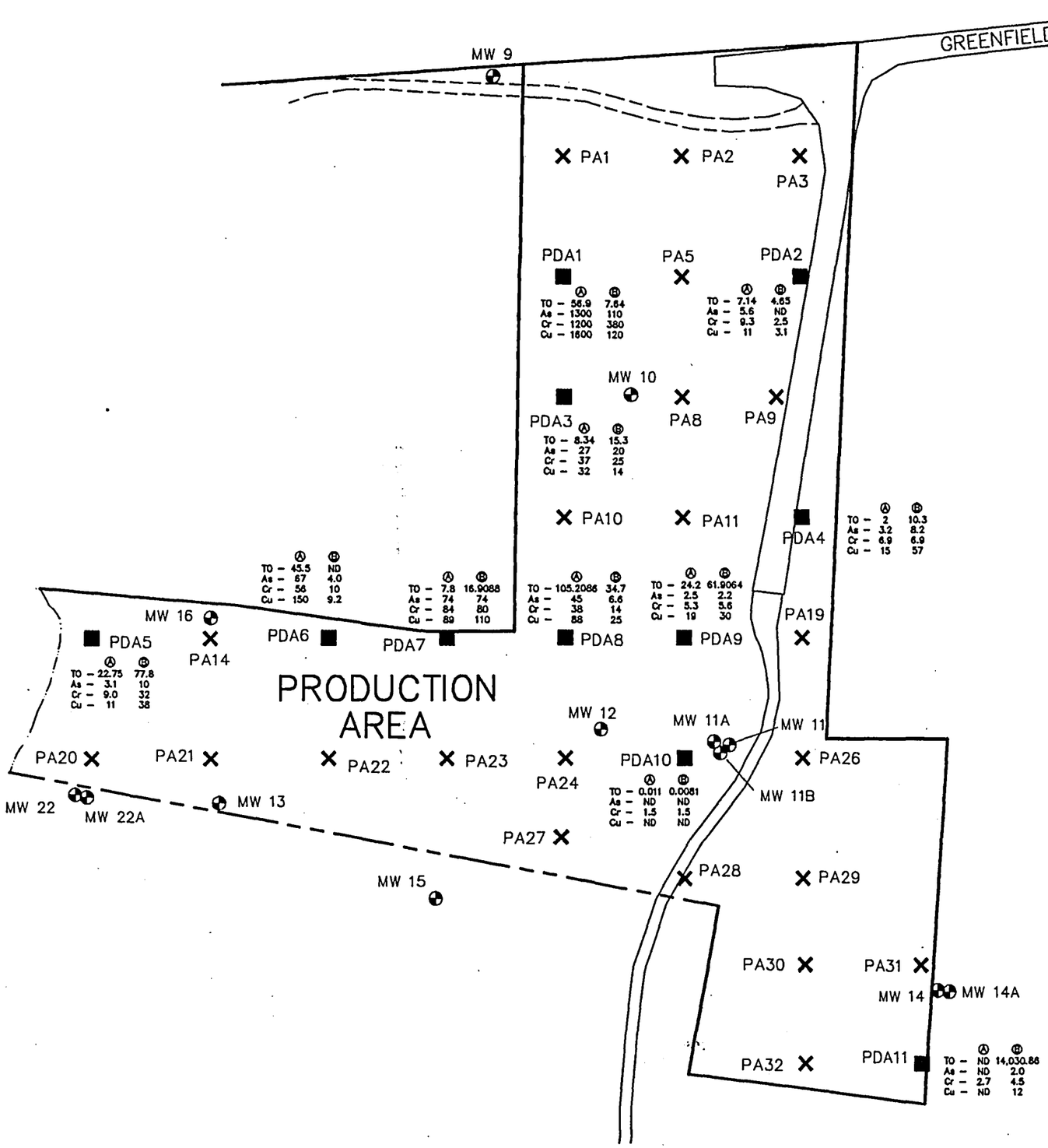


## LEGEND

■ SOIL SAMPLING LOCATION (2–14–96)

THE FOLLOWING DESIGNATIONS APPLY FOR ALL PA SAMPLING LOCATIONS

Ⓐ DENOTES DEPTH AT 0"–6"

Ⓑ DENOTES DEPTH AT 12"–18"

TO – TOTAL ORGANIC WOOD–PRESERVING CONSTITUENTS (mg/kg dw)

As – ARSENIC (mg/kg dw)

Cr – CHROMIUM (mg/kg dw)

Cu – COPPER (mg/kg dw)

ND – NOT DETECTED

✕ SOIL BORING INVESTIGATION LOCATION

◕ PERMANENT MONITORING WELLS

PA PRODUCTION AREA

ViroGroup Air•Water•Soil TECHNOLOGY
ViroGroup, Inc.
1445 Pisgah Church Road
Ledington, SC 29072
Phone 803-857-8270
FAX 803-857-3843
Wattz 1-800-786-0634

SOUTHERN WOOD PIEDMONT, CITY OF WILMINGTON, AND NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON, NORTH CAROLINA FACILITY

TOTAL DETECTED ORGANICS, ARSENIC, CHROMIUM, AND COPPER MEASURED IN SOIL SAMPLES COLLECTED IN THE FORMER PRODUCTION AREA

| | | | |
|---|---|---|---|
| DRAWN BY: | CAB | DATE: | 3/18/96 |
| DESIGNED BY: | GLF | CADD NO: | 530PROOS |
| APPROVED BY: | GBK | PROJECT NO: | 12–53020.CO |
| SCALE: | 1"=100' | FIGURE NO. | 10 |

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

## LEGEND

■ SOIL SAMPLING LOCATION (2–14–96)

THE FOLLOWING DESIGNATIONS APPLY FOR ALL TWS SAMPLING LOCATIONS:

Ⓐ DENOTES DEPTH AT 0"–6"

Ⓑ DENOTES DEPTH AT 12"–18"

TO – TOTAL ORGANIC WOOD–PRESERVING CONSTITUENTS (mg/kg dw)

As – ARSENIC (mg/kg dw)

Cr – CHROMIUM (mg/kg dw)

Cu – COPPER (mg/kg dw)

ND – NOT DETECTED

✕ SOIL BORING INVESTIGATION LOCATION

◐ PERMANENT MONITORING WELLS

TWSB TREATED WOOD STORAGE AREA B


ViroGroup Air•Water•Soil TECHNOLOGY

ViroGroup, Inc.
1445 Pisgah Church Road
Ladyglen, SC 29073
Phone 803–857–6270
FAX 803–857–3846
Wattz 1–800–786–0854


SOUTHERN WOOD PIEDMONT, CITY OF WILMINGTON, AND NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON, NORTH CAROLINA FACILITY

TOTAL DETECTED ORGANICS, ARSENIC, CHROMIUM, AND COPPER MEASURED IN SOIL SAMPLES COLLECTED IN THE FORMER TREATED WOOD STORAGE AREA B

| | | | |
|---|---|---|---|
| DRAWN BY: | CAB | DATE: | 3/18/96 |
| DESIGNED BY: | GLF | CADD NO: | 530TWSBS |
| APPROVED BY: | GBK | PROJECT NO: | 12–53020.00 |
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| NO. | REVISION | DATE | BY |
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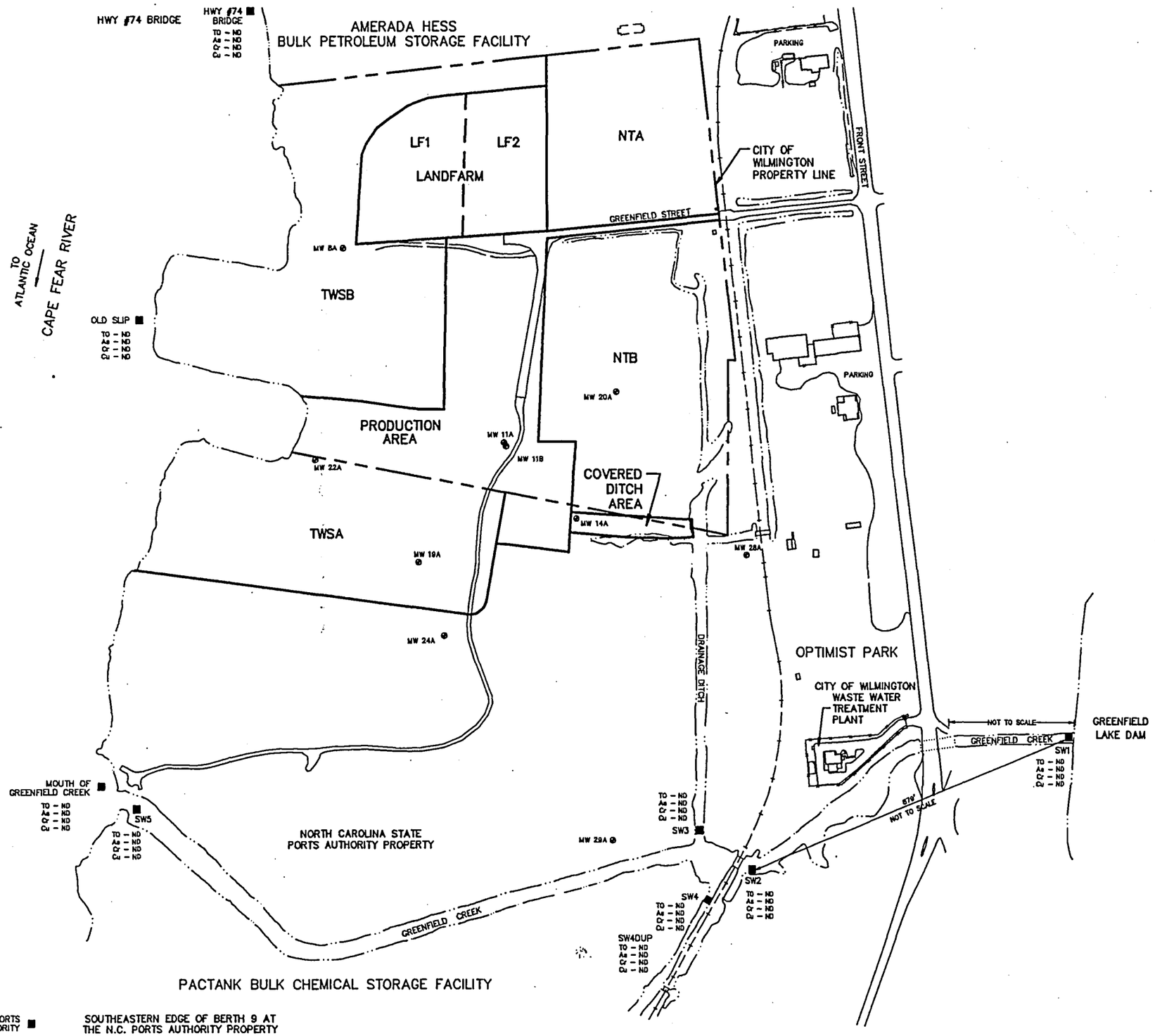


## LEGEND

■ SURFACE WATER SAMPLE LOCATION

THE FOLLOWING DESIGNATIONS APPLY FOR ALL SAMPLING LOCATIONS

TO – TOTAL ORGANIC WOOD–PRESERVING CONSTITUENTS (mg/l)
As – TOTAL ARSENIC (mg/l)
Cr – TOTAL CHROMIUM (mg/l)
Cu – TOTAL COPPER (mg/l)
ND – NOT DETECTED

◕ PERMANENT MONITORING WELLS
TWS TREATED WOOD STORAGE
PA PRODUCTION AREA
NT NON–TREATED WOOD STORAGE
LF1 LANDFARM AREA 1

ViroGroup Air•Water•Soil TECHNOLOGY


ViroGroup, Inc. of South Carolina
1445 Plaugh Church Road
Lexington, SC 29072
Phone 803-957-4270
FAX 803-957-3646
Wats 1-800-786-0654


SOUTHERN WOOD PIEDMONT, CITY OF WILMINGTON, AND NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON, NORTH CAROLINA FACILITY

TOTAL DETECTED ORGANICS, ARSENIC, CHROMIUM, AND COPPER MEASURED IN SURFACE WATER SAMPLES

| | | | |
|---|---|---|---|
| DRAWN BY: | CAB | DATE: | 3/18/96 |
| DESIGNED BY: | GLF | CADD NO: | 53020SWS |
| APPROVED BY: | GBK | PROJECT NO: | 12–53020.CO |
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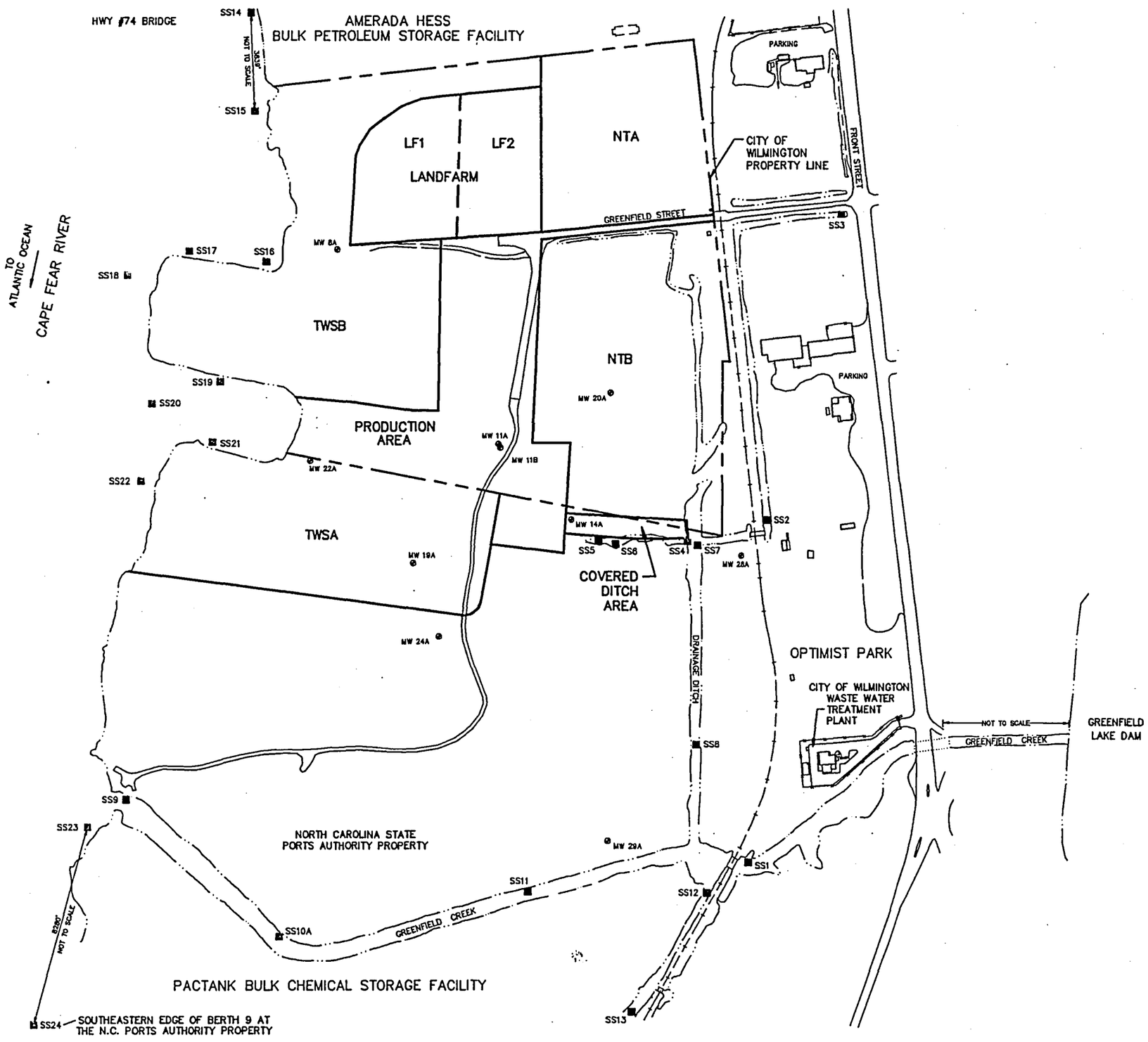



## LEGEND

SEDIMENT SAMPLING LOCATION

- NO ODOR
- FAINT ODOR
- DISCOLORED SEDIMENT, ODOR
- PERMANENT MONITORING WELLS

TWS TREATED WOOD STORAGE
PA PRODUCTION AREA
NT NON-TREATED WOOD STORAGE
LF1 LANDFARM AREA 1


ViroGroup
Air•Water•Soil
TECHNOLOGY

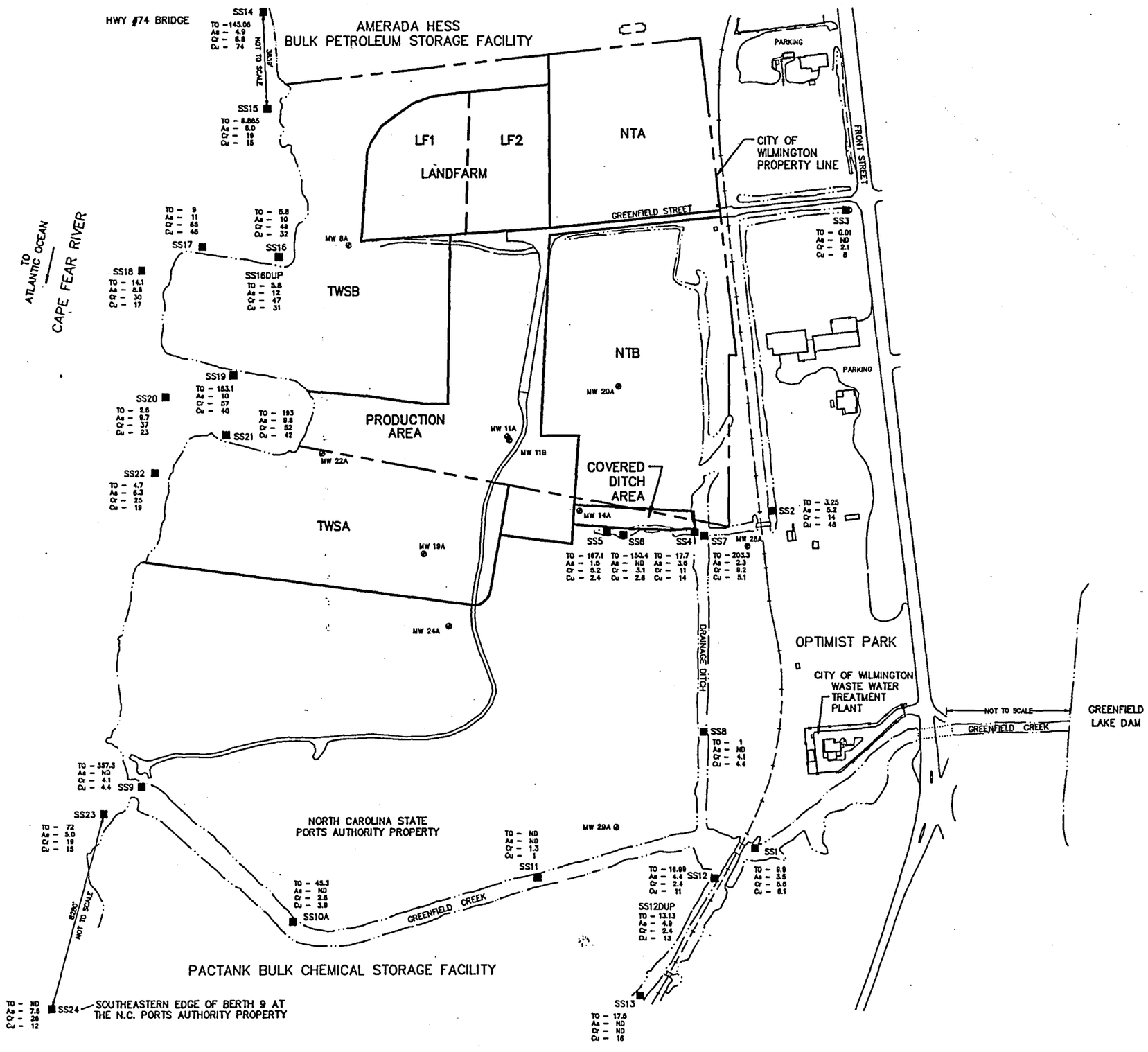
ViroGroup, Inc.
of South Carolina
1446 Pisgah Church Road
Lexington, SC 29072
Phone 803-957-4270
FAX 803-957-3846
Wats: 1-800-786-0654


