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State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director

March 31, 1994

Ms. Cathy Amoroso:
EPA NC CERCLA Project Officer
U. S. EPA Region IV Waste Division
345 Courtland Street, NE
Atlanta, GA 30365

Subject: Site Inspection Prioritization
Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Gulf, Chatham County, N.C.

Dear Ms. Amoroso:

The enclosed report contains the findings of the Site Inspection Prioritization of the Southern Wood Piedmont Gulf Site (NCD 053 488 557) located in Gulf, Chatham County, North Carolina.

The Southern Wood Piedmont company operated a wood treating plant from 1946 until 1980 using creosote, chromated copper arsenate, and pentachlorophenol at the site. Wastewater from the wood preserving process were treated using storage-settling ponds, aeration lagoons, and a spray irrigation system for land application of effluent. In 1980, the facility was closed by dismantling the plant, by evaporating the liquids remaining in the lagoons by increased spray irrigation, and by regrading and seeding the land. Prior to the construction of the treatment system described above, the facility had discharged effluent into Cedar Creek from an on-site wastewater treatment facility consisting of oil separators and holding ponds.

In January of 1982 sediment and surface water samples were collected by representatives of the North Carolina Department of Natural Resources and Community Development (NRCD) on and near the site. Analytical results for these samples revealed levels of the metals arsenic, chromium, copper, lead, and mercury in surface water and sediments. A number of organic compounds were detected but not quantified. These included several polynuclear aromatic hydrocarbons (PAH's) such as anthracene, chrysene, napthalene, phenanthrene, and fluoranthene. Phenols were also detected, including pentachlorophenol, tetrachlorophenol, methylphenol and phenol.

In September of 1983, a site investigation was performed by the United States Environmental Protection Agency (EPA) Region IV. Sampling was performed to identify sources and determine migration of hazardous substances. The EPA sampled soil from the old lagoon areas, the old operations area, and the drainage ditch that carries runoff into Cedar Creek. They also sampled Cedar Creek sediment upstream and downstream of the confluence of the drainage ditch and Cedar Creek, sediment at the confluence, and soil from the creek floodplain adjacent to the site.

Analytical results of this EPA investigation indicate that, with the exception of the sample from the southeast edge of the site, all of the samples contained organic compounds that were positively identified and quantified. All of the organic compounds detected were associated with wood preserving. The off-site sediment samples collected in Cedar Creek and soil from the adjacent floodplain contained many of the same organic compounds that were detected in the on-site sediment and soil samples. Levels of chromium significantly above background were found in soil from the drainage ditch.

In April of 1988, the Southern Wood Piedmont Company filed a Notification of an Inactive Hazardous Substance or Waste Disposal Site which included data from analyses performed on three wells on the site from 1978 to 1980. Analytical results for these ground water samples indicate levels of phenols that were considerably higher than the current N.C. standard.

An extensive environmental assessment of the site has reportedly been performed for the Southern Wood Piedmont Company. Sampling information and analytical data from that assessment have not yet been made available to the N.C. Superfund Section. No analytical data related to the reported removal of contaminated soil and backfilling at the site by the Southern Wood Piedmont Company have been provided to the N.C. Superfund Section.

In summary, elevated levels of wood preserving chemicals, including arsenic, chromium, copper, and PAH's, were recorded in the surface water pathway in the 1984 EPA site investigation report. Contamination of the surface water pathway with chromium levels significantly above background was documented in this report. Contamination of ground water with phenols has been documented in data received from the Southern Wood Piedmont Company. Ground water contamination has also been acknowledged by a representative of the company. Risk of direct dermal exposure of the public to contaminated soil is likely since the site is not securely fenced. There is no available evidence of a release of contaminants to air, but this may have occurred during removal activities.

Based on the above factors, it is recommended that a status of high priority for an Expanded Site Inspection be assigned to the Southern Wood Piedmont (Gulf) site.

Sincerely,

Irene Williams

Irene Williams
Environmental Chemist
Superfund Section

STATE OF NORTH CAROLINA

Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
Superfund Section

SITE INSPECTION PRIORITIZATION

Southern Wood Piedmont (Gulf) Site
Gulf, Chatham County, North Carolina
NCD 053 488 557
Reference No. 02802

March 1994

Irene Williams, Environmental Chemist
Division of Solid Waste Management
Superfund Section

SITE INSPECTION PRIORITIZATION

Southern Wood Piedmont (Gulf) Site
NCD 053 488 557
Gulf, Chatham County, North Carolina

March 1994

Superfund Section
Division of Solid Waste Management
North Carolina Department of Environment, Health and Natural Resources

Prepared by:

Irene Williams
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Pat DeRosa
CERCLA Branch Head

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EXECUTIVE SUMMARY

The Southern Wood Piedmont company operated a wood treating plant from 1946 until 1980 using creosote, chromated copper arsenate, and pentachlorophenol at the site. Wastes from the wood preserving process were treated using storage-settling ponds, aeration lagoons, and a spray irrigation system for land application of effluent. In 1980, the facility was closed by dismantling the plant, by evaporating the liquids remaining in the lagoons by increased spray irrigation, and by regrading and seeding the land. Prior to the construction of the treatment system described above, the facility had discharged effluent into Cedar Creek from an on-site wastewater treatment facility consisting of oil separators and holding ponds.

In January of 1982 sediment and surface water samples were collected by representatives of the North Carolina Department of Natural Resources and Community Development (NRCD) on and near the site. Analytical results for these samples revealed levels of the metals arsenic, chromium, copper, lead, and mercury in surface water and sediments. A number of organic compounds were detected but not quantified. These included several polynuclear aromatic hydrocarbons (PAH's) such as anthracene, chrysene, napthalene, phenanthrene, and fluoranthene. Phenols were also detected, including pentachlorophenol, tetrachlorophenol, methylphenol and phenol.

In September of 1983, a site investigation was performed by the United States Environmental Protection Agency (EPA) Region IV. Sampling was performed to identify sources and determine migration of hazardous substances. The EPA sampled soil from the old lagoon areas and from the drainage ditch that carries runoff into Cedar Creek. They also sampled Cedar Creek sediment upstream and downstream of the confluence of the drainage ditch and Cedar Creek, sediment at the confluence, and soil from the creek floodplain adjacent to the site.

Analytical results of this EPA investigation indicate that, with the exception of the sample from the southeast edge of the site, all of the samples contained organic compounds that were positively identified and quantified. All of the organic compounds detected were associated with wood preserving. The off-site sediment samples collected in Cedar Creek and soil from the adjacent floodplain contained many of the same organic compounds that were detected in the on-site sediment and soil samples. Levels of chromium significantly above background were found in soil from the drainage ditch.

In April of 1988, the Southern Wood Piedmont Company filed a Notification of an Inactive Hazardous Substance or Waste Disposal Site which included data from analyses performed on three wells on the site from 1978 to 1980. Analytical results for these ground water samples indicate levels of phenols that were considerably higher than the current N.C. standard.

An extensive environmental assessment of the site has reportedly been performed for the Southern Wood Piedmont Company. Sampling information and analytical data from that assessment have not yet been made available to the N.C. Superfund Section. No analytical data related to the reported removal of contaminated soil and backfilling at the site by the Southern Wood Piedmont Company have been provided to the N.C. Superfund Section.

In summary, elevated levels of wood preserving chemicals, including arsenic, chromium, copper, and PAH's, were recorded in the surface water pathway in the 1984 EPA site investigation report. Contamination of the surface water pathway with chromium levels significantly above background was documented in this report. Contamination of ground water with phenols has been documented in Southern Wood Piedmont Company analytical data. Ground water contamination has also been acknowledged by a representative of the company. Risk of direct dermal exposure of the public to contaminated soil is likely since the site is not securely fenced. There is no available evidence of a release of contaminants to air, but this may have occurred during removal activities.

Based on the above factors, it is recommended that a status of high priority for an Expanded Site Inspection be assigned to the Southern Wood Piedmont (Gulf) site.

1.0 INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act or 1986 (SARA), the North Carolina Superfund Section completed this Site Inspection Prioritization (SIP) for the Southern Wood Piedmont site at Gulf, Chatham County, North Carolina (CERCLIS Identification Number: NCD 053 488 557). The SIP is an interim reporting element designed to update a Site Investigation performed prior to the implementation of the revised Hazard Ranking System (HRS) (Ref. 1) in March 1991.

A Hazardous Waste Site Investigation performed by the United States Environmental Protection Agency (EPA), Region IV, Environmental Services Division (ESD) on September 21, 1983, was used as a basis for this SIP (Ref. 2). The purpose of this SIP is to document data to be used in the revised HRS so that a recommendation can be made regarding the need for additional investigation of the site under CERCLA/SARA. The scope of the investigation included reviewing the above-mentioned EPA report and previous file information, collecting and updating targets information, documenting HRS factor values and scores, and collecting additional non-sampling information.

2.0 SITE DESCRIPTION

2.1 Location

The Southern Wood Piedmont site is located on State Road 2139 in the small rural community of Gulf in Chatham County, North Carolina (Ref. 3; Figs. 1,2,3). The geographic coordinates for the site are latitude 35° 33' 37.5" North and longitude 79° 16' 38.0" West (Ref. 4). To reach the site take U.S. Highway 1 southwest from Raleigh to Sanford to U.S. Highway 421. Proceed northwest on 421 to State Road 2139, then north to the site.

The vicinity of the site in Chatham County receives a normal annual total precipitation of 48 inches. The mean annual lake evaporation in the area is 41 inches. Thus, the mean annual precipitation is 7 inches (Ref. 35).

2.2 Site Description

The site occupies approximately 80 acres of land bordered by Cedar Creek to the north, by a clay mining operation to the south, by woods to the east, and by residential areas to the west. The Norfolk and Southern Railroad crosses the property east to west and the Southern Railroad runs along the southern edge of the property. Almost all the drainage from the site flows north toward Cedar Creek via two on-site interconnecting drainage ditches (Ref. 2, p.2,9; Fig.3).