SOUTHERN WOOD PIEDMONT, CITY OF WILMINGTON, AND NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON, NORTH CAROLINA FACILITY

SEDIMENT SAMPLE INVESTIGATION
LOCATIONS IN DRAINAGE DITCH,
GREENFIELD CREEK & CAPE FEAR RIVER

| | | | |
|---|---|---|---|
| DRAWN BY: | CAB | DATE: | 3/18/96 |
| DESIGNED BY: | GLF | CADD NO: | 53020SED |
| APPROVED BY: | GBK | PROJECT NO: | 12-53020.CO |
| SCALE: | 1"=300' | FIGURE NO. | 13 |

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |




## LEGEND

■ SEDIMENT SAMPLE LOCATION (2-16-96)

THE FOLLOWING DESIGNATIONS APPLY FOR ALL SAMPLING LOCATIONS

TO – TOTAL ORGANIC WOOD-PRESERVING CONSTITUENTS (mg/kg dw)
As – ARSENIC (mg/kg dw)
Cr – CHROMIUM (mg/kg dw)
Cu – COPPER (mg/kg dw)
ND – NOT DETECTED

⊕ PERMANENT MONITORING WELLS
TWS TREATED WOOD STORAGE
PA PRODUCTION AREA
NT NON-TREATED WOOD STORAGE
LF1 LANDFARM AREA 1


ViroGroup Air•Water•Soil TECHNOLOGY
ViroGroup, Inc. of South Carolina
1445 Pisgah Church Road
Lexington, SC 29072
Phone 803-957-4270
FAX 803-957-3646
Metro 1-800-784-0454


SOUTHERN WOOD PIEDMONT, CITY OF WILMINGTON, AND NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON, NORTH CAROLINA FACILITY

TOTAL DETECTED ORGANICS, ARSENIC, CHROMIUM, AND COPPER MEASURED IN SEDIMENT SAMPLES

| | | | |
|---|---|---|---|
| DRAWN BY: | CAB | DATE: | 3/18/96 |
| DESIGNED BY: | GLF | CADD NO: | 53020SAM |
| APPROVED BY: | GBK | PROJECT NO: | 12-53020.CO |
| SCALE: | 1"=300' | FIGURE NO. | 14 |

# ATTACHMENT B

# SOIL DATA

# 1990 NTA, NTB, and TWSA Soil Analytical Summary Tables

Table 4-1. Semi-Volatile Organic and Inorganic Constituents Detected in 0- to 6-Inch Soil Samples Collected in the Former Non-Treated Wood Storage Area NTA, Southern Wood Piedmont, Wilmington, North Carolina.

| CONSTITUENTS (mg/kg dw) | NTA-1/ 9329 | NTA-2/ 9330 | NTA-3/ 9331 | NTA-4/ 9332 | NTA-5/ 9333 | NTA-6/ 9334 | NTA-7/ 9335 | NTA-8/ 9336 | NTA-9/ 9337 |
|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organics (8270) | | | | | | | | | |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| p-Chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | ND | ND | 0.66 | ND | ND | ND | 0.99 | ND | ND |
| Acenaphthene | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | ND | ND | ND | 0.48 | ND |
| Phenanthrene | 0.82 | ND | 1.0 | ND | 0.42 | 0.44 | 1.1 | 0.47 | ND |
| Anthracene | 0.77 | ND | 0.79 | ND | 0.36 | 0.55 | 1.1 | 0.95 | ND |
| Fluoranthene | 2.5 | 4.0 | 2.4 | 0.52 | 1.5 | 1.3 | 1.7 | 2.0 | ND |
| Chrysene | 1.7 | 2.7 | 1.7 | ND | 0.93 | 0.93 | 1.5 | 1.7 | ND |
| Benzo(a)anthracene | 1.2 | 1.6 | 1.1 | ND | 0.57 | 0.47 | 0.97 | 1.5 | ND |
| Benzo(b,k)fluoranthene | 4.1 | 5.9 | 4.1 | 0.80 | 2.2 | ND | 1.7 | 2.9 | ND |
| Benzo(a)pyrene | 1.0 | 1.1 | 1.0 | ND | 0.41 | ND | 0.77 | 1.3 | ND |
| Indeno(1,2,3-c,d)pyrene | 0.68 | 0.66 | 0.85 | ND | ND | ND | ND | 0.58 | ND |
| Dibenzo(a,h)anthracene | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | ND | 0.54 | 0.49 | ND | ND | ND | 1.1 | 1.0 | ND |
| Inorganics | | | | | | | | | |
| Arsenic (7060) | 11 | 1.8 | 30 | 2.8 | 7.1 | 25 | 63 | 10 | 54 |
| Chromium (6010) | 8.4 | 3.8 | 15 | 5.1 | 4.7 | 4.3 | 13 | 5.9 | 8.9 |
| Copper (6010) | 72 | 11 | 300 | 4.5 | 56 | 51 | 240 | 7.8 | 8.8 |
| Percent Solids, % | 73 | 75 | 76 | 83 | 82 | 82 | 62 | 78 | 82 |

ND Constituent was not detected.
mg/kg dw Milligrams per kilogram dry weight.

Table 4-2. Semi-Volatile Organic and Inorganic Constituents Detected in the 0- to 6-Inch Soil Samples Collected in the Former Non-Treated Wood Storage Area NTB, Southern Wood Piedmont, Wilmington, North Carolina.

| CONSTITUENTS (mg/kg dw) | NTB-1/ 9370 | NTB-2/ 9367 | NTB-3/ 9364 | NTB-4/ 9369 | NTB-5/ 9368 | NTB-6/ 9365 | NTB-7/ 9366 | NTB-8/ 9371 | NTB-9/ 9372 | NTB-10/ 9374 | NTB-11/ 9373 | NTB-12/ 9375 | NTB-13/ 9376 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organics (8270) | | | | | | | | | | | | | |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| p-Chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 0.93 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 1.6 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 2.0 | 1.0 | ND | 54 | ND | ND | ND | ND | ND | 3.0 | ND | ND | ND |
| Anthracene | 7.6 | 3.7 | ND | 84 | ND | ND | ND | ND | ND | 1.3 | ND | ND | ND |
| Fluoranthene | 7.5 | 1.3 | 0.39 | 97 | 0.70 | 0.91 | 0.83 | 0.68 | 1.0 | 5.8 | 0.63 | 0.58 | 0.86 |
| Chrysene | 4.6 | 0.74 | 0.40 | 52 | 0.49 | 0.82 | 0.75 | 0.79 | 1.2 | 4.5 | 0.76 | 0.59 | 0.93 |
| Benzo(a)anthracene | 3.1 | 0.56 | ND | 25 | ND | 0.38 | ND | ND | ND | 3.1 | 0.50 | ND | 0.69 |
| Benzo(b,k)fluoranthene | 11 | 1.0 | 0.45 | 50 | ND | 1.7 | 1.5 | 1.2 | 2.0 | 5.5 | 1.7 | 1.2 | 1.3 |
| Benzo(a)pyrene | 4.3 | ND | ND | 17 | ND | 0.39 | ND | ND | ND | 1.2 | ND | ND | ND |
| Indeno(1,2,3-c,d)pyrene | 3.8 | ND | ND | ND | ND | ND | ND | ND | ND | 0.57 | ND | ND | ND |
| Dibenzo(a,h)anthracene | 1.3 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | 1.6 | 2.2 | ND | 11 | ND | ND | ND | ND | ND | 0.51 | ND | ND | ND |
| Inorganics | | | | | | | | | | | | | |
| Arsenic (7060) | 7.0 | ND | 4.8 | 1.7 | 1.8 | 5.0 | 9.4 | 5.3 | 12 | 4.7 | 8.1 | 3.2 | 13 |
| Chromium (6010) | 8.0 | 1.8 | 9.1 | 2.0 | 3.2 | 2.3 | 2.7 | 5.6 | 5.7 | 2.2 | 4.6 | 1.4 | 22 |
| Copper (6010) | 30 | ND | 4.3 | 9.7 | 3.9 | 11 | 2.8 | 90 | 130 | 8.6 | 81 | 3.1 | 20 |
| Percent Solids, % | 68 | 91 | 88 | 87 | 78 | 87 | 79 | 78 | 71 | 71 | 89 | 72 | 51 |

ND Constituent was not detected.
mg/kg dw Milligrams per kilogram dry weight.

Table 4-3. Semi-Volatile Organic and Inorganic Constituents Detected in 0- to 6-Inch and 12- to 18-Inch Soil Samples Collected in the Former Treated Wood Storage Area TWS, Southern Wood Piedmont, Wilmington, North Carolina.

| CONSTITUENTS (mg/kg dw) | TWS-1A/ 9362 0-6" | TWS-1B/ 9363 12-18" | TWS-2A/ 9360 0-6" | TWS-2B/ 9361 12-18" | TWS-3A/ 9358 0-6" | TWS-3B/ 9359 12-18" | TWS-4A/ 9356 0-6" | TWS-4B/ 9357 12-18" | TWS-5A/ 9354 0-6" | TWS-5B/ 9355 12-18" | TWS-6A/ 9352 0-6" | TWS-6B/ 9353 12-18" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organics (8270) | | | | | | | | | | | | |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| p-Chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | 0.60 | ND | 0.48 | ND | ND | ND | 0.66 | ND |
| Phenanthrene | 13 | ND | ND | ND | 0.75 | 220 | 0.75 | ND | 0.64 | ND | 2.4 | ND |
| Anthracene | 36 | ND | 0.68 | ND | 1.7 | 51 | 1.4 | ND | 1.1 | ND | 2.3 | ND |
| Fluoranthene | 25 | ND | 3.4 | 1.0 | 3.9 | 150 | 5.9 | 0.95 | 1.2 | ND | 16 | ND |
| Chrysene | 8.0 | ND | 3.5 | 0.73 | 3.2 | 13 | 4.8 | ND | 0.95 | ND | 8.1 | ND |
| Benzo(a)anthracene | 6.2 | ND | 2.2 | 0.66 | 1.7 | 17 | 2.6 | ND | 0.88 | ND | 5.0 | ND |
| Benzo(b,k)fluoranthene | 12 | ND | 6.7 | ND | 7.0 | 20 | 8.2 | ND | 0.73 | ND | 13 | ND |
| Benzo(a)pyrene | 5.1 | ND | 1.3 | ND | 1.4 | ND | 1.4 | ND | 0.58 | ND | 3.5 | ND |
| Indeno(1,2,3-c,d)pyrene | ND | ND | 0.53 | ND | 0.84 | ND | 0.63 | ND | ND | ND | 1.9 | ND |
| Dibenzo(a,h)anthracene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.49 | ND |
| Carbazole | 7.1 | ND | ND | ND | 0.77 | ND | 1.0 | ND | ND | ND | 1.8 | ND |
| Inorganics | | | | | | | | | | | | |
| Arsenic (7060) | 6.8 | 2.0 | 13 | 4.3 | 6.4 | 3.5 | 26 | 13 | 41 | 1.6 | 8.7 | 6.1 |
| Chromium (6010) | 6.5 | 4.8 | 7.0 | 3.8 | 8.8 | 6.1 | 8.4 | 29 | 19 | 4.1 | 13 | 27 |
| Copper (6010) | 88 | 12 | 8.2 | ND | ND | ND | 7.3 | 16 | 71 | ND | 7.2 | 3.9 |
| Percent Solids, % | 89 | 79 | 72 | 72 | 71 | 55 | 74 | 56 | 70 | 79 | 83 | 55 |

ND Constituent was not detected.
mg/kg dw Milligrams per kilogram dry weight.

Table 4-3. Semi-Volatile Organic and Inorganic Constituents Detected in 0- to 6-Inch and 12- to 18-Inch Soil Samples Collected in the Former Treated Wood Storage Area-TWS, Southern Wood Piedmont, Wilmington, North Carolina.

| CONSTITUENTS (mg/kg dw) | TWS-7A/ 9350 0-6" | TWS-7B/ 9351 12-18" | TWS-8A/ 9346 0-6" | TWS-8B/ 9347 12-18" | TWS-9A/ 9348 0-6" | TWS-9B/ 9349 12-18" | TWS-10A/ 9344 0-6" | TWS-10B/ 9345 12-18" | TWS-11A/ 9342 0-6" | TWS-11B/ 9343 12-18" | TWS-12A/ 9338 0-6" | TWS-12B/ 9339 12-18" | TWS-13A/ 9340 0-6" | TWS-13B/ 9341 12-18" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organics (8270) | | | | | | | | | | | | | | |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| p-Chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | ND | ND | ND | ND | ND | ND | 2.8 | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | ND | ND | 0.87 | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND | ND | ND | 0.93 | 2000 | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 0.50 | ND | ND | ND | ND | ND | 2.5 | ND | 0.46 | ND | ND | ND | ND | ND |
| Phenanthrene | 0.73 | ND | 0.74 | ND | ND | ND | 4.2 | 4000 | 0.43 | ND | ND | ND | ND | ND |
| Anthracene | 1.2 | ND | 1.2 | ND | ND | ND | 14 | 2200 | 1.2 | ND | ND | ND | ND | ND |
| Fluoranthene | 4.2 | ND | 3.6 | ND | 1.3 | ND | 33 | 3700 | 4.9 | 0.43 | ND | 42 | 0.66 | ND |
| Chrysene | 3.6 | ND | 2.5 | ND | 0.89 | ND | 27 | 740 | 4.0 | 0.49 | ND | 19 | ND | ND |
| Benzo(a)anthracene | 2.4 | ND | 1.2 | ND | ND | ND | 23 | 800 | 2.9 | ND | ND | 12 | ND | ND |
| Benzo(b,k)fluoranthene | 7.4 | ND | 4.9 | ND | 2.0 | ND | 60 | 690 | 2.7 | 1.0 | ND | 30 | ND | ND |
| Benzo(a)pyrene | 1.6 | ND | 0.89 | ND | ND | ND | 17 | 290 | 1.6 | ND | ND | ND | ND | ND |
| Indeno(1,2,3-c,d)pyrene | 1.0 | ND | 0.64 | ND | ND | ND | 7.2 | 88 | 0.68 | ND | ND | ND | ND | ND |
| Dibenzo(a,h)anthracene | ND | ND | ND | ND | ND | ND | 2.4 | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.90 | ND | 0.74 | ND | ND | ND | 3.4 | 390 | 0.93 | ND | ND | ND | ND | ND |
| Inorganics | | | | | | | | | | | | | | |
| Arsenic (7060) | 2.7 | ND | 1.9 | ND | ND | ND | 1.3 | 6.1 | 31 | 2.2 | ND | 1.6 | 1.8 | ND |
| Chromium (6010) | 5.3 | 3.2 | 3.4 | 1.2 | 4.1 | 2.2 | 2.7 | 4.2 | 11 | 3.7 | 2.7 | 6.0 | 5.2 | 1.8 |
| Copper (6010) | 3.8 | ND | 4.4 | ND | 3.3 | 4.4 | 17 | 110 | 15 | ND | ND | 4.2 | ND | ND |
| Percent Solids, % | 75 | 77 | 79 | 85 | 80 | 80 | 80 | 50 | 78 | 79 | 92 | 87 | 77 | 81 |

ND Constituent was not detected.
mg/kg dw Milligrams per kilogram dry weight.

# 1996 TWSB and Production Area Soil Analytical Summary Tables

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Semi-Volatiles
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | TWSB1A | TWSB1B | TWSB2A | TWSB2B | TWSB3A | TWSB3B | TWSB4A | TWSB4B | TWSB5A | TWSB5B | TWSB6A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (8270)** | | | | | | | | | | | | |
| bis(2-Chloroethyl)ether | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 0.33 | ND | ND | ND | ND | ND | ND | ND | 75 | ND | ND | ND |
| Phenanthrene | 0.33 | ND | ND | ND | ND | ND | ND | ND | 280 | ND | ND | 0.73 |
| Anthracene | 0.33 | ND | ND | ND | ND | ND | ND | ND | 34 | 15 | ND | ND |
| Fluoranthene | 0.33 | 1.6 | ND | 0.86 | ND | ND | ND | 6.1 | 240 | 85 | 22 | 4.6 |
| Chrysene | 0.33 | 2.5 | ND | 0.88 | ND | ND | ND | 6.3 | 92 | 68 | 16 | 4.7 |
| Benzo(a)anthracene | 0.33 | 2.1 | ND | 0.5 | ND | ND | ND | 4.8 | 73 | 59 | 15 | 2.7 |
| Benzo(b)fluoranthene | 0.33 | 2.8 | ND | 1.1 | ND | ND | ND | 22 | 99 | 60 | 21 | 5.6 |
| Benzo(k)fluoranthene | 0.33 | 0.99 | ND | 0.4 | ND | ND | ND | 7.1 | 36 | 30 | 7.3 | 1.9 |
| Benzo(a)pyrene | 0.33 | 2.6 | ND | 0.45 | ND | ND | ND | 11 | 57 | 28 | 10 | 2 |
| Indeno(1,2,3-cd)pyrene | 0.33 | 0.97 | ND | ND | ND | ND | ND | 6.4 | ND | 10 | ND | 1.5 |
| Dibenzo(a,h)anthracene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dilution factor | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5 | 40 | 20 | 10 | 1 |
| | | | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Semi-Volatiles
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | TWSB6B | TWSB7A | TWSB7B | TWSB8A | TWSB8B | TWSB9A | TWSB9B | TWSB10A | TWSB10B | TWSB11A |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (8270)** | | | | | | | | | | | |
| bis(2-Chloroethyl)ether | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 0.33 | ND | 0.71 | ND | ND | ND | ND | ND | 0.53 | ND | ND |
| Anthracene | 0.33 | ND | ND | ND | ND | ND | ND | ND | 0.45 | ND | ND |
| Fluoranthene | 0.33 | 7.4 | 3.3 | ND | 2.2 | ND | 0.58 | 0.65 | 3.6 | 0.67 | 6.8 |
| Chrysene | 0.33 | 5.2 | 1.5 | ND | 1.4 | ND | 0.43 | ND | 2 | ND | 3.7 |
| Benzo(a)anthracene | 0.33 | 5.5 | 0.64 | ND | 0.85 | ND | ND | ND | 0.9 | ND | 2.4 |
| Benzo(b)fluoranthene | 0.33 | 8.7 | 1.4 | ND | 1.5 | ND | 0.58 | ND | 2.3 | ND | 3.9 |
| Benzo(k)fluoranthene | 0.33 | 3.2 | 0.55 | ND | 0.61 | ND | ND | ND | 1 | ND | 1.6 |
| Benzo(a)pyrene | 0.33 | 6 | 0.36 | ND | 0.52 | ND | ND | ND | 0.54 | ND | 1.3 |
| Indeno(1,2,3-cd)pyrene | 0.33 | 3.3 | ND | ND | ND | ND | ND | ND | 0.4 | ND | 0.92 |
| Dibenzo(a,h)anthracene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.33 | ND | ND | ND | ND | ND | ND | ND | 0.37 | ND | ND |
| Tetrachlorophenols | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dilution factor | 1 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| | | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Semi-Volatiles
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | TWSB11B | TWSB12A | TWSB12B | TWSB13A | TWSB13B | TWSB14A | TWSB14B | TWSB15A | TWSB15B |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (8270)** | | | | | | | | | | |
| bis(2-Chloroethyl)ether | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 0.33 | ND | ND | ND | ND | ND | ND | ND | 2.5 | 1.9 |
| Anthracene | 0.33 | ND | ND | ND | ND | ND | ND | ND | 2.2 | ND |
| Fluoranthene | 0.33 | ND | 0.53 | ND | 17 | 0.94 | 8.8 | 1.9 | 12 | 8.8 |
| Chrysene | 0.33 | ND | 0.54 | ND | 17 | 1.1 | 5.2 | 2.3 | 9.8 | 5.7 |
| Benzo(a)anthracene | 0.33 | ND | ND | ND | 10 | 0.57 | 2.4 | 1.6 | 7.7 | 4.7 |
| Benzo(b)fluoranthene | 0.33 | ND | 0.66 | ND | 20 | 1.4 | 7 | 2.2 | 13 | 7.9 |
| Benzo(k)fluoranthene | 0.33 | ND | ND | ND | 10 | 0.78 | 2.5 | 0.69 | 5.9 | 3.1 |
| Benzo(a)pyrene | 0.33 | ND | ND | ND | 8.8 | 0.6 | 1.8 | 1.7 | 5.5 | 4.6 |
| Indeno(1,2,3-cd)pyrene | 0.33 | ND | ND | ND | 6.2 | ND | ND | 0.74 | 3.1 | 2.6 |
| Dibenzo(a,h)anthracene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dilution factor | 1 | 1 | 1 | 1 | 10 | 1 | 4 | 1 | 4 | 4 |
| | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Semi-Volatiles
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | TWSB15ADUP | PDA1A | PDA1B | PDA2A | PDA2B | PDA3A | PDA3B | PDA4A | PDA4B | PDA5A | PDA5B | PDA6A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (8270)** | | | | | | | | | | | | | |
| bis(2-Chloroethyl)ether | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | 0.86 | ND | ND | ND |
| Acenaphthylene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | 1.4 | ND | ND | ND |
| Phenanthrene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | 1.8 | 0.5 | 2.1 | 2.7 |
| Anthracene | 0.33 | ND | ND | ND | 1.1 | ND | ND | ND | ND | 0.47 | 3.6 | 28 | 2.6 |
| Fluoranthene | 0.33 | 6.6 | 13 | 1.3 | 1.1 | 1 | 1.5 | 7 | 0.9 | 1.9 | 1.7 | 2.8 | 9.4 |
| Chrysene | 0.33 | 6.4 | 11 | 1.3 | 0.91 | 0.93 | 1.4 | 2.4 | ND | 1 | 3 | 7.9 | 7.2 |
| Benzo(a)anthracene | 0.33 | 4.2 | 6.6 | 0.71 | 0.53 | 0.51 | 0.71 | 1.3 | ND | 0.64 | 1.6 | 4.2 | 3.7 |
| Benzo(b)fluoranthene | 0.33 | 8.4 | 15 | 2.2 | 1.7 | 1.3 | 2.4 | 2.5 | 1.1 | 1.7 | 6.2 | 12 | 10 |
| Benzo(k)fluoranthene | 0.33 | 3.4 | 6 | 0.74 | 0.49 | 0.44 | 0.86 | 1 | ND | ND | 2 | 7.1 | 3.9 |
| Benzo(a)pyrene | 0.33 | 3.6 | 5.3 | 0.78 | 0.68 | 0.47 | 0.9 | 1.1 | ND | 0.53 | 1.5 | 2.9 | 3.1 |
| Indeno(1,2,3-cd)pyrene | 0.33 | 2 | ND | 0.61 | 0.63 | ND | 0.57 | ND | ND | ND | 1.7 | 5.5 | 2.9 |
| Dibenzo(a,h)anthracene | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.51 | ND | ND |
| 2-Chlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.44 | 5.3 | ND |
| Tetrachlorophenols | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dilution factor | 1 | 4 | 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 5 |
| | | | | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Semi-Volatiles
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | PDA6B | PDA7A | PDA7B | PDA8A | PDA8B | PDA9A | PDA9B | PDA10A | PDA10B | PDA11A | PDA11B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (8270)** | | | | | | | | | | | | |
| bis(2-Chloroethyl)ether | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 0.33 | ND | ND | ND | ND | ND | 0.92 | 2.3 | ND | ND | ND | 2100 |
| Acenaphthylene | 0.33 | ND | ND | ND | ND | ND | 0.38 | ND | ND | ND | ND | ND |
| Acenaphthene | 0.33 | ND | ND | ND | ND | ND | 0.45 | 2 | ND | ND | ND | 1400 |
| Phenanthrene | 0.33 | ND | ND | 0.39 | 6.7 | 2.6 | 1.5 | 5 | ND | ND | ND | 4400 |
| Anthracene | 0.33 | ND | ND | 0.84 | 21 | 1.8 | 4.5 | 5.5 | ND | ND | ND | 3400 |
| Fluoranthene | 0.33 | ND | 1.9 | 3.6 | 14 | 4.9 | 3 | 12 | ND | ND | ND | 1800 |
| Chrysene | 0.33 | ND | 1.3 | 2.9 | 12 | 4.3 | 2 | 6.2 | ND | ND | ND | ND |
| Benzo(a)anthracene | 0.33 | ND | 1.1 | 2.8 | 8.1 | 4.9 | 1.4 | 2.8 | ND | ND | ND | ND |
| Benzo(b)fluoranthene | 0.33 | ND | 1.7 | 3.2 | 17 | 6.2 | 3.7 | 12 | ND | ND | ND | ND |
| Benzo(k)fluoranthene | 0.33 | ND | 0.67 | 1.2 | 6.3 | 2.8 | 1.5 | 3.3 | ND | ND | ND | ND |
| Benzo(a)pyrene | 0.33 | ND | 0.67 | 1.2 | 7.3 | 4.2 | 1.9 | 6.9 | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | 0.33 | ND | 0.46 | 0.77 | 5 | 2.4 | 2 | 3.9 | ND | ND | ND | ND |
| Dibenzo(a,h)anthracene | 0.33 | ND | ND | ND | ND | 0.6 | 0.39 | ND | ND | ND | ND | ND |
| 2-Chlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.33 | ND | ND | ND | 7.8 | ND | 0.56 | ND | ND | ND | ND | 930 |
| Tetrachlorophenols | 1.7 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dilution factor | 1 | 1 | 1 | 1 | 5 | 1 | 1 | 5 | 1 | 1 | 1 | 1000 |
| | | | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Volatiles and Metals
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | TWSB1A | TWSB1B | TWSB2A | TWSB2B | TWSB3A | TWSB3B | TWSB4A | TWSB4B | TWSB5A |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatiles by GC/MS (8240)** | | | | | | | | | | |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene chloride (Dichloromethane) | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dibromomethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methyl tert-butyl ether (MTBE) | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| m&p-Xylene | 0.005 | ND | ND | ND | ND | ND | 0.021 | ND | ND | ND |
| o-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | | | | | | | |
| Arsenic (6010) | 1 | 4.1 | ND | 1.4 | ND | ND | ND | 38 | 21 | 5.7 |
| Chromium (6010) | 1 | 19 | 1.9 | 2.1 | 1.3 | 1.9 | 13 | 29 | 21 | 5.1 |
| Copper (6010) | 2.5 | 21 | ND | 8.2 | ND | ND | 16 | 47 | 58 | 27 |
| | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Volatiles and Metals
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | TWSB5B | TWSB6A | TWSB6B | TWSB7A | TWSB7B | TWSB8A | TWSB8B | TWSB9A | TWSB9B |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatiles by GC/MS (8240)** | | | | | | | | | | |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene chloride (Dichloromethane) | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dibromomethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methyl tert-butyl ether (MTBE) | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| m&p-Xylene | 0.005 | ND | ND | 0.0074 | ND | ND | ND | ND | 0.0065 | ND |
| o-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | | | | | | | |
| Arsenic (6010) | 1 | 1.2 | 5.9 | 5.3 | ND | ND | ND | ND | 16 | 6.5 |
| Chromium (6010) | 1 | 2.1 | 6.1 | 5.2 | 2.5 | 1.1 | 2.7 | 4.2 | 7.2 | 3 |
| Copper (6010) | 2.5 | ND | 53 | 12 | ND | ND | ND | ND | 28 | 4.8 |
| | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Volatiles and Metals
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | TWSB10A | TWSB10B | TWSB11A | TWSB11B | TWSB12A | TWSB12B | TWSB13A | TWSB13B |
|---|---|---|---|---|---|---|---|---|---|
| **Volatiles by GC/MS (8240)** | | | | | | | | | |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene chloride (Dichloromethane) | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dibromomethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Methyl tert-butyl ether (MTBE) | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| m&p-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| o-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | | | | | | |
| Arsenic (6010) | 1 | ND | ND | 20 | 5.7 | 5.3 | 3.2 | 42 | 2.9 |
| Chromium (6010) | 1 | 1.8 | 3.7 | 5.2 | 1.7 | 5 | 2.1 | 39 | 5.1 |
| Copper (6010) | 2.5 | ND | ND | 10 | ND | 6.9 | ND | 110 | 80 |
| | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Volatiles and Metals
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | TWSB14A | TWSB14B | TWSB15A | TWSB15B | TWSB15ADUP | PDA1A | PDA1B | PDA2A | PDA2B |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatiles by GC/MS (8240)** | | | | | | | | | | |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene chloride (Dichloromethane) | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dibromomethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methyl tert-butyl ether (MTBE) | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| m&p-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| o-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | | | | | | | |
| Arsenic (6010) | 1 | ND | ND | 13 | 3.9 | 14 | 1300 | 110 | 5.6 | ND |
| Chromium (6010) | 1 | 2 | 2.4 | 12 | 4.5 | 13 | 1200 | 380 | 9.3 | 2.5 |
| Copper (6010) | 2.5 | ND | ND | 48 | 30 | 60 | 1600 | 120 | 11 | 3.1 |
| | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Volatiles and Metals
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | PDA3A | PDA3B | PDA4A | PDA4B | PDA5A | PDA5B | PDA6A | PDA6B | PDA7A | PDA7B | PDA8A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatiles by GC/MS (8240)** | | | | | | | | | | | | |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene chloride (Dichloromethane) | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dibromomethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methyl tert-butyl ether (MTBE) | 0.05 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| m&p-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0088 | 0.0086 |
| o-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | | | | | | | | | |
| Arsenic (6010) | 1 | 27 | 20 | 3.2 | 8.2 | 3.1 | 10 | 67 | 4 | 74 | 74 | 45 |
| Chromium (6010) | 1 | 37 | 25 | 6.9 | 6.9 | 9 | 32 | 56 | 10 | 84 | 80 | 38 |
| Copper (6010) | 2.5 | 32 | 14 | 15 | 57 | 11 | 38 | 150 | 9.2 | 89 | 110 | 88 |
| | | | | | | | | | | | | |
| * DL = Detection Limit | | | | | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | | | | | |

1996 Treated Wood Storage Area B and Production Area Soil Analytical Summary Table
Volatiles and Metals
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | PDA8B | PDA9A | PDA9B | PDA10A | PDA10B | PDA11A | PDA11B |
|---|---|---|---|---|---|---|---|---|
| **Volatiles by GC/MS (8240)** | | | | | | | | |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND | ND | ND |
| Methylene chloride (Dichloromethane) | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.05 | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.005 | ND | ND | ND | ND | ND | ND | 0.22 |
| 1,2-Dibromomethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| Methyl tert-butyl ether (MTBE) | 0.05 | ND | ND | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND |
| m&p-Xylene | 0.005 | ND | ND | 0.0064 | 0.011 | 0.0081 | ND | 0.44 |
| o-Xylene | 0.005 | ND | ND | ND | ND | ND | ND | 0.2 |
| | | | | | | | | |
| Arsenic (6010) | 1 | 6.6 | 2.5 | 2.2 | ND | ND | ND | 2 |
| Chromium (6010) | 1 | 14 | 5.3 | 5.6 | 1.5 | 1.5 | 2.7 | 4.5 |
| Copper (6010) | 2.5 | 25 | 19 | 30 | ND | ND | ND | 12 |
| | | | | | | | | |
| * DL = Detection Limit | | | | | | | | |
| * All units are in mg/kg dw | | | | | | | | |

# ATTACHMENT C

# LANDFARM SOIL DATA

# 1990 LF1 and LF2 Soil Analytical Summary Tables

Table 4-1. Analytical Results for Soil Samples Collected in 1990 Within the River Landfarm 1 and Underlying Substrate at the Southern Wood Piedmont Site, Wilmington, North Carolina.

| Sample Identification # /1 | LF1AU 9100A | LF1AM 9100B | LF1AL 9100C | LF1AS 9100D | LF1BU 9101A | LF1BM 9101B | LF1BL 9101C | LF1BS 9101D | LF1CU 9102A | LF1CM 9102B |
|---|---|---|---|---|---|---|---|---|---|---|
| Constituents (mg/kg dw) | | | | | | | | | | |
| Semi-Volatile Organic Compounds (8270) | | | | | | | | | | |
| Naphthalene | 3.8J | ND | ND | ND | 4.4J | 12 | ND | ND | 4.8J | ND |
| 2-Methylnaphthalene | 4.0J | ND | ND | ND | 5.9J | 15 | ND | ND | ND | ND |
| 1-Methylnaphthalene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Biphenyl | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibenzofuran | 5.0J | ND | ND | ND | 6.7J | 11 | ND | ND | 6.6J | ND |
| Fluorene | 14 | ND | ND | ND | 4.9J | 27 | ND | ND | 20 | ND |
| Phenanthrene | 25 | 3.9J | 6.2J | ND | 36 | 41 | ND | ND | 130 | 8.1 |
| Anthracene | 88 | 3.4J | 3.7J | ND | 230 | 200 | 4.6J | ND | 29 | 58 |
| Carbazole | 26 | ND | ND | ND | 46 | 90 | ND | ND | 43 | 9.6 |
| Pyrene | 44 | 13 | 80 | ND | 50 | 27 | 20 | ND | 150 | 11 |
| Benzo(a)Anthracene | 20 | 5.8J | 39 | ND | 19 | 8.6 | 10 | ND | 32 | ND |
| Chrysene | 22 | 9.5 | 59 | ND | 27 | 15 | 18 | ND | 42 | 8.9 |
| Benzo(a)pyrene | 19 | 7.3 | 32 | ND | 20 | 9.4 | 10 | ND | 24 | ND |
| Benzo(g,h,i)perylene | 8.8 | 5.0J | 16 | ND | 7.4 | ND | 3.9J | ND | 10 | ND |
| Pentachlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluoranthene | 58 | 13 | 80 | ND | 19 | 34 | 20 | ND | 140 | 8.9 |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol (ortho) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol m&p | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| P-chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(b,k)fluoranthene | 35J | 19J | 100J | ND | 43J | 19J | 27J | ND | 49J | 14J |
| Ideno(1,2,3-cd)pyrene | 10J | 5.2J | 17J | ND | 10J | 4.9J | 5.2J | ND | 11J | 3.3J |
| Dibenzo(a,h)anthracene | 4.2J | 2.2J | 7.5J | ND | 4.3J | 2.7J | 2.3J | ND | 5.0J | 1.6J |
| Nitrogen Series | | | | | | | | | | |
| Total Kjeldahl Nitrogen-N | 1600 | 500 | 1200 | 58 | 1600 | 1600 | 7500 | 88 | 1900 | 1100 |
| Nitrate + Nitrite-N | ND | 6.7 | ND | ND | ND | 16 | 8.2 | ND | 8.1 | ND |
| Total Nitrogen | 1600 | 507 | 1200 | 58 | 1600 | 1616 | 7508 | 88 | 1908 | 1100 |
| Total Phosphorous | 830 | 560 | 900 | 40 | 1100 | 840 | 450 | 42 | 1000 | 620 |
| Total Organic Carbon | 35000 | 18000 | 25000 | ND | 32000 | 26000 | 15000 | 120 | 39000 | 23000 |
| Chloride | ND | ND | ND | ND | 29 | 28 | 26 | ND | 35 | ND |
| pH | 6 | 6.6 | 6.8 | 7.3 | 6.5 | 6.5 | 7.7 | 8 | 6.6 | 6.7 |
| Percent Solids % | 82 | 90 | 90 | 94 | 82 | 84 | 90 | 95 | 70 | 88 |

1 Represents Landfarm 1 location (A, B, C, D, or E) depth sampled (U, M, L, or S).
J Estimated concentration below the practical quantitation limit.
ND Compound was not detected.