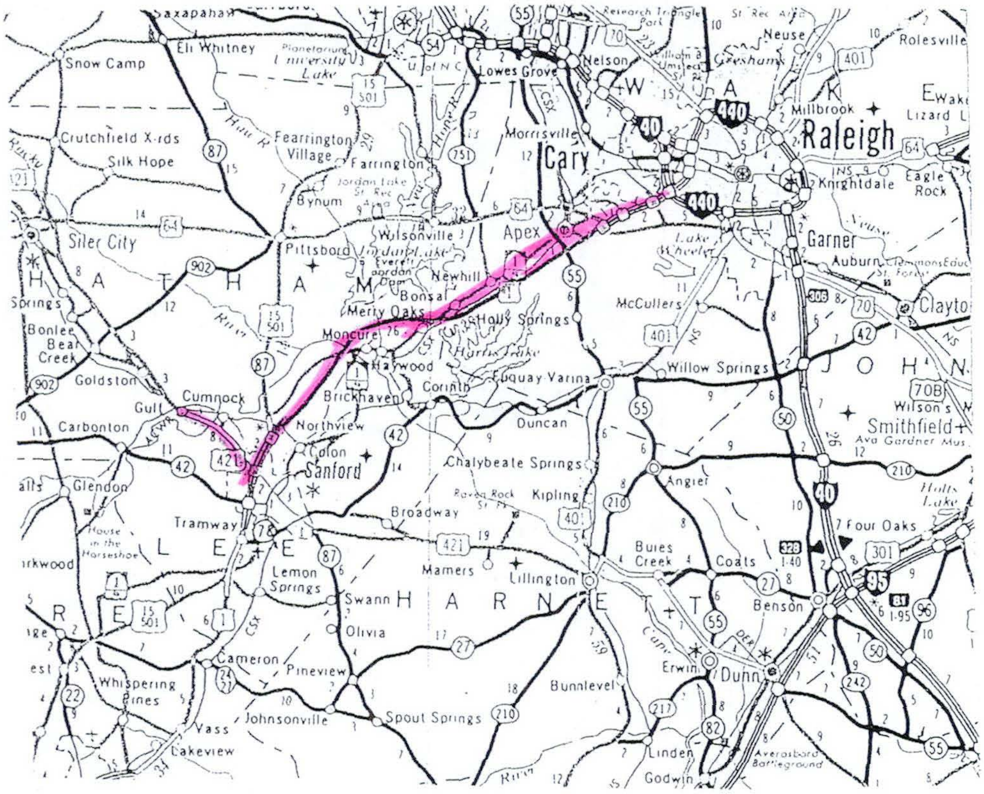
The Southern Wood Piedmont site slopes gently to the northeast toward Cedar Creek, an east flowing stream which is located on the northern edge of the Southern Wood Piedmont property, approximately 1500 feet north of the nearest source of hazardous waste, contaminated soil in the drainage ditch (Ref. 2, p.9; Fig. 1). The site lies within the Cape Fear River drainage basin. In the vicinity of the site precipitation averages 7 inches per year (Ref. 35). The two-year 24-hour rainfall is 3.5 inches (Ref. 26).

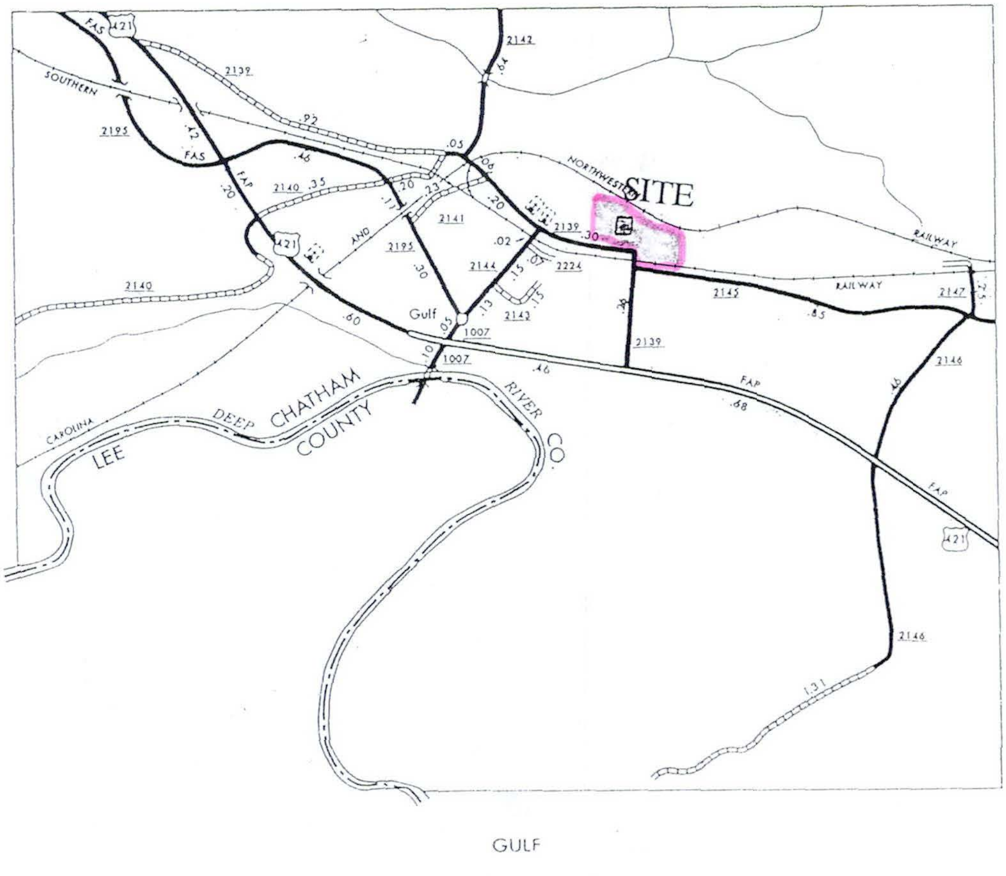
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
GOLDSTON QUADRANGLE
NORTH CAROLINA
7.5 MINUTE SERIES (TOPOGRAPHIC)
STATE OF NORTH CAROLINA
DEPARTMENT OF NATURAL AND ECONOMIC RESOURCES
RALEIGH, NORTH CAROLINA
COLON QUADRANGLE
NORTH CAROLINA
7.5 MINUTE SERIES (TOPOGRAPHIC)
MERRY OAKS, N. C.
(FORMERLY NEW HOPE DAM)
N3537.5—W7900/7.5
1969
PHOTOREVISED 1981
DMA 5155 II NE—SERIES V842
MONCURE, N. C.
N3530—W7900/7.5
1970
PHOTOREVISED 1981
DMA 5155 II SE—SERIES V842
4 MILES
3 MILES
2 MILES
1 MILE
0.5 MILE
0.25 MILE
SITE
PPE
5M
Goldston
Cumnock
Sanford
Carbonton
SOUTHERN WOOD PIEDMONT
(GULF) SITE
NCD 053 488 557
UTHERN WOOD PIEDMONT
(GULF) SITE
NCD 053 488 557
Figure 1
Ref. 3
NEAREST PRIVATE WELL
NEAREST RESIDENCE
GOLDSTON-GULF INTAKE
LEE COUNTY INDUSTRIAL INTAKE
SENSITIVE ENVIRONMENTS
NOTROPIS MEKISTOCHOLAS
COLLINSONIA TUBEROSA
ENEMION BITERNATUM
PORTERANTHUS STIPULATUS
PTILIMNIUM NODOSUM
WETLANDS
PE PROBABLE POINT OF ENTRY TO SURFACE WATER
5M END OF 15-MILE SURFACE WATER PATHWAY
SURFACE WATER PATHWAY
GOLDSTON-GULF WATER LINES
LEE COUNTY WATER LINES
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, USCE, and North Carolina Geodetic Survey
Topography by photogrammetric methods from aerial photographs taken 1965. Field checked 1970
Polyconic projection. 1927 North American datum
10,000-foot grid based on North Carolina coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
The difference between 1927 North American Datum and North American Datum of 1983 (NAD 83) for 7.5-minute intersections is given in USGS Bulletin 1875. The NAD 83 is shown by dashed corner ticks
Map photoinspected 1980
No major culture or drainage changes observed
UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
SCALE 1:24 000
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
QUADRANGLE LOCATION
ROAD CLASSIFICATION
Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route
GOLDSTON, N. C.
35079-E3-TF-024
1970
PHOTOINSPECTED 1980
DMA 5155 III SE—SERIES V842
Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs taken 1965. Field checked 1970
Polyconic projection. 10,000-foot grid ticks based on North Carolina coordinate system. 1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 12 meters south and 22 meters west as shown by dashed corner ticks
Revisions shown in purple and woodland compiled in cooperation with State of North Carolina agencies from aerial photographs taken 1980 and other sources. This information not field checked. Map edited 1981
UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
COLON, N. C.
N3530—W7907.5/7.5
1970
PHOTOREVISED 1981
DMA 5155 II SW—SERIES V842