Table 4-1. Analytical Results for Soil Samples Collected in 1990 Within the River Landfarm 1 and Underlying Substrate at the Southern Wood Piedmont Site, Wilmington, North Carolina.

| Sample Identification # /1 | LF1CL 9102C | LF1CS 9102D | LF1DU 9103A | LF1DM 9103B | LF1DL 9103C | LF1DS 9103D | LF1EU 9104A | LF1EM 9104B | LF1EL 9104C | LF1ES 9104D |
|---|---|---|---|---|---|---|---|---|---|---|
| Constituents (mg/kg dw) | | | | | | | | | | |
| Semi-Volatile Organic Compounds (8270) | | | | | | | | | | |
| Naphthalene | ND | ND | ND | ND | ND | ND | 3.6J | ND | ND | ND |
| 2-Methylnaphthalene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1-Methylnaphthalene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Biphenyl | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibenzofuran | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluorene | ND | ND | 5.0J | ND | ND | ND | 6.0J | ND | ND | ND |
| Phenanthrene | 13 | ND | 11 | ND | 14 | 6.5J | 20 | 4.6J | ND | ND |
| Anthracene | 6.8J | ND | 35 | 4.7J | 3.6J | 3.0J | 70 | 5.0J | ND | ND |
| Carbazole | ND | ND | ND | ND | ND | ND | 23 | ND | ND | ND |
| Pyrene | 110 | ND | 28 | 9.5 | 68 | 23 | 41 | 6.0J | 6.5J | ND |
| Benzo(a)Anthracene | 42 | ND | 11 | 3.4J | 18 | 13 | 21 | 7.4 | ND | ND |
| Chrysene | 59 | ND | 17 | 7.3 | 40 | 19 | 22 | 8.1 | 3.7J | ND |
| Benzo(a)pyrene | 22 | ND | 16 | 7.3 | 16 | 5.9J | 18 | 8.1 | 3.5J | ND |
| Benzo(g,h,i)perylene | 6.5J | ND | 6.3J | 4.8J | 7.4J | ND | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluoranthene | 120 | ND | 29 | 9.5 | 71 | 24 | 51 | 4.4J | 6.8J | ND |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol (ortho) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol m&p | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| P-chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(b,k)fluoranthene | 68J | ND | 31J | 14J | 52J | 18J | 29J | 120J | 9.1J | 1.1J |
| Ideno(1,2,3-cd)pyrene | 9.3J | ND | 8.0J | 4.9J | 8.7J | 4.1J | 8.1J | 14J | 2.0J | ND |
| Dibenzo(a,h)anthracene | 4.7J | ND | 4.3J | 1.6J | 3.9J | 1.8J | 3.2J | 4.2J | 0.76J | ND |
| Nitrogen Series | | | | | | | | | | |
| Total Kjeldahl Nitrogen-N | 1300 | 67 | 1600 | 1000 | 330 | 1500 | 1400 | ND | 470 | ND |
| Nitrate + Nitrite-N | ND | ND | 7 | 6.9 | ND | ND | ND | ND | ND | ND |
| Total Nitrogen | 1300 | 67 | 1607 | 1007 | 330 | 1500 | 1400 | ND | 470 | ND |
| Total Phosphorous | 250 | 66 | 630 | 530 | 240 | 340 | 980 | 640 | 320 | 88 |
| Total Organic Carbon | 21000 | ND | 34000 | 17000 | 26000 | 25000 | 30000 | 21000 | 8000 | ND |
| Chloride | 77 | ND | ND | ND | ND | ND | 40 | 27 | ND | 21 |
| pH | 6.5 | 6.8 | 6.3 | 6.3 | 6.6 | 6.9 | 6.4 | 6.7 | 7.1 | 7.3 |
| Percent Solids % | 88 | 90 | 86 | 90 | 86 | 87 | 88 | 88 | 91 | 97 |

1 Represents Landfarm 1 location (A, B, C, D, or E) depth sampled (U, M, L, or S).
J Estimated concentration below the practical quantitation limit.
ND Compound was not detected.

Table 4-2. Analytical Results for Soil Samples Collected in 1990 Within the Office Landfarm 2 and Underlying Substrate at the Southern Wood Piedmont Site, Wilmington, North Carolina.

| Sample Identification # /1 | LF2AU 9105A | LF2AM 9105B | LF2AL 9105C | LF2AS 9105D | LF2BU 9106A | LF2BM 9106B | LF2BL 9106C | LF2BS 9106D | LF2CU 9107A | LF2CM 9107B |
|---|---|---|---|---|---|---|---|---|---|---|
| Constituents (mg/kg dw) | | | | | | | | | | |
| Semi-Volatile Organic Compounds (8270) | | | | | | | | | | |
| Naphthalene | ND | ND | ND | 0.33J | ND | 30 | ND | ND | ND | 5.1J |
| 2-Methylnaphthalene | ND | 10 | ND | ND | ND | 41 | ND | ND | ND | ND |
| 1-Methylnaphthalene | ND | ND | ND | ND | ND | 20 | ND | ND | ND | ND |
| 1,1-Biphenyl | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | ND | 28 | ND | ND | 49 | ND | ND | ND | ND | ND |
| Dibenzofuran | ND | 26 | ND | ND | 19 | 20 | 5.6J | ND | ND | 3.8J |
| Fluorene | 22 | 91 | ND | ND | 42 | 57 | 12 | ND | 12 | ND |
| Phenanthrene | 34 | 200 | ND | 0.49 | 82 | 86 | 24 | ND | 99 | 17 |
| Anthracene | 100 | 280 | ND | 0.36J | 350 | 400 | 66 | ND | 900 | 72 |
| Carbazole | 45 | 200 | ND | ND | 100 | 160 | 30 | ND | 270 | 23 |
| Pyrene | 26 | 200 | 4.7J | 2.0 | 55 | 23 | 78 | 0.60 | 130 | 36 |
| Benzo(a)Anthracene | 20 | 110 | ND | 1.2 | 33 | 13 | 21 | 0.21J | 43 | 19 |
| Chrysene | 21 | 120 | 3.6J | 1.9 | 35 | 18 | 31 | 0.35J | 58 | 22 |
| Benzo(a)pyrene | 16 | 46 | ND | 1.3 | 24 | 30 | 41 | 0.30J | 41 | 16 |
| Benzo(g,h,i)perylene | 7.8 | 17 | ND | 0.71 | 12 | ND | 16 | ND | 17 | 13 |
| Pentachlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluoranthene | 35 | 300 | 5.0J | 2.3 | 92 | 27 | 82 | 0.63 | 110 | 38 |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol (ortho) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol m&p | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| P-chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(b,k)fluoranthene | 33J | 89J | 6.2J | 2.6J | 43J | 24J | 17J | 0.78J | 43J | 5.7J |
| Ideno(1,2,3-cd)pyrene | 8.6J | 18J | 1.1J | ND | 11J | ND | ND | 0.18J | 11J | 14J |
| Dibenzo(a,h)anthracene | 3.9J | ND | ND | ND | ND | ND | ND | ND | 5.3J | 6.2J |
| Nitrogen Series | | | | | | | | | | |
| Total Kjeldahl Nitrogen-N | 1400 | 1400 | 170 | 1100 | 1700 | 1400 | 900 | 920 | 2200 | 340 |
| Nitrate + Nitrite-N | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Total Nitrogen | 1400 | 1400 | 170 | 1100 | 1700 | 1400 | 900 | 920 | 2200 | 340 |
| Total Phosphorous | 1100 | 290 | 120 | 800 | 920 | 970 | 390 | 61 | 740 | 90 |
| Total Organic Carbon | 37000 | 51000 | 3700 | 26000 | 36000 | 34000 | 31000 | 230 | 36000 | 24000 |
| Chloride | 26 | 51 | ND | ND | ND | ND | ND | ND | ND | ND |
| pH | 6.3 | 6.3 | 6.6 | 5.1 | 6.2 | 5.8 | 6.7 | 7.2 | 6.2 | 7.0 |
| Percent Solids % | 84 | 79 | 92 | 73 | 85 | 84 | 86 | 88 | 86 | 91 |

1 Represents Landfarm 2 location (A, B, C, D, or E) depth sampled (U, M, L, or S).
J Estimated concentration below the practical quantitation limit.
ND Compound was not detected.

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Table 4-2. Analytical Results for Soil Samples Collected in 1990 Within the Office Landfarm 2 and Underlying Substrate at the Southern Wood Piedmont Site, Wilmington, North Carolina.

| Sample Identification # /1 | LF2CL 9107C | LF2CS 9107D | LF2DU 9108A | LF2DM 9108B | LF2DL 9108C | LF2DS 9108D | LF2EU 9109A | LF2EM 9109B | LF2EL 9109C | LF2ES 9109D |
|---|---|---|---|---|---|---|---|---|---|---|
| Constituents (mg/kg dw) | | | | | | | | | | |
| Semi-Volatile Organic Compounds (8270) | | | | | | | | | | |
| Naphthalene | ND | ND | ND | 3.7J | 11 | ND | 3.5J | ND | 2.1J | ND |
| 2-Methylnaphthalene | ND | ND | 9.5 | ND | 11 | ND | ND | ND | ND | ND |
| 1-Methylnaphthalene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Biphenyl | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND | 24 | ND | ND | ND | ND | ND |
| Dibenzofuran | ND | ND | ND | ND | 20 | ND | 3.7J | ND | ND | ND |
| Fluorene | ND | ND | 37 | ND | 54 | ND | ND | 6.1J | ND | ND |
| Phenanthrene | 6.0J | ND | 70 | 12 | 130 | 0.40J | 19 | 14 | 5.7 | ND |
| Anthracene | ND | ND | 170 | 15 | 290 | 0.97 | 70 | 50 | 14 | ND |
| Carbazole | ND | ND | 67 | 4.6J | 75 | ND | 24 | 17 | 1.9J | ND |
| Pyrene | 41 | ND | 51 | 66 | 500 | 2.2 | 34 | 34 | 30 | ND |
| Benzo(a)Anthracene | 18 | ND | 18 | 27 | 100 | 1.0 | 13 | 13 | 11 | ND |
| Chrysene | 32 | ND | 22 | 40 | 150 | 1.4 | 18 | 19 | 16 | ND |
| Benzo(a)pyrene | 11 | ND | 19 | 33 | 65 | 0.97 | 18 | 15 | 12 | ND |
| Benzo(g,h,i)perylene | 4.2J | ND | 7.9 | 34 | 14 | 0.47 | 8.1 | 7.1J | 8.6 | ND |
| Pentachlorophenol | ND | ND | ND | ND | 20J | 0.80J | ND | ND | ND | ND |
| Fluoranthene | 47 | ND | 74 | 65 | 500 | 2.3 | 36 | 36 | 32 | ND |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol (ortho) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol m&p | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| P-chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | ND | ND | ND | ND | 1.2J | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(b,k)fluoranthene | 38J | ND | 1.4J | 82J | 99J | 2.3J | 35J | 32J | 31J | ND |
| Ideno(1,2,3-cd)pyrene | 23J | ND | ND | 19J | 19J | 0.53J | 9.6J | 8.3J | 9.4J | ND |
| Dibenzo(a,h)anthracene | 15J | ND | ND | 8.0J | 9.4J | 0.23J | 4.4J | 3.2J | 3.9J | ND |
| Nitrogen Series | | | | | | | | | | |
| Total Kjeldahl Nitrogen-N | 520 | 67 | 1300 | 1400 | 290 | 190 | 190 | 1400 | 520 | 90 |
| Nitrate + Nitrite-N | ND | ND | ND | ND | ND | ND | ND | 12 | ND | ND |
| Total Nitrogen | 520 | 67 | 1300 | 1400 | 290 | 190 | 190 | 1400 | 520 | 90 |
| Total Phosphorous | 200 | 49 | 910 | 250 | 130 | 580 | 1200 | 940 | 370 | 53 |
| Total Organic Carbon | 13000 | 580 | 36000 | 49000 | 44000 | 4700 | 35000 | 31000 | 20000 | 490 |
| Chloride | ND | ND | 63 | 99 | 85 | 64 | 27 | ND | ND | ND |
| pH | 7.5 | 7.7 | 6.5 | 5.9 | 5.8 | 5.6 | 6.0 | 6.1 | 6.7 | 7.5 |
| Percent Solids % | 87 | 86 | 83 | 85 | 78 | 77 | 88 | 87 | 80 | 91 |

1 Represents Landfarm 2 location (A, B, C, D, or E) depth sampled (U, M, L, or S).
J Estimated concentration below the practical quantitation limit.
ND Compound was not detected.

1387mp

# 1991 LF1 and LF2 Soil Analytical Summary Tables

Table 4-1. Analytical Results for Soil Samples Collected in 1991 within the River Landfarm 1 at the Southern Wood Piedmont Site, Wilmington, North Carolina.

| Sample Identification # /1 | LF1AUS 9663A | LF1ALS 9663B | LF1BUS 9664A | LF1BLS 9664B | LF1CUS 9665A | LF1CLS 9665B | LF1DUS 9666A | LF1DLS 9666B | LF1EUS 9667A | LF1ELS 9667B |
|---|---|---|---|---|---|---|---|---|---|---|
| Constituents (mg/kg dw) | | | | | | | | | | |
| Semi-Volatile Organic Compounds (8270) | | | | | | | | | | |
| Naphthalene | 2.8 | 0.56J | 1.1J | 0.27J | 3.4J | 0.23J | 1.0 | 0.088J | 4.7J | 0.13J |
| 2-Methylnaphthalene | 2.7 | 0.29J | 0.93J | 0.18J | 6.4J | 0.14J | 1.1 | 0.070J | 7.7 | 0.11J |
| 1-Methylnaphthalene | 0.22J | 0.17J | 0.27J | 0.11J | 4.0J | 0.097J | 0.14J | 0.067J | 0.56J | 0.063J |
| 1,1-Biphenyl | 0.42 | 0.092J | 0.23J | 0.066J | 0.90J | 0.040J | 0.24J | 0.022J | 2.1J | 0.028J |
| Acenaphthylene | 3.8 | 0.59J | 1.7J | 4.1J | 2.1J | 0.58 | 1.4 | 0.13J | 1.4J | 0.35 |
| Acenaphthene | 0.95 | 1.9J | 0.52J | 1.1J | 0.62J | 0.15J | 0.36 | 0.18J | 0.78J | 0.070J |
| Dibenzofuran | 2.7 | 0.89J | 1.2J | 0.31J | 5.6J | 0.18J | 1.6 | 0.21J | 9.3 | 0.14J |
| Fluorene | 6.9 | 2.4J | 2.6J | 1.1J | 14 | 0.20J | 4.9 | 0.21J | 25 | 0.18J |
| Phenanthrene | 16 | 15 | 6.4 | 17 | 21 | 1.4 | 7.7 | 3.3 | 34 | 0.98 |
| Anthracene | 54 | 5.7 | 23 | 16 | 140 | 2.3 | 36 | 1.0 | 350 | 1.8 |
| Carbazole | 23 | 1.1J | 7 | 5.4J | 38 | 0.97 | 8.2 | 0.98 | 98 | 1.1 |
| Pyrene | 20 | 69 | 18 | 62 | 34 | 10 | 28 | 5.7 | 25 | 4.2 |
| Benzo(a)Anthracene | 11 | 24 | 10 | 31 | 11 | 5.7 | 15 | 2.1 | 9.6 | 2.0 |
| Chrysene | 12 | 28 | 13 | 36 | 15 | 8.9 | 18 | 3.0 | 3.6J | 2.9 |
| Benzo(a)pyrene | 13 | 14 | 11 | 21 | 14 | 4.1 | 11 | 1.8 | 11 | 1.5 |
| Benzo(g,h,i)perylene | 7.4 | 6.5 | 4.6 | 9.1 | 6.4J | 1.8 | 2.1 | 0.70 | 4.3J | 0.6 |
| Pentachlorophenol | 1.2 | 3.9J | 1.6J | 4.3J | ND | 1.3J | 0.79J | ND | ND | 0.70J |
| Fluoranthene | 22 | 77 | 17 | 72 | 15 | 12 | 24 | 4.7 | 22 | 3.7 |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.060J | ND | ND | 0.057J | 0.86J | 0.050J | 0.028J | ND | 0.14J | ND |
| Trichlorophenols | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Creosol (ortho) | ND | ND | ND | ND | 0.023J | ND | ND | ND | ND | ND |
| Creosol m&p | 0.044J | ND | ND | 0.047J | ND | ND | ND | ND | ND | ND |
| P-chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | 0.19J | ND | 0.31J | 0.44J | ND | 0.13J | ND | ND | ND | 0.045J |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(b,k)fluoranthene | 30 | 36 | 31 | 61 | 43 | 18 | 32 | 3.4 | 30 | 4.4 |
| Ideno(1,2,3-cd)pyrene | 9.6 | 9.2 | 5.6 | 12 | 7.9 | 1.9 | 4.4 | 0.74 | 5.3J | 0.7 |
| Dibenzo(a,h)anthracene | 3.4 | 2.9J | ND | 2.3J | ND | 0.58 | 1.1 | 0.26J | ND | ND |
| Metals | | | | | | | | | | |
| Arsenic (7060) | 6.5 | 23 | 7.9 | 13 | 2.5 | 4.9 | 4.9 | 15 | 6.9 | 9.9 |
| Chromium (6010) | 6.2 | 14 | 8.2 | 7.9 | 12 | 5.4 | 5.5 | 1.9 | 6.7 | 2.8 |
| Copper (6010) | 37 | 70 | 30 | 35 | 39 | 38 | 22 | 12 | 44 | 17 |
| Nitrogen Series | | | | | | | | | | |
| Total Kjeldahl Nitrogen-N | 1,500 | 980 | 5,000 | 1,000 | 1,100 | 1,000 | 1,200 | 290 | 1,600 | 300 |
| Nitrate + Nitrite-N | ND | ND | ND | ND | 7 | ND | 14 | 6.3 | ND | ND |
| Total Nitrogen | 1,500 | 980 | 5,000 | 1,000 | 1,100 | 1,000 | 1,200 | 300 | 1,600 | 300 |
| Total Phosphorous | 730 | 980 | 920 | 460 | 1,000 | 520 | 700 | 240 | 1,300 | 270 |
| Total Organic Carbon | 33,000 | 24,000 | 27,000 | 22,000 | 35,000 | 16,000 | 21,000 | 5,000 | 31,000 | 5,900 |
| Chloride | ND | ND | 29 | ND | ND | ND | ND | ND | ND | ND |
| pH | 6.3 | 6.9 | 7.1 | 7.4 | 6.6 | 7.6 | 6.3 | 6.7 | 7 | 7.4 |
| Percent Solids % | 86 | 89 | 88 | 88 | 84 | 92 | 92 | 94 | 88 | 95 |

1 Represents Landfarm 1 location (A, B, C, D, or E) depth sampled (US or LS).
J Estimated concentration below the practical quantitation limit.
ND Compound was not detected.