Figure 2

SOUTHERN WOOD PIEDMONT
(GULF) SITE
NCD 053 488 557

SITE LOCATION MAP



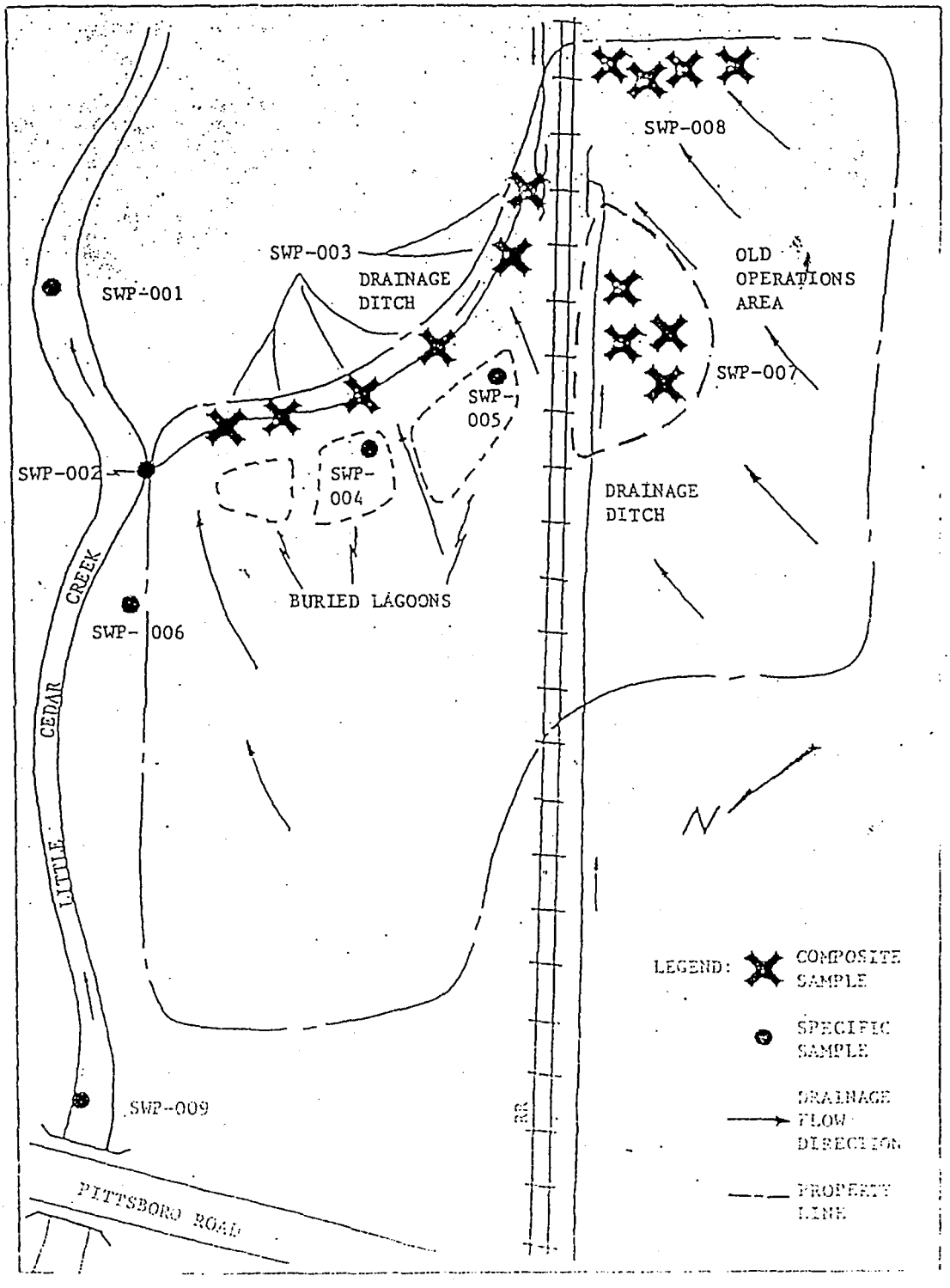


GULF

Figure 3

SOUTHERN WOOD PIEDMONT
(GULF) SITE
NCD 053 488 557

SITE LAYOUT SKETCH 1983 EPA SAMPLING LOCATIONS
(ADAPTED FROM REFERENCE 2)



2.3 Regulatory History

At the site, Southern Wood Piedmont operated a wood treating plant from 1946 until 1980 using creosote, chromated copper arsenate, and pentachlorophenol. The wastes were handled by an 8000 gallons per day (GPD) non-discharge waste treatment facility which included storage-settling ponds, aeration lagoons, and a 40-acre spray irrigation area (N.C. Permit Numbers 3931 and 3931-R, effective from August 1976 until June 1981) (Ref. 7; 29, p.3).

In 1980, the wood treating facility was closed by dismantling the plant, by evaporating the liquids remaining in the lagoons by increased spray irrigation, and by regrading and seeding the land (N.C. Permit Number 3931-R) (Ref. 7). In 1981, the company filed a Notification of Hazardous Waste Site (CERCLA 103 (C)) with the EPA (Ref. 5).

Prior to the construction of the non-discharge treatment system described above, the facility operated under Permit Number 8132, from the N.C. Department of Natural and Economic Resources, for the discharge of effluent from an on-site wastewater treatment facility, consisting of oil separators and holding ponds, into Cedar Creek (Ref. 33). The application for Permit Number 8132 was dated April 5, 1974. The permit was in effect until June 1976 (Ref. 29, p.3).

In July of 1983 Mr. Charles Oldham, owner of property adjacent to the site, served notice of intent to sue. The intent statement included the following claim. "A black liquid has and now continues to bubble to the surface at the site of the former Southern Wood Piedmont Company plant and this black liquid now continues to leak into a free flowing stream that then runs through the property of..." the owner of the adjacent property (Ref. 20).

2.4 Operational History and Waste Characteristics

The site is located on property that housed a wood preserving facility from 1946 until 1980. Various wood preservatives were used in the operation, including chromated copper arsenate and pentachlorophenol, but creosote was the major preservative utilized. Process equipment for the wood treating plant were dismantled and removed. The site and process waste lagoons were covered with fill (Ref. 2, p.1; 30). In 1990 approximately 35,000 tons of soil contaminated with K001 waste was removed from the site to an incineration facility in Louisiana (Ref. 28, pp. 2,5,6).

In August, 1980, the Southern Wood Piedmont Company submitted to the Water Quality Section of the North Carolina Department of Natural Resources and Community Development (NRCD) a request for permission to evaporate water from its water pollution control project by spraying it onto 40 acres of the site property. Included with the request, the company submitted analytical results for water from the flocculation pond used to collect the runoff from approximately 6 acres of grassed land which had been irrigated with effluent from two aerated lagoons (Ref. 34, p.1).

On-site sources of contamination include soils in the drainage ditch, operations area, buried lagoons, and land application area. The area of the drainage ditch was approximated as 1100 square feet by estimating the length of the ditch to be 550 feet from a scale map of the site and assuming a width of approximately two feet (Ref. 29, p.14). One buried lagoon volume was estimated as 293 cubic yards and another as 2950 cubic yards by determining the areas of the lagoons from the scale site map and depths from data given in the EPA site investigation report (Ref. 2, p.3; 29, p. 14). A minimum value of one square foot of soil was used in evaluating the contaminated soil in the old operations area as a source. In the case of the land application area, it was assumed that the entire 40 acres allowed by N.C. Permit 3931-R was utilized (Ref. 7, p.3).

3.0 WASTE/SOURCE SAMPLING

3.1 Sampling Locations

As mentioned above, the Southern Wood Piedmont Company collected water samples for analysis from the flocculation pond included in its waste treatment system and submitted data from that analysis in August, 1980 (Ref. 34, p.1).

In January of 1982 sediment and surface water samples were collected by representatives of the North Carolina Department of Natural Resources and Community Development (NRCD) on and near the site (Ref. 21, p.1).

In September of 1983, a site investigation was performed by the EPA. Sampling was performed to identify sources and determine migration of hazardous substances. The EPA sampled soil from the old lagoon areas and from the drainage ditch that carries runoff into Cedar Creek. They also sampled Cedar Creek sediment upstream and downstream of the confluence of the drainage ditch and Cedar Creek, sediment at the confluence, and soil from the creek floodplain adjacent to the site. Table I provides a description of locations for samples collected during this investigation. Sampling locations are illustrated in Figure 3 (Ref. 2, p.9).

In April of 1988, the Southern Wood Piedmont Company filed a Notification of an Inactive Hazardous Substance or Waste Disposal Site with the N.C. Superfund Section. The notification included data from analyses performed on 3 wells on the site from 1978 to 1980 (Ref. 29, pp.19-21).