Table 4-2. Analytical Results for Soil Samples Collected in 1991 within the Office Landfarm 2 at the Southern Wood Piedmont Site, Wilmington, North Carolina.

| Sample Identification # /1 | LF2AUS 9668A | LF2ALS 9668B | LF2BUS 9669A | LF2BLS 9669B | LF2CUS 9670A | LF2CLS 9670B | LF2DUS 9671A | LF2DLS 9671B | LF2EUS 9672A | LF2ELS 9672B |
|---|---|---|---|---|---|---|---|---|---|---|
| Constituents (mg/kg dw) | | | | | | | | | | |
| Semi-Volatile Organic Compounds (8270) | | | | | | | | | | |
| Naphthalene | 2.2J | 0.36J | 11J | 1.4J | 4.3J | 1.9J | 3.4J | 14J | 3.5J | 2.5J |
| 2-Methylnaphthalene | 2.1J | 0.22J | 16J | 0.88J | 4.6J | 0.85J | 4.4J | 8.0J | 5.1 | 2.4J |
| 1-Methylnaphthalene | 0.22J | 0.13J | 0.59J | 0.29J | 0.46J | 0.34J | 0.26J | 1.6J | 0.26J | 0.41J |
| 1,1-Biphenyl | 0.37J | 0.078J | 2.1J | 0.18J | 0.91J | 0.27J | 0.64J | 2.3J | 0.66J | 0.59J |
| Acenaphthylene | 5.2 | 2.4J | 5.0J | 2.4J | 4.7J | 4.3J | 3.7J | 5.4J | 3.8J | 5.0J |
| Acenaphthene | 1.0J | 0.62J | 2.5J | 1.6J | 5.5J | 1.7J | 1.3J | 92 | 1.0J | 8.1J |
| Dibenzofuran | 2.6J | 0.49J | 20 | 1.7J | 8.4 | 2.2J | 5.0J | 21J | 5.1 | 5.6J |
| Fluorene | 7.1 | 1.2J | 62 | 2.8J | 26 | 7.2J | 14 | 59J | 13 | 19J |
| Phenanthrene | 12 | 4.1 | 87 | 13 | 38 | 21 | 20 | 91 | 21 | 45 |
| Anthracene | 41 | 9.5 | 310 | 19 | 120 | 84 | 75 | 170 | 64 | 93 |
| Carbazole | 18 | 3.1J | 170 | 6.8 | 60 | 15 | 34 | 46J | 37 | 28J |
| Pyrene | 21 | 25 | 64 | 25 | 35 | 74 | 17 | 980 | 19 | 310 |
| Benzo(a)Anthracene | 13 | 12 | 25 | 12 | 17 | 28 | 8.6 | 130 | 11 | 63 |
| Chrysene | 15 | 18 | 31 | 15 | 20 | 41 | 11 | 150 | 12 | 69 |
| Benzo(a)pyrene | 16 | 9.6 | 23 | 9.2 | 20 | 27 | 12 | 61J | 12 | 29J |
| Benzo(g,h,i)perylene | 7.2 | 3.7J | 10J | 5.5 | 6.0J | 5.6J | 7.0J | 6.7J | 5.1 | 8.3J |
| Pentachlorophenol | 3.8J | 2.8J | ND | 10 | 4.6J | 22J | 6.4J | 150J | 4.1J | 19J |
| Fluoranthene | 20 | 24 | 78 | 30 | 37 | 83 | 19 | 520 | 20 | 350 |
| 2-Chlorophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | ND | ND | ND | 2.2J | ND | ND |
| 2,4-Dimethylphenol | 0.092J | 0.082J | ND | 0.037J | 0.087J | 0.12J | ND | ND | 0.081J | ND |
| Trichlorophenols | ND | ND | ND | 0.048J | ND | ND | ND | ND | ND | ND |
| Creosol (ortho) | 0.024J | ND | ND | 0.040J | 0.028J | 0.026J | ND | ND | 0.022J | ND |
| Creosol m&p | 0.10J | 0.070J | ND | ND | ND | ND | ND | ND | 0.087J | ND |
| P-chloro-m-cresol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | 0.48J | 0.25J | ND | 0.52J | ND | 0.85J | 0.34J | 3.5J | 0.47J | 1.1J |
| 2,4-Dinitrophenol | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(b,k)fluoranthene | 34 | 32 | 55 | 21 | 37 | 81 | 26 | 190 | 30 | 90 |
| Ideno(1,2,3-cd)pyrene | 9.2 | 5.2 | 13J | 6.8 | 9.1 | 9.8 | 8.8 | 18J | 7.3 | 12J |
| Dibenzo(a,h)anthracene | 2.0J | 1.2J | 3.4J | 2.6J | 3.4J | 4.0J | 2.0J | 6.6J | 2.5J | 5.1J |
| Metals | | | | | | | | | | |
| Arsenic (7060) | 7.9 | 18 | 8.3 | 84 | 5.6 | 14 | 6.4 | 22 | 6.7 | 9.5 |
| Chromium (6010) | 15 | 12 | 11 | 100 | 6.2 | 9.8 | 7.1 | 21 | 7.8 | 15 |
| Copper (6010) | 42 | 120 | 44 | 140 | 41 | 41 | 35 | 150 | 39 | 51 |
| Nitrogen Series | | | | | | | | | | |
| Total Kjeldahl Nitrogen-N | 1,300 | 1,900 | 1,900 | 840 | 1,600 | 1,100 | 1,200 | 4,900 | 1,700 | 1,300 |
| Nitrate + Nitrite-N | 6.9 | 6.1 | ND | 12 | ND | ND | ND | ND | 7.2 | ND |
| Total Nitrogen | 1,300 | 1,900 | 1,900 | 850 | 1,600 | 1,100 | 1,200 | 4,900 | 1,700 | 1,300 |
| Total Phosphorous | 580 | 470 | 760 | 440 | 580 | 280 | 490 | 610 | 200 | 200 |
| Total Organic Carbon | 26,000 | 21,000 | 34,000 | 21,000 | 26,000 | 28,000 | 32,000 | 47,000 | 32,000 | 23,000 |
| Chloride | ND | ND | ND | ND | ND | ND | 46 | 100 | ND | ND |
| pH | 6.7 | 6.8 | 6.8 | 7.5 | 6.4 | 6.5 | 6.9 | 7.1 | 6.7 | 6.9 |
| Percent Solids % | 83 | 82 | 86 | 89 | 86 | 88 | 83 | 80 | 85 | 89 |

1 Represents Landfarm 2 location (A, B, C, D, or E) depth sampled (US or LS).
J Estimated concentration below the practical quantitation limit.
ND Compound was not detected.

# 1990 and 1991 LF1 and LF2 Constituent Comparision Summary Tables

Table 4-4. Comparison of Constituents Detected in Both 1990 and 1991 in Soil, Southern Wood Piedmont Facility, Wilmington, North Carolina.

| Constituent | Frequency of Detects (%)* | | Maximum Concentration | | Mean | | UCL | |
|---|---|---|---|---|---|---|---|---|
| | 1990 | 1991 | 1990 | 1991 | 1990 | 1991 | 1990 | 1991 |
| Phenols and Cresols | | | | | | | | |
| o-Cresol | 0 | 30 | NA | 0.04 | NA | 4.39 | NA | 8.14 |
| m,p-Cresol | 0 | 25 | NA | 0.1 | NA | 4.81 | NA | 8.52 |
| 2,4-Dimethylphenol | 0 | 60 | NA | 0.86 | NA | 3.96 | NA | 7.76 |
| Pentachlorophenol | 3 | 80 | 20 | 150 | 19 | 16.22 | 19.00 | 29.21 |
| Phenol | 0 | 5 | NA | 2.2 | NA | 3.35 | NA | 4.98 |
| Tetrachlorophenols | 0 | 60 | NA | 3.5 | NA | 1.61 | NA | 2.54 |
| Trichlorophenols | 0 | 5 | NA | 0.048 | NA | 5.19 | NA | 8.85 |
| PAHs | | | | | | | | |
| tPAHs | 100 | 100 | 2064.2 | 2572.6 | 527.51 | 458.18 | 732.88 | 725.82 |
| cPAHs | 100 | 100 | 78.4 | 72.64 | 25.9 | 19.78 | 30.90 | 25.73 |
| Carbazole | 100 | 100 | 270 | 170 | 43.2 | 30.08 | 63.20 | 45.99 |
| Inorganics | | | | | | | | |
| Arsenic | 0 | 100 | NA | 84 | NA | 13.85 | NA | 20.60 |
| Chromium | 0 | 100 | NA | 100 | NA | 13.78 | NA | 21.82 |
| Copper | 0 | 100 | NA | 150 | NA | 53.40 | NA | 68.31 |

Concentrations are given in milligrams per kilogram (mg/kg).

* 1990 data included 30 samples; 1991 data included 20 samples.

NA Not available.

UCL 95 percent upper confidence limit of the mean.

Table 4-5. Degradation of Polycyclic Aromatic Hydrocarbons Based on Ring Number, Landfarms 1 and 2, Southern Wood Piedmont Facility, Wilmington, North Carolina.

| # Rings | Constituent | | Mean Concentration (mg/kg) 1990 | 1991 | 1990-1991 | % Change |
|---|---|---|---|---|---|---|
| 2 | 1,1-Biphenyl | | 3.77 | 0.61 | 3.16 | -83.82 |
| 2 | 1-Methylnaphthalene | | 4.3 | 0.51 | 3.79 | -88.14 |
| 2 | 2-Methylnaphthalene | | 6.05 | 3.21 | 2.84 | -46.94 |
| 2 | Naphthalene | | 5.18 | 2.94 | 2.24 | -43.24 |
| 3 | Acenaphthene | | 6.72 | 6.1 | 0.62 | -9.23 |
| 3 | Acenaphthylene | | 3.77 | 2.9 | 0.87 | -23.08 |
| 3 | Anthracene | | 117.66 | 80.77 | 36.89 | -31.35 |
| 3 | Carbazole | | 43.19 | 30.08 | 13.11 | -30.35 |
| 3 | Dibenzofuran | | 7.16 | 4.71 | 2.45 | -34.22 |
| 3 | Fluorene | | 15.53 | 13.44 | 2.09 | -13.46 |
| 3 | Phenanthrene | | 37.53 | 23.74 | 13.79 | -36.74 |
| | | Total | 250.86 | 169.01 | 81.85 | -32.63 |
| | | Mean | 22.81 | 15.36 | 7.44 | -32.63 |
| 4 | Benzo(a)anthracene | | 23.57 | 22.05 | 1.52 | -6.45 |
| 4 | Chrysene | | 32.14 | 26.12 | 6.02 | -18.73 |
| 4 | Fluoranthene | | 71.45 | 72.52 | -1.07 | 1.50 |
| 4 | Pyrene | | 65.76 | 92.3 | -26.54 | 40.36 |
| 5 | Benzo(a)pyrene | | 20.32 | 16.06 | 4.26 | -20.96 |
| 5 | Benzo(b,k)fluoranthene | | 40.7 | 44.24 | -3.54 | 8.70 |
| 5 | Dibenzo(a,h)anthracene | | 4.37 | 2.62 | 1.75 | -40.05 |
| 6 | Benzo(g,h,i)perylene | | 8.96 | 5.43 | 3.53 | -39.40 |
| 6 | Indeno(1,2,3-c,d)pyrene | | 9.38 | 7.83 | 1.55 | -16.52 |
| | | Total | 276.65 | 289.17 | -12.52 | 4.53 |
| | | Mean | 30.74 | 32.13 | -1.39 | 4.53 |

mg/kg Milligrams per kilogram.

Table 4-6. Data Comparison for Polycyclic Aromatic Hydrocarbons, Landfarms 1 and 2, Southern Wood Piedmont Facility, Wilmington, North Carolina.

| # Rings | Constituent | Mean Concnetration (mg/kg) 1990 | 1991 | 1990-1991 | % Change |
|---|---|---|---|---|---|
| 2 | 1,1-Biphenyl | 3.77 | 0.61 | 3.16 | -83.82 |
| 2 | Naphthalene | 5.18 | 2.94 | 2.24 | -43.24 |
| 3 | Acenaphthene | 6.72 | 6.1 | 0.62 | -9.23 |
| 3 | Acenaphthylene | 3.77 | 2.9 | 0.87 | -23.08 |
| 3 | Anthracene | 117.66 | 80.77 | 36.89 | -31.35 |
| 3 | Carbazole* | 43.19 | 30.08 | 13.11 | -30.35 |
| 3 | Dibenzofuran | 7.16 | 4.71 | 2.45 | -34.22 |
| 3 | Fluorene | 15.53 | 13.44 | 2.09 | -13.46 |
| 3 | Phenanthrene | 37.53 | 23.74 | 13.79 | -36.74 |
| 4 | Fluoranthene | 71.45 | 72.52 | -1.07 | 1.50 |
| 4 | Pyrene | 65.76 | 92.3 | -26.54 | 40.36 |
| | Subtotal | 377.72 | 330.11 | 47.61 | -12.60 |
| | Mean | 34.34 | 30.01 | 4.33 | -12.60 |
| | cPAHs | | | | |
| 2 | 1-Methylnaphthalene | 4.3 | 0.51 | 3.79 | -88.14 |
| 2 | 2-Methylnaphthalene | 6.05 | 3.21 | 2.84 | -46.94 |
| 4 | Benzo(a)anthracene | 23.57 | 22.05 | 1.52 | -6.45 |
| 4 | Chrysene | 32.14 | 26.12 | 6.02 | -18.73 |
| 5 | Benzo(a)pyrene | 20.32 | 16.06 | 4.26 | -20.96 |
| 5 | Benzo(b,k)fluoranthene | 40.7 | 44.24 | -3.54 | 8.70 |
| 5 | Dibenzo(a,h)anthracene | 4.37 | 2.62 | 1.75 | -40.05 |
| 6 | Benzo(g,h,i)perylene | 8.96 | 5.43 | 3.53 | -39.40 |
| 6 | Indeno(1,2,3-c,d)pyrene | 9.38 | 7.83 | 1.55 | -16.52 |
| | Total cPAHs | 149.79 | 128.07 | 21.72 | -14.50 |
| | Mean | 16.64 | 14.23 | 2.41 | -14.50 |
| | Without 2-ring PAHs | 139.44 | 124.35 | 15.09 | -10.82 |
| | tPAHs | 527.51 | 458.18 | 69.33 | -13.14 |

* Carbazole is also a cPAH but was considered separately from the other cPAHs.
cPAHs Carcinogenic polycyclic aromatic hydrocarbons included in the TEF scheme.
mg/kg Milligrams per kilogram.
TEF Toxicity equivalency factor based on benzo(a)pyrene (USEPA, 1989b).
tPAHs Total of all polycyclic aromatic hydrocarbons.

# 1996 LF1 and LF2 Soil Analytical Summary Tables

1996 Landfarm Soil Analytical Summary Table
Southern Wood Piedmont Company, City of Wilmington, North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | LF2A | LF1A | LF2B | LF2C | LF1B | LF1C |
|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (8270)** | | | | | | | |
| bis(2-Chloroethyl)ether | 0.33 | ND | ND | ND | ND | ND | ND |
| Naphthalene | 0.33 | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 0.33 | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 0.33 | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 0.33 | 4.2 | 2 | 2.8 | 0.44 | 2.8 | ND |
| Anthracene | 0.33 | 10 | 5.7 | 5 | ND | ND | ND |
| Fluoranthene | 0.33 | 11 | 10 | 8.2 | 0.88 | 8.1 | ND |
| Chrysene | 0.33 | 8 | 8.7 | 5.5 | 0.48 | 5.8 | ND |
| Benzo(a)anthracene | 0.33 | 7 | 6.9 | 4.3 | ND | 4 | ND |
| Benzo(b)fluoranthene | 0.33 | 15 | 14 | 11 | 0.68 | 9.2 | ND |
| Benzo(k)fluoranthene | 0.33 | 5.7 | 5.5 | 3.5 | ND | 3.7 | ND |
| Benzo(a)pyrene | 0.33 | 9.2 | 8.1 | 6.2 | ND | 4.6 | ND |
| Indeno(1,2,3-cd)pyrene | 0.33 | 7.4 | 5.1 | 5.3 | ND | 3.2 | ND |
| Dibenzo(a,h)anthracene | 0.33 | ND | ND | ND | ND | ND | ND |
| 2-Chlorophenol | 0.33 | ND | ND | ND | ND | ND | ND |
| Phenol | 0.33 | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.33 | ND | ND | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | 0.33 | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | 1.7 | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | 1.7 | ND | ND | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | 0.33 | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.33 | 2.2 | ND | ND | ND | ND | ND |
| Tetrachlorophenols | 1.7 | ND | ND | ND | ND | ND | ND |
| Benzo(b,k)fluoranthene | 0.33 | 21 | 20 | 14 | 0.68 | 13 | ND |
| 1,1-Biphenyl | 0.33 | ND | ND | ND | ND | ND | ND |
| 1-Methylnaphthalene | 0.33 | ND | ND | ND | ND | ND | ND |
| Cresol (ortho) | 0.33 | ND | ND | ND | ND | ND | ND |
| Benzo(g,h,i)perylene | 0.33 | 6.2 | 4.4 | 4.2 | ND | 2.8 | ND |
| Fluorene | 0.33 | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | 0.33 | ND | ND | ND | ND | ND | ND |
| Cresol m & p | 0.33 | ND | ND | ND | ND | ND | ND |
| Dibenzofuran | 0.33 | ND | ND | ND | ND | ND | ND |
| Dilution factor | | 5 | 5 | 5 | 1 | 5 | 1 |
| | | | | | | | |
| Arsenic (6010) | 1 | 6.2 | 5.9 | 13 | 5.3 | 22 | 6.4 |
| Chromium (6010) | 1 | 1.3 | 1.3 | 1.5 | ND | 2.6 | ND |
| Copper (6010) | 2.5 | 8.2 | 7.7 | 7.9 | ND | 8.3 | ND |
| | | | | | | | |
| Total Kjeldahl Nitrogen-N (351.2) | 25 | 2100 | 2100 | 1600 | 710 | 71 | 140 |
| Nitrate + Nitrite-N (353.2) | 5 | ND | ND | ND | ND | ND | ND |
| Total Phosphorus (365.4) | 25 | 730 | 1200 | 300 | 65 | 540 | 66 |
| pH (9045) | | 6.94 | 7.8 | 6.13 | 7.31 | 7.46 | 7.33 |
| Chloride (325.2) | 20 | 77 | 110 | 150 | ND | 110 | ND |
| Total Organic Carbon (415.1) | 100 | 46000 | 41000 | 49000 | 2200 | 58000 | 930 |
| Percent Solids (160.3) | | 85 | 89 | 81 | 81 | 90 | 90 |
| | | | | | | | |
| * DL = Detection Limit | | | | | | | |
| All results are in mg/kg dw | | | | | | | |

# 1991 and 1996 LF1 and LF2 Constituent Comparision Summary Table

## COMPARISON BETWEEN THE 1991 LANDFARM SOIL SAMPLE ANALYSIS AND THE 1996 LANDFARM SOIL SAMPLE ANALYSIS

| CONSTITUENTS DETECTED | 1991 LF1U | 1996 LF1A | 1991 LF1L | 1996 LF1B | 1991 LF2U | 1996 LF2A | 1991 LF2L | 1996 LF2B |
|---|---|---|---|---|---|---|---|---|
| Phenanthrene | 17 | 2 | 7.5 | 2.8 | 36 | 4.2 | 35 | 2.8 |
| Naphthalene | 2.6 | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | 3.8 | ND | ND | ND | 6.4 | ND | ND | ND |
| 1,1-Biphenyl | 0.8 | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 2.1 | ND | 1.1 | ND | 4.5 | ND | ND | ND |
| Acenaphthene | 0.65 | ND | ND | ND | ND | ND | 21 | ND |
| Dibenzofuran | 4.1 | ND | ND | ND | 8.2 | ND | ND | ND |
| Fluorene | 33 | ND | ND | ND | 24.4 | ND | ND | ND |
| Pyrene | 25 | ND | 30 | ND | 31.2 | ND | 283 | ND |
| Dibenzo(a,h)anthracene | 0.9 | ND | 1.2 | ND | ND | ND | 10.4 | ND |
| Anthracene | 121 | 5.7 | 5.4 | ND | 122 | 10 | 75 | 5 |
| Carbazole | 35 | ND | 1.9 | ND | 64 | 2.2 | 20 | ND |
| Benzo(a)anthracene | 11 | 6.9 | 13 | 4 | 15 | 7 | 49 | 4.3 |
| Chrysene | 12 | 8.7 | 16 | 5.8 | 18 | 8 | 59 | 5.5 |
| Benzo(a)pyrene | 12 | 8.1 | 8.5 | 4.6 | 17 | 9.2 | 27 | 6.2 |
| Fluoranthene | 20 | 10 | 34 | 8.1 | 35 | 11 | 201 | 8.2 |
| Benzo(g,h,i)perylene | 5 | ND | 3.7 | ND | 7.1 | ND | 6 | ND |
| Pentachlorophenol | 0.7 | ND | ND | ND | ND | ND | 41 | ND |
| Benzo(b,k)fluoranthene | 33 | 19.5 | 24.5 | 12.9 | 36 | 20.7 | 83 | 14.5 |
| Indeno(1,2,3-cd)pyrene | 6.5 | 5.1 | 4.9 | 3.2 | 9.5 | 7.4 | 10 | 5.3 |
| Arsenic | 5.7 | 5.9 | 13.2 | 22 | 6.9 | 6.2 | 29 | 13 |
| Chromium | 4.7 | 1.3 | 6.4 | 2.6 | 9.4 | 1.3 | 32 | 1.5 |
| Copper | 34 | 4.7 | 34 | 8.3 | 40 | 8.2 | 100 | 7.9 |
| Total Kjeldahl N | 2080 | 2100 | 714 | 71 | 1540 | 2100 | 2008 | 1600 |
| Nitrate + Nitrite-N | 4.2 | ND | 1.3 | ND | 2.8 | ND | 3.6 | ND |
| Total Phosphorous | 930 | 1200 | 494 | 540 | 522 | 730 | 400 | 300 |
| Total Organic Carbon | 29400 | 41000 | 14600 | 58000 | 30000 | 46000 | 28000 | 49000 |
| Chloride | 5.8 | 110 | ND | 110 | 9.2 | 77 | 20 | 150 |

*Any concentrations below the practical quantiative limit (PQL) were considered non-detect (ND)
Results are in mg/kg dw
LF1 - Landfarm 1
LF2 - Landfarm 2
A,U - Upper soil sample taken approximately 3" below landfarm surface
L,B - Lower sample taken within bottom 6" of landfarm material

1990 and 1996 LF1 and LF2 Substrate Constituent Comparision Table

## COMPARISON OF RESULTS FROM THE 1990 LANDFARM LOWER SUBSTRATE SAMPLES AND THE 1996 LANDFARM LOWER SUBSTRATE SAMPLES

| CONSTITUENTS DETECTED | 1990 LF1SUB | 1996 LF1C | 1990 LF2SUB | 1996 LF2C |
|---|---|---|---|---|
| Phenanthrene | ND | ND | 0.2 | 0.44 |
| Pyrene | 4.6 | ND | 1 | ND |
| Benzo(g,h,i)perylene | ND | ND | 0.2 | ND |
| Anthracene | ND | ND | 0.3 | ND |
| Benzo(a)anthracene | 2.6 | ND | 0.5 | ND |
| Chrysene | 3.8 | ND | 0.7 | 0.48 |
| Benzo(a)pyrene | 1.2 | ND | 0.5 | ND |
| Fluoranthene | 4.8 | ND | 0.9 | 0.88 |
| Benzo(b,k)fluoranthene | ND | ND | ND | 0.68 |
| Arsenic | - | 6.4 | - | 5.3 |
| Chromium | - | ND | - | ND |
| Copper | - | ND | - | ND |
| Total Kjeldahl N | 343 | 140 | 473 | 710 |
| Nitrate + Nitrite-N | ND | ND | ND | ND |
| Total Phosphorous | 115 | 66 | 309 | 65 |
| Total Organic Carbon | 5024 | 960 | 6400 | 2200 |
| Chloride | 4.2 | ND | 12.8 | ND |

*Any concentrations below the practical quantitative limit (PQL) were considered non-detect (ND)
Results in mg/kg dw
SUB,C - Sample collected 6" below the base of the landfarm material

# ATTACHMENT D

# LANDFARM DIOXIN AND FURAN SOIL DATA

# 1990 LF1 and LF2 Dioxin and Furan Soil Analytical Summary Tables

Table 4-3. Dioxin and Furan Concentrations for Composite Soil Samples Collected in Landfarms 1 and 2 at the Southern Wood Piedmont Site, Wilmington, North Carolina.

| Parameters | Land Farm 1 | Land Farm 2 |
|---|---|---|
| Furans (µg/kg*) | | |
| Tetrachlorodibenzofurans (total) | 0.09 | 0.10 |
| 2,3,7,8-Tetrachlorodibenzofuran | 0.02 | 0.02 |
| Pentachlorodibenzofurans (total) | 0.92 | 0.87 |
| 1,2,3,7,8-Pentachlorodibenzofuran | 0.06 | 0.06 |
| 2,3,4,7,8-Pentachlorodibenzofuran | 0.06 | 0.06 |
| Hexachlorodibenzofurans (total) | 31.4 | 34.4 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | 0.71 | 0.76 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | 0.24 | 0.21 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran | 0.16 | 0.14 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | 0.04 | 0.05** |
| Heptachlorodibenzofurans (total) | 147.0 | 164.0 |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 59.5 | 66.0 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 0.77 | 0.96 |
| Octachlorodibenzofurans (total) | 63.2 | 83.3 |
| Dioxins (µg/kg*) | | |
| Tetrachlorodibenzodioxins (total) | 0.14 | 0.17 |
| 2,3,7,8-Tetrachlorodibenzodioxin | 0.004** | 0.008 |
| Pentachlorodibenzodioxins (total) | 0.48 | 0.65 |
| 1,2,3,7,8-Pentachlorodibenzodioxin | 0.03 | 0.05 |
| Hexachlorodibenzodioxins (total) | 16.4 | 22.5 |
| 1,2,3,4,7,8-Hexachlorodibenzodioxin | 0.10 | 0.18 |
| 1,2,3,6,7,8-Hexachlorodibenzodioxin | 1.3 | 1.8 |
| 1,2,3,7,8,9-Hexachlorodibenzodioxin | 0.22 | 0.89 |
| Heptachlorodibenzodioxins (total) | 461 | 573 |
| 1,2,3,4,6,7,8-Heptachlorodibenzodioxin | 65.5 | 98.7 |
| Octachlorodibenzodioxins (total) | 621 | 932 |

* µg/kg = micrograms per kilogram.
** Estimated Maximum Possible Concentration

1387swp

# 1996 LF1 and LF2 Dioxin and Furan Soil Analytical Summary Tables

February 1996 Landfarm Dioxin Furan Soil Analytical Summary Table
Southern Wood Piedmont Company, City of Wilmington, and North Carolina State Ports Authority
Wilmington, North Carolina Facility

| PARAMETER | DETECTION LIMIT | LF1A | LF2A |
|---|---|---|---|
| DIOXINS | | | |
| Tetrachlorodibenzodioxins (total) | 0.2 | 61 | 91.8 |
| 2,3,7,8-Tetrachlorodibenzodioxin | 0.2 | 2.4 | 4.2 |
| | | | |
| Pentachlorodibenzodioxins (total) | 0.2 | 736 | 879 |
| 1,2,3,7,8-Pentachlorodibenzodioxin | 0.2 | 42.2 | 55.2 |
| | | | |
| Hexachlorodibenzodioxins (total) | 0.2 | 18060 | 26080 |
| 1,2,3,4,7,8-Hexachlorodibenzodioxin | 0.2 | 191 | 263 |
| 1,2,3,6,7,8-Hexachlorodibenzodioxin | 0.2 | 1600 | 1910 |
| 1,2,3,7,8,9-Hexachlorodibenzodioxin | 0.2 | 526 | 789 |
| | | | |
| Heptachlorodibenzodioxins (total) | 0.86 | 290890 | 298650 |
| 1,2,3,4,6,7,8-Heptachlorodibenzodioxin | 0.31 | 55750 | 90080 |
| | | | |
| Octachlorodibenzodioxin (total) | 3.1 | 583460 | 496210 |
| | | | |
| FURANS | | | |
| Tetrachlorodibenzofurans (total) | 0.2 | 68.9 | 96.5 |
| 2,3,7,8-Tetrachlorodibenzofuran | 0.2 | 11.3 | 14.5 |
| | | | |
| Pentachlorodibenzofuran (total) | 0.2 | 1110 | 1050 |
| 1,2,3,7,8-Pentachlorodibenzofuran | 0.2 | 55.2 | 63.3 |
| 2,3,4,7,8-Pentachlorodibenzofuran | 0.2 | 51.1 | 53.1 |
| | | | |
| Hexachlorodibenzofurans (total) | 0.46 | 31580 | 38630 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | 0.2 | 956 | 1160 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | 0.1 | 206 | 217 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran | 0.46 | 469 | 171 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | 0.2 | * {44.8} | 62.5 |
| | | | |
| Heptachlorodibenzofurans (total) | 0.46 | 133590 | 120130 |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 0.27 | 56260 | 51580 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 0.2 | 1100 | 1080 |
| | | | |
| Octachlorodibenzofurans (total) | 0.17 | 154750 | 155250 |

* All results are in nannograms per kilogram (part per trillion)

* Analysis by USEPA Method 8290.

* {Estimated Maximum Possible Concentration}

1990 and 1996 LF1 and LF2 Dioxin and Furan Constituent Summary Table

## COMPARISON OF 1990 AND 1996 DIOXIN AND FURAN CONCENTRATIONS FOR COMPOSITE SOIL SAMPLIES COLLECTED IN LANDFARMS 1 AND 2

| PARAMETERS | LANDFARM 1 | | LANDFARM 2 | |
|---|---|---|---|---|
| | 10/90 | 2/96 | 10/90 | 2/96 |
| **Furans (ug/kg*)** | | | | |
| Tetrachlorodibenzofurans (total) | 0.09 | 0.069 | 0.10 | 0.097 |
| 2,3,7,8-Tetrachlorodibenzofuran | 0.02 | 0.011 | 0.02 | 0.015 |
| Pentachlorodibenzofurans (total) | 0.92 | 1.11 | 0.87 | 1.05 |
| 1,2,3,7,8-Pentachlorodibenzofuran | 0.06 | 0.055 | 0.06 | 0.063 |
| 2,3,4,7,8-Pentachlorodibenzofuran | 0.06 | 0.051 | 0.06 | 0.053 |
| Hexachlorodibenzofurans (total) | 31.4 | 31.58 | 34.4 | 38.63 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | 0.71 | 0.956 | 0.76 | 1.16 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | 0.24 | 0.206 | 0.21 | 0.217 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran | 0.16 | 0.469 | 0.14 | 0.171 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | 0.04 | 0.048** | 0.05** | 0.063 |
| Heptachlorodibenzofurans (total) | 147.0 | 133.59 | 164.0 | 120.13 |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 59.5 | 56.26 | 66.0 | 51.58 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 0.77 | 1.1 | 0.96 | 1.08 |
| Octachlorodibenzofurans (total) | 63.2 | 154.75 | 83.3 | 155.25 |
| **Dioxins (ug/kg*)** | | | | |
| Tetrachlorodibenzodioxins (total) | 0.14 | 0.061 | 0.17 | 0.092 |
| 2,3,7,8-Tetrachlorodibenzodioxin | 0.004** | 0.002 | 0.008 | 0.004 |
| Pentachlorodibenzodioxins (total) | 0.48 | 0.736 | 0.65 | 0.879 |
| 1,2,3,7,8-Pentachlorodibenzodioxin | 0.03 | 0.042 | 0.05 | 0.055 |
| Hexachlorodibenzodioxins (total) | 16.4 | 18.06 | 22.5 | 26.08 |
| 1,2,3,4,7,8-Hexachlorodibenzodioxin | 0.1 | 0.191 | 0.18 | 0.263 |
| 1,2,3,6,7,8-Hexachlorodibenzodioxin | 1.3 | 1.6 | 1.8 | 1.91 |
| 1,2,3,7,8,9-Hexachlorodibenzodioxin | 0.22 | 0.526 | 0.89 | 0.789 |
| Heptachlorodibenzodioxins (total) | 461 | 290.89 | 573 | 298.65 |
| 1,2,3,4,6,7,8-Heptachlorodibenzodioxin | 65.5 | 55.75 | 98.7 | 90.08 |
| Octachlorodibenzodioxins (total) | 621 | 583.46 | 932 | 496.21 |

* ug/kg dw = micrograms per kilogram dry weight

** Estimated Maximum Possible Concentration

Soil samples collected between 0" - 6" below the landfarm surface

# ATTACHMENT E

# SURFACE WATER AND SEDIMENT DATA

1985 NUS Surface Water and Sediment Analytical Summary Table

TABLE 1
SOUTHERN WOOD PIEDMONT SITE
WILMINGTON, NORTH CAROLINA
SAMPLE CODES AND DESCRIPTIONS

| | |
|---|---|
| SWP*-BK-W1 | Surface Water sample collected from overflow stream from Greenfield Lake south of the site. |
| SWP-BK-S1 | Sediment sample collected from above location. |
| SWP-GW-1 | Groundwater sample collected from onsite monitoring well #1. |
| SWP-GW-2 | Groundwater sample collected from onsite monitoring well #2. |
| SWP-GW-4 | Groundwater sample collected from onsite monitoring well #4. |
| SWP-GW-5 | Groundwater sample collected from onsite monitoring well #5. |
| SWP-RB-W | Surface water sample collected at end of jetty from Cape Fear River. |
| SWP-RB-S | Sediment sample collected from above location. |
| SWP-JA-C1 | Composite soil sample collected from jetty area. |
| SWP-LA-CZ | Composite soil sample collected form landfarm area A. |
| SWP-LB-C3 | Composite soil sample collected from landfarm area B. |
| SWP-LC-C4 | Composite soil sample collected from landfarm area C. |
| SWP-AW-01 | Groundwater sample collected from artesian well, (public supply). |

* SWP: Code short for Southern Wood Preserving. This designation will not be used in the narrative report.

TABLE 2
SOUTHERN WOOD PIEDMONT SITE
WILMINGTON, NORTH CAROLINA
INORGANIC ANALYSES
WATER SAMPLES
in ug/l

| | SWP-BK-W1 | SWP-GW-1 | SWP-GW-2 | SWP-GW-4 | SWP-GW-5 | SWP-RB-W | SWP-AW-01 |
|---|---|---|---|---|---|---|---|
| Arsenic* | - | - | 22 | 44 | - | - | - |
| Chromium* | - | - | 20 | - | 20 | - | - |
| Lead* | - | 14 | 12 | 16 | - | - | - |
| Zinc* | - | 40 | 60 | 40 | - | - | - |
| Aluminum | 500 | 4,800 | 7,100 | 3,500 | 5,700 | 1,000 | - |
| Manganese | 20 | 2,000 | 1,100 | 300 | 150 | 130 | - |
| Iron | 680 | 91,000 | 46,000 | 17,000 | 5,300 | 2,400 | - |
| Sodium | 10,000 | 2,300,000 | 9,000 | 1,400,000 | 15,000 | 930,000 | 6,000 |
| Potassium | - | 14,000 | 6,000 | 49,000 | - | 36,000 | - |
| Cyanide* | 40 | - | - | - | - | - | - |

* Priority pollutant.
\- Material analyzed for but not detected.

TABLE 3
SOUTHERN WOOD PIEDMONT SITE
WILMINGTON, NORTH CAROLINA
ORGANIC ANALYSES
WATER SAMPLES
in ug/l

| | SWP-BK-W1 | SWP-GW-1 | SWP-GW-2 | SWP-GW-4 | SWP GW-5 | SWP-RB-W | SWP-AW-01 |
|---|---|---|---|---|---|---|---|
| Methylene Chloride* | - | - | - | - | - | - | 37 |
| 1,1-Dichloroethene(1,1-Dichloroethylene)* | - | - | - | - | - | - | 6.6 |
| Chloroform* | - | - | - | - | - | - | 63 |
| 1,2-Dichloroethane* | - | - | - | - | - | - | 55 |
| 1,1,1-Trichloroethane* | - | - | - | - | - | - | 14 |
| Carbon Tetrachloride* | - | - | - | - | - | - | 38 |
| Bromodichloromethane | - | - | - | - | - | - | 60 |
| Trichloroethene(Trichloroethylene)* | - | - | - | - | - | - | 15 |
| Benzene* | - | 0.3J | 0.3J | - | - | - | - |
| Dibromochloromethane | - | - | - | - | - | - | 38 |
| Bromoform* | - | - | - | - | - | - | 14 |
| Tetrachloroethene(Tetrachloroethylene)* | - | - | - | - | - | - | 81 |
| Toluene* | - | - | 5J | 16 | - | - | 26 |
| Chlorobenzene* | | | | | | | |
| Ethyl Benzene* | - | 3J | 5.1 | - | - | - | - |
| Methyl Butyl Ketone | - | 7J | 7J | - | 23 | - | - |
| Propene | - | 5J | - | - | 26 | - | - |
| Acetone | - | - | 500 | 1,000 | - | - | - |
| Chloromethylpropane | - | - | 3JN | - | - | - | - |
| Methyl Ethyl Ketone | - | - | - | 30 | - | - | - |
| 1 Unidentified Compound | - | 4J | - | 30JN | - | - | - |
| Naphthalene* | - | - | 290 | - | - | - | - |
| Acenaphthene* | - | - | 40 | 3.2 | - | - | - |
| Fluorene* | - | - | 15 | 0.7J | - | - | - |

TABLE 3
SOUTHERN WOOD PIEDMONT SITE
WILMINGTON, NORTH CAROLINA
ORGANIC ANALYSES
WATER SAMPLES
in ug/l
PAGE 2

| | SWP-BK-W1 | SWP-GW-1 | SWP-GW-2 | SWP-GW-4 | SWP GW-5 | SWP-RB-W | SWP-AW-01 |
|---|---|---|---|---|---|---|---|
| Phenanthrene* | - | - | 7.8 | 0.5 | - | - | - |
| Acenaphthylene* | - | - | - | 0.9J | - | - | - |
| Anthracene* | - | - | - | 2J | - | - | - |
| Fluoranthene* | - | - | - | 7.8 | - | - | - |
| Pyrene* | - | - | - | 10J | - | - | - |
| Protect | - | 8JN | - | - | - | - | - |
| Prometon | - | 50JN | - | - | - | - | - |
| Tetrahydrodimethylpyranone | - | 20JN | - | - | - | - | - |
| methylheptanol | - | 10JN | - | - | - | - | - |
| C5 Alkyl Benzene | - | 7JN | - | - | - | - | - |
| Dibenzafuran | - | - | 14 | 8 | - | - | - |
| 2-Methyl Naphthalene | - | - | 18 | - | - | - | - |
| C3 Alkylbenzene | - | - | 100JN | - | - | - | - |
| Benzothiophene | - | - | 20JN | - | - | - | - |
| Nitrocarbazole | - | - | 10JN | - | - | - | - |
| Tribromophenol | - | - | - | - | - | - | 10JN |
| 3 Unidentified Compounds | - | 100J | - | - | - | - | - |
| 3 Unidentified Compounds | - | - | 30J | - | - | 30J | - |
| 2 Unidentified Compounds | - | - | - | - | 10JN | - | 20J |
| 5 Unidentified Compounds | 100J | - | - | - | - | - | - |

* Priority pollutant.
\- Material analyzed for but not detected.
J Estimated quantity.
N Presumtive evidence of material.