3.2 Analytical Results

Analytical results from the 1980 analyses of effluent from the flocculation pond sampled by the Southern Wood Piedmont Company, revealed a high of 0.32 mg/l phenols (Ref. 34, p.5).

Analytical results from the 1982 NRCD investigation revealed the presence of the metals arsenic, chromium, copper, lead, and mercury in surface water and sediments. A number of organic compounds were detected but not quantified. These included several polynuclear aromatic hydrocarbons (PAH's) such as anthracene, chrysene, napthalene, phenanthrene, and fluoranthene. Phenols were also detected, including pentachlorophenol, tetrachlorophenol, methylphenol and phenol (Ref. 21, pp.5-22).

SOUTHERN WOOD PIEDMONT
(GULF) SITE
NCD 053 488 557

TABLE I

1983 EPA SAMPLING LOCATIONS
9/21/83
(ADAPTED FROM REFERENCE 2)

FIELD I.D.	DESCRIPTION	DEPTH	TYPE
SWP-001	CEDAR CREEK DOWNSTREAM FROM SITE	SURFACE	SEDIMENT
SWP-002	CONFLUENCE OF DRAINAGE DITCH AND CEDAR CREEK	SURFACE	SEDIMENT
SWP-003	DRAINAGE DITCH	SURFACE	SOIL
SWP-004	OLD LAGOON #6	7' TO 7.5'	SOIL
SWP-005	OLD LAGOON #5	5' TO 6'	
SWP-006	CEDAR CREEK FLOOD-PLAIN, NORTH SIDE OF SITE	SURFACE	SOIL (BACKGROUND)
SWP-007	OLD OPERATIONS AREA	SURFACE	SOIL
SWP-008	SE EDGE OF SITE	SURFACE	SOIL
SWP-009	CEDAR CREEK AT PITTSBORO ROAD BRIDGE	SURFACE	SEDIMENT (BACKGROUND)

Analytical results of the 1983 EPA investigation indicate that, with the exception of the sample from the southeast edge of the site (SWP-008), all of the samples contained organic compounds, including PAH's and pentachlorophenol, that were positively identified and quantified with concentrations ranging from 1100 ug/kg to 2,900,000 ug/kg. All of the organic compounds detected during the EPA investigation are associated with wood preserving. The off-site sediment samples collected in Cedar Creek and the adjacent floodplain contained many of the same organic compounds that were detected in the on-site soil samples, but in lower concentrations ranging from 2,200 ug/kg to 19,000 ug/kg. Chromium was found in soil in the drainage ditch at levels significantly above background. Analytical results are summarized in Tables II, III, and IV (Ref. 5; 2, pp.6,7,9).

3.3 Conclusions

Analytical data obtained in 1982 and 1983 indicate that contamination from wood treating chemicals existed in the soil in the old lagoon areas and along the drainage ditch on the site, as well as in sediment in Cedar Creek and soil in the floodplain of the Creek. Ground water contamination on site, which may have contributed to contamination in the surface water pathway, has been documented for the years 1978-1980.

4.0 GROUND WATER PATHWAY

4.1 Hydrogeologic Setting

The Southern Wood Piedmont site is located in the Piedmont physiographic province in southeastern Chatham County. The topography of Chatham County is similar to that of other counties in the North Carolina Piedmont. The upland surface generally slopes toward the southeast and is submaturely dissected by southeastward-flowing antecedent streams. A topographic lowland has developed on the Triassic rocks in the eastern and southeastern parts of the county. The eastern and south-central parts of Chatham County are underlain by rocks of Triassic age. These rocks include maroon to gray arkosic sandstones, siltstones, shales and fanglomerates. The Triassic rocks dip to the southeast where they abut against the Jonesboro fault. The Triassic rocks as well as the surrounding volcanic-sedimentary terrane have been intruded by diabase dikes of Triassic Age (Ref. 6, pp.66-67).

The rocks on site are associated with the Cumnock formation of the Deep River basin, a geologic belt which lies along the eastern edge of the Piedmont Plateau in Chatham County. The Deep River basin is a part of the Newark group of Upper Triassic age. The rocks consist of fine-grained siltstones and sandstones. The upper portions (west) of the site along the drainage ditch and railroad cuts revealed outcrops of siltstone and sandstone. The rocks in the middle and lower portions of the site have been decomposed by differential weathering. The soils on site are silt and clay sandy loams (Ref. 2, p.2).

ANALYTICAL DATA SUMMARY, SOIL AND SEDIMENT SAMPLES
SOUTHERN WOOD PIEDMONT, GULF, NORTH CAROLINA, NCD 053 488 557

TABLE II. INORGANIC CHEMISTRY (MG/KG)

	SEDIMENT SAMPLE SWP-001	SEDIMENT SAMPLE SWP-002	SOIL SAMPLE SWP-003	SOIL SAMPLE SWP-004	SOIL SAMPLE SWP-005	SOIL SAMPLE SWP-006*	SOIL SAMPLE SWP-007	SOIL SAMPLE SWP-008	SEDIMENT SAMPLE SWP-009*
SILVER	2.5	3.2	2.9	1.6	0.99	1.5	2.7	2.1	1.4
ARSENIC	**7.9**	4.6	6.6	5.6	4.4	3.8	5.9	3.5	2.1
BARIUM	81	**120**	93	45	56	44	46	100	29
BERYLLIUM	---	---	0.32	0.38	1.1	0.46	0.4	0.3	---
CADMIUM	---	---	---	---	---	---	---	0.08	---
COBALT	10	**24**	12	9.4	15	15	9.2	11	5.4
CHROMIUM	**22**	**28**	**26**	7.4	6.3	7.2	9.7	13	4.6
COPPER	**17**	**29**	18	12	15	12	20	18	3.9
NICKEL	**26**	**43**	20	14	20	16	11	14	2.3
LEAD	20	23	20	15	13	15	19	21	8.9
TIN	19X	21X	13X	11X	11X	9.1X	7.7X	9.5X	3.3X
VANADIUM	23	34	25	---	---	---	14	19	12
ZINC	22	24	25	42	50	37	30	36	13
ALUMINUM	**9700**	**12000**	8800	5800	4900	5400	6600	6400	3200
MANGANESE	290	560	270	160	160	220	160	940	260
IRON	16000	22000	20000	11000	7500	10000	18000	14000	9500