TABLE 4
SOUTHERN WOOD PIEDMONT SITE
WILMINGTON, NORTH CAROLINA
INORGANIC ANALYSES
SOIL/SEDIMENT SAMPLES
in ug/kg

| | SWP-BK-S1 | SWP-RB-S | SWP-JA-C1 | SWP-LA-C2 | SWP-LB-C3 | SWP-LC-C4 |
|---|---|---|---|---|---|---|
| Arsenic* | - | - | 10,000 | 610,000 | 10,000 | 20,000 |
| Copper* | - | - | 40,000 | 620,000 | 30,000 | 60,000 |
| Chromium* | - | - | - | 390,000 | - | 10,000 |
| Lead* | 6,000 | 15,000 | 12,000 | 150,000 | 33,000 | 61,000 |
| Vanadium | - | - | - | 20,000 | - | - |
| Zinc* | - | - | - | 75,000 | 20,000 | 87,000 |
| Mercury* | - | - | - | 480 | - | 450 |
| Aluminum | 1,700,000 | 750,000 | 2,600,000 | 4,300,000 | 2,100,000 | 1,700,000 |
| Manganese | - | 20,000 | 40,000 | 100,000 | 52,000 | 50,000 |
| Calcium | - | - | 4,000,000 | 12,000,000 | 6,300,000 | 2,000,000 |
| Iron | 930,000 | 1,400,000 | 4,800,000 | 12,000,000 | 5,800,000 | 6,600,000 |
| Cyanide* | 430 | 225 | 880 | 410 | 110 | |

* Priority pollutant.
\- Material analyzed for but not detected.

TABLE 5
SOUTHERN WOOD PIEDMONT SITE
WILMINGTON, NORTH CAROLINA
ORGANIC ANALYSES
SOIL/SEDIMENT SAMPLES
in ug/kg

| | SWP-BK-S1 | SWP-RB-S | SWP-JA-C1 | SWP-LA-C2 | SWP-LB-C3 | SWP-LC-C4 |
|---|---|---|---|---|---|---|
| Naphthalene* | - | - | - | 1,200 | - | - |
| Isophorone* | 80J | 60J | - | - | - | - |
| 2-Chloronaphthalene* | 24 | 19 | 400J | 500J | 400J | - |
| Acenaphthylene* | - | 30J | - | 1,500 | 1,000J | 6,300 |
| Acenaphthene* | - | - | - | - | - | 170,000 |
| Fluorene* | - | - | - | - | - | 170,000 |
| Phenanthrene* | - | 70 | 4,400 | 5,400 | 1,400 | 390,000 |
| Anthracene* | - | 70J | 2,000J | 5,200 | 2,000J | 170,000 |
| Di-N-Butylphthalate* | - | - | - | - | - | 6,500 |
| Fluoranthene* | 300J | 350 | 15,000 | 25,000 | 10,000 | 29,000 |
| Pyrene* | 500J | 300J | 12,000 | 22,000 | 10,000J | 220,000 |
| Benzo(A)Anthracene* | - | 78 | 2,700 | 11,000 | 3,900 | 130,000 |
| Chrysene* | - | 160 | - | - | 7,100 | 120,000 |
| Benzo(B and/or K)Fluoranthene* (1) | - | 110 | 5,600 | 14,000 | 7,300 | 48,000 |
| Benzo(B and/or K)Fluoranthene* (1) | - | 100J | 5,600 | 12,000 | 6,600 | 4,500 |
| Benzo-A-Pyrene* | - | 90J | 4,600 | 11,000 | 5,800 | 37,000 |
| Indeno(1,2,3-CD)Pyrene* | - | - | - | - | - | 10,000J |
| Benzo(GHI)Perylene* | - | - | - | - | - | 9,000 |
| Pentachlorophenol* | - | - | - | 4,000J | - | 150,000 |
| Dimethyheptanone | 10,000JN | | | | | |
| Hexadecanoic Acid | 20JN | | | | | |
| Acetyloxyhexanone | 2,000JN | 2,000JN | | | | |
| Dimethylfuranone | 8,000JN | 5,000JN | | | | |

(1) For Benzol(B and/or K)Fluoranthene, there is no distinction on laboratory data sheets between the two isomers, the above data could represent total concentrations for the two isomers or replicate concentrations of one isomer.

TABLE 5
SOUTHERN WOOD PIEDMONT SITE
WILMINGTON, NORTH CAROLINA
ORGANIC ANALYSES
SOIL/SEDIMENT SAMPLES
in ug/kg
PAGE 2

| | SWP-BK-S1 | SWP-RB-S | SWP-JA-C1 | SWP-LA-C2 | SWP-LB-C3 | SWP-LC-C4 |
|---|---|---|---|---|---|---|
| Dibenzofuran | - | - | 300J | 900J | 300J | 110,000 |
| Tetrahydrodimethylpyranone | - | - | 7,000JN | - | - | - |
| Benzo(J)Fluoranthene | - | - | 3,000JN | 6,000JN | 4,000JN | 40,000JN |
| Dimethyltetrahydropyran-2-one | - | - | - | 8,000JN | - | - |
| Benzo(GHI)Fluoranthene | - | - | - | 4,000JN | - | - |
| 2-Methyl Naphthalene | - | - | - | - | - | 16,000 |
| Ethylideneindene | - | - | - | - | - | 10,000JN |
| Dimethylnaphthalenes | - | - | - | - | - | 20,000JN |
| Xanthene | - | - | - | - | - | 20,000JN |
| Methyldibenzofuran | - | - | - | - | - | 40,000JN |
| Methylfluorene | - | - | - | - | - | 20,000JN |
| Dihydronapthafuran | - | - | - | - | - | 8,000JN |
| Cyclopentaphenathrene | - | - | - | - | - | 70,000J |
| Benzo(B)Napthothiophene | - | - | - | - | - | 40,000JN |
| 11 Unidentified Compounds | 200,000J | - | - | - | - | - |
| 1 Unidentified Brominated Compound | 5,000J | 30,000JN | - | - | - | - |
| 3 Unidentified Hydrocarbons | - | 10,000J | - | - | - | - |
| 2 Unidentified Polynuclear Aromatics | - | - | - | 5,000J | - | - |
| 2 Unidentified Methylphenanthrenes | - | - | - | - | - | 70,000J |
| 2 Unidentified Benzofluorene Compounds | - | - | - | - | - | 100,000J |
| 3 Unidentified Methylpyrenes | - | - | - | - | - | 60,000J |
| Fluoratrichloromethane | - | - | - | 10JN | 10JN | - |
| Pinene | - | - | - | - | - | 7JN |
| Trimethylcyclohexanone | - | - | - | - | - | 6JN |

* Priority pollutants.
\- Material analyzed for but not detected.

TABLE 6
SOUTHERN WOOD PIEDMONT SITE
WILMINGTON, NORTH CAROLINA
PESTICIDES AND PCB ANALYSES
SOIL/SEDIMENT SAMPLES
in ug/kg

| | SWP-BK-S1 | SWP-RB-S | SWP-JA-C1 | SWP-LA-C2 | SWP-LB-C3 | SWP-LC-C4 |
|---|---|---|---|---|---|---|
| 4,4'-DDE (P,P'-DDE)* | 7.4 | - | - | - | - | - |
| 4,4'-DDD (P,P'-DDD)* | 5.9 | - | - | - | - | - |

* Priority pollutant.
\- Material analyzed for but not detected.

1985 to 1996 Cape Fear River Surface Water Analytical Summary Table

# SURFACE WATER SAMPLE PARAMETER SUMMARY TABLE
## SEMI-VOLATILES AND METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | U.S. HIGHWAY #74 BRIDGE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/85 | | 6/86 | | 1/87 | | 7/87 | | 1/88 | | 6/88 | | 1/89 | | 6/89 | | 1/90 | | 7/90 | | 12/91 | | 6/92 | | 1/93 | | 7/93 | |
| SEMI-VOLATILES | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Acenaphthylene | NA | -- | NA | -- | NA | -- | NA | -- | NA | -- | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Anthracene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(a)Anthracene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(a)Pyrene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(b,k)Fluoranthene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Carbazole | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2-Chlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Chrysene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Dibenzo(a,h)Anthracene | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2,4-Dimethylphenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2,4-Dinitrophenol | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.05 | ND | 0.05 | ND | 0.050 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Fluoranthene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Indeno(1,2,3-cd)pyrene | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Naphthalene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| p-chloro-m-cresol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Pentachlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.050 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Phenanthrene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Phenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Tetrachlorophenols | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Trichlorophenols | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| METALS | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | -- | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Chromium | ND | 0.01 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | -- | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Copper | ND | 0.01 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.025 | ND | -- | ND | 0.025 | ND | 0.025 | ND | 0.025 |

NOTE: R* = Laboratory Result
DL* = Detection Limit
ND = Below Laboratory Detection Limit
NA = Not Analyzed
All units in mg/l

## SURFACE WATER SAMPLE PARAMETER SUMMARY TABLE
## SEMI–VOLATILES AND METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | U.S. HIGHWAY #74 BRIDGE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1/94 | | 7/94 | | 1/95 | | 7/95 | | 1/96 | |
| SEMI–VOLATILES | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Acenaphthylene | NA | 0.01 | NA | 0.01 | NA | 0.01 | NA | 0.01 | NA | 0.01 |
| Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(a)Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(a)Pyrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(b,k)Fluoranthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Carbazole | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2–Chlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Chrysene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Dibenzo(a,h)Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2,4–Dimethylphenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2,4–Dinitrophenol | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Fluoranthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Indeno(1,2,3–cd)pyrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Naphthalene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| p–chloro–m–cresol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Pentachlorophenol | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Phenanthrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Phenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Tetrachlorophenols | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Trichlorophenols | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| METALS | | | | | | | | | | |
| Arsenic | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Chromium | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Copper | ND | 0.025 | ND | 0.025 | ND | 0.025 | ND | 0.025 | ND | 0.025 |

NOTE: R* = Laboratory Result
DL* = Detection Limit
ND = Below Laboratory Detection Limit
NA = Not Analyzed
All units in mg/l

## SURFACE WATER SAMPLE PARAMETER SUMMARY TABLE
## SEMI-VOLATILES AND METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | OLD SLIP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/85 | | 6/86 | | 1/87 | | 7/87 | | 1/88 | | 6/88 | | 1/89 | | 6/89 | | 1/90 | | 7/90 | | 12/91 | | 6/92 | | 1/93 | | 7/93 | |
| SEMI-VOLATILES | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Acenaphthylene | NA | -- | NA | -- | NA | -- | NA | -- | NA | -- | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Anthracene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(a)Anthracene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(a)Pyrene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(b,k)Fluoranthene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Carbazole | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2-Chlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Chrysene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Dibenzo(a,h)Anthracene | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2,4-Dimethylphenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2,4-Dinitrophenol | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.05 | ND | 0.05 | ND | 0.050 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Fluoranthene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Indeno(1,2,3-cd)pyrene | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Naphthalene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| p-chloro-m-cresol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Pentachlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.050 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Phenanthrene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Phenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Tetrachlorophenols | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Trichlorophenols | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| METALS | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | ND | 0.01 | NA | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | -- | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Chromium | ND | 0.01 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | 0.011 | 0.010 | ND | -- | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Copper | ND | 0.01 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | 0.02 | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.025 | ND | -- | ND | 0.025 | ND | 0.025 | ND | 0.025 |

NOTE: R* = Laboratory Result
DL* = Detection Limit
ND = Below Laboratory Detection Limit
NA = Not Analyzed
All units in mg/l

# SURFACE WATER SAMPLE PARAMETER SUMMARY TABLE
## SEMI-VOLATILES AND METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | OLD SLIP | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1/94 | | 7/94 | | 1/95 | | 7/95 | | 1/96 | |
| SEMI-VOLATILES | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Acenaphthylene | NA | 0.01 | NA | 0.01 | NA | 0.01 | NA | 0.01 | NA | 0.01 |
| Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(a)Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(a)Pyrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(b,k)Fluoranthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Carbazole | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2-Chlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Chrysene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Dibenzo(a,h)Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2,4-Dimethylphenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2,4-Dinitrophenol | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Fluoranthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Indeno(1,2,3-cd)pyrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Naphthalene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| p-chloro-m-cresol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Pentachlorophenol | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Phenanthrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Phenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Tetrachlorophenols | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Trichlorophenols | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| METALS | | | | | | | | | | |
| Arsenic | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Chromium | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Copper | ND | 0.025 | ND | 0.025 | ND | 0.025 | ND | 0.025 | ND | 0.025 |

NOTE: R* = Laboratory Result
DL* = Detection Limit
ND = Below Laboratory Detection Limit
NA = Not Analyzed
All units in mg/l

## SURFACE WATER SAMPLE PARAMETER SUMMARY TABLE
## SEMI-VOLATILES AND METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | GREENFIELD CREEK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/85 | | 6/86 | | 1/87 | | 7/87 | | 1/88 | | 6/88 | | 1/89 | | 6/89 | | 7/89 | | 1/90 | | 7/90 | | 12/91 | | 6/92 | | 1/93 | | 7/93 | |
| SEMI-VOLATILES | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Acenaphthylene | NA | -- | NA | -- | NA | -- | NA | -- | NA | -- | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Anthracene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(a)Anthracene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(a)Pyrene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(b,k)Fluoranthene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Carbazole | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2-Chlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Chrysene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Dibenzo(a,h)Anthracene | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2,4-Dimethylphenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2,4-Dinitrophenol | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.05 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Fluoranthene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Indeno(1,2,3-cd)pyrene | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Naphthalene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | 0.050 | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| p-chloro-m-cresol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Pentachlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.050 | ND | 0.050 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Phenanthrene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Phenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Tetrachlorophenols | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Trichlorophenols | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| METALS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | -- | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Chromium | ND | 0.01 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | 0.046 | 0.010 | ND | -- | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Copper | ND | 0.01 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | 0.052 | 0.025 | ND | -- | ND | 0.025 | ND | 0.025 | ND | 0.025 |

NOTE: R* = Laboratory Result
DL* = Detection Limit
ND = Below Laboratory Detection Limit
NA = Not Analyzed
All units in mg/l

## SURFACE WATER SAMPLE PARAMETER SUMMARY TABLE
## SEMI–VOLATILES AND METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | GREENFIELD CREEK | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1/94 | | 7/94 | | 1/95 | | 7/95 | | 1/96 | |
| SEMI–VOLATILES | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Acenaphthylene | NA | 0.01 | NA | 0.01 | NA | 0.01 | NA | 0.01 | NA | 0.01 |
| Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(a)Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(a)Pyrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(b,k)Fluoranthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Carbazole | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2–Chlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Chrysene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Dibenzo(a,h)Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2,4–Dimethylphenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2,4–Dinitrophenol | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Fluoranthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Indeno(1,2,3–cd)pyrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Naphthalene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| p–chloro–m–cresol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Pentachlorophenol | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Phenanthrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Phenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Tetrachlorophenols | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Trichlorophenols | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| METALS | | | | | | | | | | |
| Arsenic | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Chromium | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Copper | ND | 0.025 | ND | 0.025 | ND | 0.025 | ND | 0.025 | ND | 0.025 |

NOTE: R* = Laboratory Result
DL* = Detection Limit
ND = Below Laboratory Detection Limit
NA = Not Analyzed
All units in mg/l

## SURFACE WATER SAMPLE PARAMETER SUMMARY TABLE
## SEMI-VOLATILES AND METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | STATE PORTS AUTHORITY | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/85 | | 6/86 | | 1/87 | | 7/87 | | 1/88 | | 6/88 | | 1/89 | | 6/89 | | 1/90 | | 7/90 | | 12/91 | | 6/92 | | 1/93 | | 7/93 | |
| SEMI-VOLATILES | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Acenaphthylene | NA | -- | NA | -- | NA | -- | NA | -- | NA | -- | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Anthracene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(a)Anthracene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(a)Pyrene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Benzo(b,k)Fluoranthene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Carbazole | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2-Chlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Chrysene | ND | 0.01 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Dibenzo(a,h)Anthracene | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2,4-Dimethylphenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| 2,4-Dinitrophenol | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.05 | ND | 0.05 | ND | 0.050 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Fluoranthene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Indeno(1,2,3-cd)pyrene | ND | 0.02 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.03 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Naphthalene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| p-chloro-m-cresol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Pentachlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.050 | ND | 0.05 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Phenanthrene | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Phenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Tetrachlorophenols | ND | 0.01 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.02 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.050 | ND | 0.050 | ND | 0.050 |
| Trichlorophenols | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| **METALS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | -- | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Chromium | ND | 0.01 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | -- | ND | 0.010 | ND | 0.010 | ND | 0.010 |
| Copper | ND | 0.01 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.01 | ND | 0.010 | ND | 0.010 | ND | 0.010 | ND | 0.025 | ND | -- | ND | 0.025 | ND | 0.025 | ND | 0.025 |

NOTE: R* = Laboratory Result
DL* = Detection Limit
ND = Below Laboratory Detection Limit
NA = Not Analyzed
All units in mg/l