X=VALUE IS SUSPECT ---=BELOW DETECTION LIMIT BOLD= >3X BACKGROUND

NOTES: *SAMPLE SWP-006 IS BACKGROUND SOIL; SWP-009 IS BACKGROUND SEDIMENT.

REFERENCE: SOUTHERN WOOD PIEDMONT, HAZARDOUS WASTE INVESTIGATION, GULF, NORTH CAROLINA, EPA ID NO. NCD 053 488 557 ESD NO. 83-190, MAY 31, 1984.

ANALYTICAL DATA SUMMARY, SOIL AND SEDIMENT SAMPLES
SOUTHERN WOOD PIEDMONT, GULF, NORTH CAROLINA, NCD 053 488 557

TABLE III. EXTRACTABLE ORGANIC COMPOUNDS (UG/KG) PAGE 1 OF 2

	SEDIMENT SAMPLE SWP-001	SEDIMENT SAMPLE SWP-002	SOIL SAMPLE SWP-003	SOIL SAMPLE SWP-004	SOIL SAMPLE SWP-005	SOIL SAMPLE SWP-006*	SOIL SAMPLE SWP-007	SOIL SAMPLE SWP-008	SEDIMENT SAMPLE SWP-009*
NAPTHALENE	---	---	---	1900000	1300000	---	320000	---	---
ACENAPHTYLENE	---	---	500J	70000J	61000J	360J	37000J	---	1200J
ACENAPHTHENE	---	---	---	1200000	910000	---	490000	---	---
FLUORENE	700J	480J	1100J	1800000	1200000	---	690000	---	340J
PHENANTHRENE	1300J	1400J	2000J	2900000	2000000	450J	1000000	---	2500
ANTHRACENE	3800	2200	8300	880000	590000	4300	250000	---	3800
FLUORANTHENE	3000	4100	16000	1400000	1100000	1200J	1100000	---	14000
PYRENE	2200	3100	12000	1000000	780000	1400J	710000	---	13000
BENZO(A)ANTHRACENE	---	1600J	3900	190000J	15000J	900J	150000	---	5700
CHRYSENE	2600	4300	10000	260000	180000J	2700	260000	---	19000
BENZO(B)FLUORANTHENE	2000J	---	7900	140000J	110000J	2200	150000	---	13000
BENZO-A-PYRENE	---	1600J	3200	77000J	50000J	1300J	53000	---	9100
INDEO(1,2,3-C,D)PYRENE	---	---	---	---	---	---	---	---	4400
DIBENZO(A,H)ANTHRACENE	900J	---	---	---	---	---	---	---	---
BENZO(G,H,I)PERYLENE	---	---	---	---	---	---	---	---	3000
PENTACHLOROPHENOL	---	---	11000	---	---	---	770000	---	---
C2 ALKYLNAPTHALENE (4 ISOMERS)	---	---	---	800000JN	---	---	---	---	---
CARBAZOLE	---	---	---	300000JN	250000JN	---	---	---	---
1-METHYLNAPHTHALENE	---	---	---	600000JN	500000JN	---	200000JN	---	---
BIPHENYL	---	---	---	400000JN	300000JN	---	100000JN	---	---
C2 ALKYLNAPHTHALENE (2 ISOMERS)	---	---	---	---	500000JN	---	300000JN	---	---

TABLE III. PAGE 2 OF 2	SEDIMENT SAMPLE SWP-001	SEDIMENT SAMPLE SWP-002	SOIL SAMPLE SWP-003	SOIL SAMPLE SWP-004	SOIL SAMPLE SWP-005	SOIL SAMPLE SWP-006*	SOIL SAMPLE SWP-007	SOIL SAMPLE SWP-008	SEDIMENT SAMPLE SWP-009*
METHYLDIBENZOFURAN	---	---	---	---	---	---	100000JN	---	---
METHYLBIPHENYL	---	---	---	---	---	---	100000JN	---	---
METHYLPHENANTHRENE	---	---	---	250000JN	---	---	300000JN	---	---
CYCLOPENTA(D,E,F)PHENANTHRENE	---	---	---	250000JN	250000JN	---	400000JN	---	---
PETROLEUM PRODUCT	---	---	---	N	N	---	N	---	---
DIBENZOFURAN	---	---	290J	**1000000**	**700000**	---	**330000**	---	---
2-METHYL NAPHTHALENE	---	---	---	**1400000**	**1100000**	---	**250000**	---	---

J=ESTIMATED VALUE ---=BELOW DETECTION LIMIT BOLD= >3X BACKGROUND
N=PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL

NOTES: *SAMPLE SWP-006 IS BACKGROUND SOIL; SWP-009 IS BACKGROUND SEDIMENT.