# SURFACE WATER SAMPLE PARAMETER SUMMARY TABLE
## SEMI–VOLATILES AND METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | STATE PORTS AUTHORITY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1/94 | | 7/94 | | 1/95 | | 7/95 | | 1/96 | |
| SEMI–VOLATILES | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Acenaphthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Acenaphthylene | NA | 0.01 | NA | 0.01 | NA | 0.01 | NA | 0.01 | NA | 0.01 |
| Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(a)Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(a)Pyrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Benzo(b,k)Fluoranthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Carbazole | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2–Chlorophenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Chrysene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Dibenzo(a,h)Anthracene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2,4–Dimethylphenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| 2,4–Dinitrophenol | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Fluoranthene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Indeno(1,2,3–cd)pyrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Naphthalene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| p–chloro–m–cresol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Pentachlorophenol | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Phenanthrene | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Phenol | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Tetrachlorophenols | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 | ND | 0.05 |
| Trichlorophenols | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| METALS | | | | | | | | | | |
| Arsenic | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Chromium | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 | ND | 0.01 |
| Copper | ND | 0.025 | ND | 0.025 | ND | 0.025 | ND | 0.025 | ND | 0.025 |

NOTE: R* = Laboratory Result
DL* = Detection Limit
ND = Below Laboratory Detection Limit
NA = Not Analyzed
All units in mg/l

# 1996 Greenfield Creek Surface Water Analytical Summary Table

1996 Greenfield Creek Surface Water Analytical Summary Table
Semi-Volatiles
Southern Wood Piedmont Company, City of Wilmington, and North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | SW1 | SW2 | SW3 | SW4 | SW4-Dup | SW5 |
|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (8270)** | | | | | | | |
| Naphthalene | 0.010 | ND | ND | ND | ND | ND | ND |
| bis(2-Chloroethyl)ether | 0.010 | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 0.010 | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 0.010 | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 0.010 | ND | ND | ND | ND | ND | ND |
| Anthracene | 0.010 | ND | ND | ND | ND | ND | ND |
| Fluoranthene | 0.010 | ND | ND | ND | ND | ND | ND |
| Chrysene | 0.010 | ND | ND | ND | ND | ND | ND |
| Benzo(a)anthracene | 0.010 | ND | ND | ND | ND | ND | ND |
| Benzo(b)fluoranthene | 0.010 | ND | ND | ND | ND | ND | ND |
| Benzo(k)fluoranthene | 0.010 | ND | ND | ND | ND | ND | ND |
| Benzo(a)pyrene | 0.010 | ND | ND | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | 0.010 | ND | ND | ND | ND | ND | ND |
| Dibenzo(a,h)anthracene | 0.010 | ND | ND | ND | ND | ND | ND |
| 2-Chlorophenol | 0.010 | ND | ND | ND | ND | ND | ND |
| Phenol | 0.010 | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.010 | ND | ND | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | 0.010 | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | 0.010 | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | 0.050 | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | 0.050 | ND | ND | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | 0.010 | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.010 | ND | ND | ND | ND | ND | ND |
| Tetrachlorophenols | 0.050 | ND | ND | ND | ND | ND | ND |
| Dilution factor | | 1 | 1 | 1 | 1 | 1 | 1 |
| | | | | | | | |
| * DL = Detection Limit | | | | | | | |
| All results are in mg/l | | | | | | | |

1996 Greenfield Creek Surface Water Analytical Summary Table
Volatiles and Metals
Southern Wood Piedmont Company, City of Wilmington, and North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | SW1 | SW2 | SW3 | SW4 | SW4-Dup | SW5 |
|---|---|---|---|---|---|---|---|
| **Volatiles by GC/MS (8240)** | | | | | | | |
| Chloromethane | 0.010 | ND | ND | ND | ND | ND | ND |
| Bromomethane | 0.010 | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.010 | ND | ND | ND | ND | ND | ND |
| Chloroethane | 0.010 | ND | ND | ND | ND | ND | ND |
| Methylene chloride (Dichloromethane) | 0.005 | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.005 | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.005 | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.005 | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.005 | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.005 | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 0.005 | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.005 | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND |
| Benzene | 0.005 | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.005 | ND | ND | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.050 | ND | ND | ND | ND | ND | ND |
| Toluene | 0.005 | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.005 | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.005 | ND | ND | ND | ND | ND | ND |
| 1,2-Dibromoethane (EDB) | 0.005 | ND | ND | ND | ND | ND | ND |
| Methyl tert-butyl ether (MTBE) | 0.010 | ND | ND | ND | ND | ND | ND |
| m&p-Xylene | 0.005 | ND | ND | ND | ND | ND | ND |
| o-Xylene | 0.005 | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.005 | ND | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND | ND |
| | | | | | | | |
| Arsenic (6010) | 0.010 | ND | ND | ND | ND | ND | ND |
| Chromium (6010) | 0.010 | ND | ND | ND | ND | ND | ND |
| Copper (6010) | 0.025 | ND | ND | ND | ND | ND | ND |
| | | | | | | | |
| * DL = Detection Limit | | | | | | | |
| All results are in mg/l | | | | | | | |

# 1992 Sediment Analytical Summary Table

# 1992 SEDIMENT SAMPLE PARAMETER SUMMARY TABLE
## METALS
## SOUTHERN WOOD PIEDMONT FACILITY
## WILMINGTON, NORTH CAROLINA

| | SS-1 | | SS-2 | | SS-3 | | SS-4 | | SS-5 | | SS-6 | | SS-7 | | SS-8 | | SS-9 | | SS-10 | | SS-10A** | | SS-11 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| METALS | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* | R* | DL* |
| Arsenic | 3.5 | 1.2 | 5.2 | 1.2 | ND | 1.2 | 3.6 | 1.2 | 1.5 | 1.2 | ND | 1.2 | 2.3 | 1.2 | ND | 1.2 | ND | 1.2 | ND | 1.2 | 13.0 | 1.0 | ND | 1.2 |
| Chromium | 5.5 | 0.75 | 14.0 | 0.75 | 2.1 | 0.75 | 11.0 | 0.75 | 5.2 | 0.75 | 3.1 | 0.75 | 9.2 | 0.75 | 4.2 | 0.75 | 4.1 | 0.75 | 2.6 | 0.75 | 38.0 | 1.0 | 1.3 | 0.75 |
| Copper | 6.1 | 0.75 | 46.0 | 0.75 | 8.0 | 0.75 | 14.0 | 0.75 | 2.4 | 0.75 | 2.8 | 0.75 | 5.1 | 0.75 | 1.9 | 0.75 | 4.4 | 0.75 | 3.9 | 0.75 | 34.0 | 2.5 | 1.0 | 0.75 |
| Lead | 14.0 | 5.0 | 290.0 | 5.0 | 61.0 | 5.0 | 25.0 | 5.0 | 3.4 | 1.2 | 3.1 | 1.1 | 6.3 | 5.0 | 2.3 | 1.2 | 6.9 | 5.0 | 6.2 | 5.0 | | | 1.9 | 5.0 |

NOTE: All units in mg/kg dw
R = Laboratory Analytical Result
DL = Laboratory Detection Limit
**SS-10A resample for SS-10

# 1992 SEDIMENT SAMPLE PARAMETER SUMMARY TABLE
# VOLATILES
# SOUTHERN WOOD PIEDMONT FACILITY
# WILMINGTON, NORTH CAROLINA

| | SS-1 | | SS-2 | | SS-3 | | SS-4 | | SS-5 | | SS-6 | | SS-7 | | SS-8 | | SS-9 | | SS-10 | | SS-10A** | | SS-11 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VOLATILES | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* |
| Benzene | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Bromodichloroethane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Bromomethane | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.01 | ND | 0.001 |
| Carbon Tetrachloride | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.005 |
| Chlorobenzene | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Chloroethane | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.01 | ND | 0.001 |
| 2-Chloroethylvinyl Ether | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.05 | ND | 0.005 |
| Chloroform | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | | | ND | 0.001 |
| Chloromethane | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.01 | ND | 0.001 |
| Cis-1,3-Dichloropropene | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.005 |
| Dibromochloromethane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| 1,2-Dibromomethane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 | ND | 0.005 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Dichlorodifluoromethane | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 |
| 1,1-Dichloroethane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.005 |
| 1,2-Dichloroethane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| 1,1-Dichloroethene | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Dichloromethane | 0.024 | 0.001 | 0.0064 | 0.001 | 0.015 | 0.001 | 0.017 | 0.001 | 0.012 | 0.001 | 0.014 | 0.001 | 0.059 | 0.001 | 0.007 | 0.001 | 0.020 | 0.001 | 0.008 | 0.001 | | | 0.0068 | 0.001 |
| 1,2-Dichloropropane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Ethyl Benzene | ND | 0.001 | ND | 0.001 | ND | 0.02 | ND | 0.001 | ND | 0.001 | ND | 0.001 | 0.15 | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Fluorotrichloromethane | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.001 |
| M/P-Xylene | 0.0025 | 0.001 | ND | 0.001 | ND | 0.02 | 0.001 | 0.001 | 0.0011 | 0.001 | 0.0014 | 0.001 | 0.084 | 0.001 | ND | 0.001 | 0.0071 | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.005 |
| Methyl-T-Butyl Ether (Mtbe) | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.05 | ND | 0.001 |
| o-Xylene | 0.0011 | 0.001 | ND | 0.001 | ND | 0.02 | ND | 0.001 | ND | 0.001 | ND | 0.001 | 0.069 | 0.001 | ND | 0.001 | 0.0075 | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.005 |
| 1,1,2,2-Tetrachloroethane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Toluene | 0.0024 | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | 0.0013 | 0.001 | 0.0034 | 0.001 | 0.016 | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Trans-1,2-Dichloroethylene | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| 1,1,1-Trichloroethane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| 1,1,2-Trichloroethane | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Trichloroethene | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.001 | ND | 0.005 | ND | 0.001 |
| Vinyl Chloride | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.005 | ND | 0.01 | ND | 0.005 |

NOTE: DL = Laboratory Detection Limit

All units in mg/kg dw

**SS-10A resample for SS-10

# 1992 SEDIMENT SAMPLE PARAMETER SUMMARY TABLE
# SEMI–VOLATILES
# SOUTHERN WOOD PIEDMONT FACILITY
# WILMINGTON, NORTH CAROLINA

| | SS–1 | | SS–2 | | SS–3 | | SS–4 | | SS–5 | | SS–6 | | SS–7 | | SS–8 | | SS–9 | | SS–10 | | SS–10A** | | SS–11 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SEMI–VOLATILES | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* | RESULT | DL* |
| Acenaphthene | 0.51 | 0.33 | ND | 0.33 | ND | 0.33 | 0.59 | 0.33 | 4.4 | 0.33 | 2.9 | 0.33 | 44.0 | 0.33 | 1.0 | 0.33 | 32.0 | 0.33 | ND | 0.33 | 3.3 | 0.33 | ND | 0.33 |
| Anthracene | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | 45.0 | 0.33 | 36.0 | 0.33 | 10.0 | 0.33 | ND | 0.33 | 49.0 | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| Benzo(a)Anthracene | 1.1 | 0.33 | 0.54 | 0.33 | ND | 0.33 | 1.1 | 0.33 | 5.8 | 0.33 | 7.4 | 0.33 | 3.2 | 0.33 | ND | 0.33 | 26.0 | 0.33 | 730.0 | 0.33 | 7.3 | 0.33 | ND | 0.33 |
| Benzo(a)Pyrene | 0.42 | 0.33 | ND | 0.33 | ND | 0.33 | 2.0 | 0.33 | 3.1 | 0.33 | 1.9 | 0.33 | 0.64 | 0.33 | ND | 0.33 | 9.0 | 0.33 | 680.0 | 0.33 | 2.6 | 0.33 | ND | 0.33 |
| Benzo(b)Fluoranthene | ND | 0.33 | 0.75 | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | 15.0 | 0.33 | 1800.0 | 0.33 | 6.0 | 0.33 | ND | 0.33 |
| Benzo(k)Fluoranthene | 1.5 | 0.33 | ND | 0.33 | ND | 0.33 | 4.9 | 0.33 | 3.60 | 0.33 | 3.6 | 0.33 | 1.2 | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | 2.1 | 0.33 | ND | 0.33 |
| Bis(2–Chloroethyl)Ether | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| Carbazole | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | 18.0 | 0.33 | 4.4 | 0.33 | 17.0 | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| 4–Chloro–3–Methylphenol | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| 2–Chlorophenol | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| Chrysene | 1.1 | 0.33 | 0.53 | 0.33 | ND | 0.33 | 1.6 | 0.33 | 4.5 | 0.33 | 5.5 | 0.33 | 1.90 | 0.33 | ND | 0.33 | 22.0 | 0.33 | 920.0 | 0.33 | 9.0 | 0.33 | ND | 0.33 |
| Dibenzo(a,h)Anthracene | ND | 0.33 | ND | 0.33 | ND | 0.33 | 3.7 | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | 0.94 | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| 2,4–Dimethylphenol | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| 2,4–Dinitrophenol | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.70 | ND | 1.60 |
| Fluoranthene | 3.8 | 0.33 | 0.67 | 0.33 | ND | 0.33 | 1.8 | 0.33 | 38.0 | 0.33 | 52.0 | 0.33 | 26.0 | 0.33 | ND | 0.33 | 130.0 | 0.33 | 1300.0 | 0.33 | 15.0 | 0.33 | ND | 0.33 |
| Indeno(1,2,3–cd)Pyrene | ND | 0.33 | ND | 0.33 | ND | 0.33 | 2.0 | 0.33 | 0.67 | 0.33 | 0.72 | 0.33 | ND | 0.33 | ND | 0.33 | 3.4 | 0.33 | 660.0 | 0.33 | ND | 0.33 | ND | 0.33 |
| Naphthalene | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | 1.8 | 0.33 | ND | 0.33 | 44.0 | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| Pentachlorophenol | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.60 | ND | 1.70 | ND | 1.60 |
| Phenanthrene | 1.5 | 0.33 | 0.56 | 0.33 | ND | 0.33 | ND | 0.33 | 42.0 | 0.33 | 36.0 | 0.33 | 55.0 | 0.33 | ND | 0.33 | 70.0 | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| Phenol | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |
| Tetrachlorophenol | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 1.70 | ND | 0.33 |
| 2,4,5–Trichlorophenol | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 1.70 | ND | 0.33 |
| 2,4,6–Trichlorophenol | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 | ND | 0.33 |

NOTE: DL = Laboratory Detection Limit

All units in mg/kg dw

**SS–10A resample for SS–10

# 1996 Sediment Analytical Summary Table

1996 Sediment Analytical Summary Table
Semi-Volatiles
Southern Wood Piedmont Company, City of Wilmington, and North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | SS-12 | SS-12 DUP | SS-13 | SS14 | SS15 | SS16 | SS16-Dup | SS17 | SS18 | SS19 | SS20 | SS21 | SS22 | SS23 | SS24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (8270)** | | | | | | | | | | | | | | | | |
| Naphthalene | 0.330 | ND | ND | ND | 20 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| bis(2-Chloroethyl)ether | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 0.330 | 1.8 | 1.9 | ND | 24 | ND | ND | ND | ND | 1.1 | ND | ND | 11 | ND | ND | ND |
| Phenanthrene | 0.330 | ND | ND | ND | 40 | ND | ND | ND | ND | ND | 19 | ND | 31 | ND | ND | ND |
| Anthracene | 0.330 | 1.1 | ND | ND | 13 | ND | ND | ND | ND | 2.2 | 20 | ND | 40 | 1.8 | 17 | ND |
| Fluoranthene | 0.330 | 6.8 | 6 | 10 | 22 | 1.1 | 3 | 3.2 | 4.7 | 7.5 | 60 | 2.6 | 54 | 2.9 | 55 | ND |
| Chrysene | 0.330 | 2.4 | 1.6 | 3 | 5.7 | 1.2 | 1.2 | 1.2 | 1.4 | 1.6 | 15 | ND | 18 | ND | ND | ND |
| Benzo(a)anthracene | 0.330 | 1.9 | 1.4 | 2.3 | 6.4 | 1.4 | ND | ND | 1.3 | 1.7 | 12 | ND | 13 | ND | ND | ND |
| Benzo(b)fluoranthene | 0.330 | 2 | 1.5 | 2.2 | 6.6 | 1.8 | ND | 1.4 | 1.6 | ND | 11 | ND | 11 | ND | ND | ND |
| Benzo(k)fluoranthene | 0.330 | ND | ND | ND | ND | ND | 1.6 | ND | ND | ND | 5.5 | ND | ND | ND | ND | ND |
| Benzo(a)pyrene | 0.330 | 0.99 | 0.73 | ND | 6.3 | 1.3 | ND | ND | ND | ND | 5.9 | ND | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibenzo(a,h)anthracene | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chlorophenol | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dimethylphenol | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrophenol | 1.700 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pentachlorophenol | 1.700 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbazole | 0.330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.7 | ND | 15 | ND | ND | ND |
| Tetrachlorophenols | 1.700 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dilution factor | 1.000 | 1 | 1 | 1 | 10 | 1 | 1 | 1 | 1 | 1 | 4 | 1 | 10 | 1 | 10 | 1 |
| | | | | | | | | | | | | | | | | |
| *DL = Detection limit | | | | | | | | | | | | | | | | |
| All results are in mg/kg dw | | | | | | | | | | | | | | | | |

1996 Sediment Ana[illegible]l Summary Table
Volatiles [illegible] Metals
Southern Wood Piedmont Company, City of Wilmington, and North Carolina State Ports Authority
Wilmington, North Carolina Facility

| SAMPLE ID | DL* | SS-12 | SS-12 DUP | SS-13 | SS14 | SS15 | SS16 | SS16-Dup | SS17 | SS18 | SS19 | SS20 | SS21 | SS22 | SS23 | SS24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatiles by GC/MS (8240)** | | | | | | | | | | | | | | | | |
| Chloromethane | 0.010 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | 0.010 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.010 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | 0.010 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dichloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.005 | ND | ND | ND | ND | 0.065 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.050 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.005 | ND | ND | ND | 0.54 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dibromoethane (EDB) | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methyl tert-butyl ether (MTBE) | 0.010 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| m&p-Xylene | 0.005 | ND | ND | ND | 0.3 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| o-Xylene | 0.005 | ND | ND | ND | 0.22 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | | | | | | | | | | | | | |
| Arsenic (6010) | 1.000 | 4.4 | 4.9 | ND | 4.9 | 6 | 10 | 12 | 11 | 8.6 | 10 | 9.7 | 9.8 | 6.3 | 5 | 7.6 |
| Chromium (6010) | 1.000 | 2.4 | 2.4 | ND | 6.8 | 19 | 49 | 47 | 65 | 30 | 57 | 37 | 52 | 25 | 19 | 26 |
| Copper (6010) | 2.500 | 11 | 13 | 16 | 74 | 15 | 32 | 31 | 48 | 17 | 40 | 23 | 42 | 19 | 15 | 12 |
| Percent Solids (160.3) | % | 51 | 49 | 25 | 67 | 51 | 29 | 29 | 29 | 31 | 29 | 25 | 32 | 26 | 34 | 29 |
| | | | | | | | | | | | | | | | | |
| *DL = Detection limit | | | | | | | | | | | | | | | | |
| All results are in mg/kg dw | | | | | | | | | | | | | | | | |