REFERENCE: SOUTHERN WOOD PIEDMONT, HAZARDOUS WASTE INVESTIGATION,
GULF, NORTH CAROLINA, EPA ID NO. NCD 053 488 557
ESD NO. 83-190, MAY 31, 1984.

ANALYTICAL DATA SUMMARY, SOIL AND SEDIMENT SAMPLES
SOUTHERN WOOD PIEDMONT, GULF, NORTH CAROLINA, NCD 053 488 557

TABLE IV. PURGEABLE ORGANIC COMPOUNDS (UG/KG)

	SEDIMENT SAMPLE SWP-001	SEDIMENT SAMPLE SWP-002	SOIL SAMPLE SWP-003	SOIL SAMPLE SWP-004	SOIL SAMPLE SWP-005	SOIL SAMPLE SWP-006	SOIL SAMPLE SWP-007	SOIL SAMPLE SWP-008	SEDIMENT SAMPLE SWP-009*
BENZENE	---	---	---	100J	430J	---	---	---	---
TOLUENE	---	---	---	**1600**	**2500**	---	100J	---	---
ETHYL BENZENE	---	---	---	**1100**	**2000**	---	100J	---	---
1 UNIDENTIFIED TERPENE	---	---	---	10000JN	10000JN	---	---	---	---
TRIMETHYLCYCLOHEXANONE	---	---	---	1000JN	1000JN	---	---	---	---
TOTAL XYLENES	---	---	---	**9600**	**10000**	---	300J	---	---
6 UNIDENTIFIED TERPENES	---	---	---	---	---	---	5000JN	---	---
CYCLOHEXANONE	---	---	---	---	---	20JN	---	10JN	---
ACETONE	---	---	---	**2700**	**3800**	---	---	---	---
STYRENE	---	---	---	900J	**2000**	---	100J	---	---
TETRAHYDROFURAN	10JN	10JN	10JN	100JN	100JN	20JN	100JN	20JN	20JN

J=ESTIMATED VALUE ---= BELOW DETECTION LIMIT BOLD= >3X BACKGROUND
N=PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL

NOTES: *SAMPLE SWP-006 IS BACKGROUND SOIL; SWP-009 IS BACKGROUND SEDIMENT.

REFERENCE: SOUTHERN WOOD PIEDMONT, HAZARDOUS WASTE INVESTIGATION,
GULF, NORTH CAROLINA, EPA ID NO. NCD 053 488 557
ESD NO. 83-190, MAY 31, 1984.

Boring logs and a map were prepared at the site in 1987 as part of an effort to secure permission to remove contaminated clay from the site for use in making bricks. In the boring logs, it is noted that the odor of creosote occurs at various depths from the surface to a depth of 26'. Water, moisture, and wet clay were noted at depths ranging from 8' to 30' (Ref. 22).

Drilled wells in Chatham County obtain their water from fractures, planes of schistosity, and other secondary openings below the water table. Sixty-four wells in the Triassic unit in the county have an average depth of 97.7 feet. For the three wells closest to the site, the water-bearing material is Triassic rock. Three wells within a 1.5-mile radius of the site have an average depth of 151 feet. Depth to water level for these wells averages 26.7 feet (Ref. 6, pp.69,83-84). Average water level in Chatham County is 24.2 feet below land surface (Ref. 6, p.70).

4.2 Targets

There are no known community wells within a 4-mile radius of the site (Refs. 16, 17; Fig.1). There are no wellhead protection areas in the vicinity of the site (Ref. 23). In the EPA site investigation report, it was stated that there were no private wells in the immediate vicinity of the site (Ref. 2, p.1). Further investigation, however, has revealed that there may be several local residents who have not yet chosen to connect their homes to the municipal water supply (Ref. 31). The Notification of an Inactive Hazardous Substance or Waste Removal Site filed by Southern Wood Piedmont in 1988 indicates that a private well was located within a 1-mile radius of the site (Ref. 29, p.10). From review of the topographic map and water line maps, it appears that the nearest private well is at a residence located within a 0.5-mile radius of the site (Fig. 1).

The area within a 4-mile radius of the site is served by the Goldston-Gulf Sanitary District and an industrial intake of the Lee County Municipal Water Supply Service. These systems obtain surface water from intakes on the Deep River which are outside the 15-mile surface water pathway (Ref. 12, p.1). A house count and review of water line maps obtained for this SIP indicate that there are an estimated 844 persons within a 4-mile radius of the site using ground water as a source of drinking water (Refs 11, 12). The ground water population is apportioned as shown in Table V (Ref. 16).

4.3 Sample Locations

No ground water samples were collected during the 1983 EPA site investigation (Ref. 2, p.1) A representative of the Southern Wood Piedmont Company has indicated that monitoring wells have been installed at the site and that ground water contamination exists, but that the contamination is believed to be confined to the site property (Ref. 30). Ground water samples from wells on the site were taken in 1978, 1979, and 1980 (Ref. 29, pp.19-21).

4.4 Analytical Results

No ground water samples were collected during the 1983 EPA site investigation (Ref. 2, p.2) or during the earlier NRCD investigation (Ref. 21). Analytical results for samples taken by Southern Wood Piedmont in 1978, 1979, and 1980 from the wells on the site indicate levels of phenols (maximum of 23 ppb) that were considerably higher than the current N.C. ground water standard (1 ppb) (Ref. 29, pp.19-21; 32, pp.1,3). No analytical data from monitoring wells reportedly installed by the Southern Wood Piedmont Company have been made available to the N.C. Superfund Section to date (Ref. 30).

4.5 Conclusions

From 1978 to 1980, analytical data for samples from on-site wells revealed levels of phenols above the current ground water standard. It is quite likely that hazardous substances have been released from the old lagoons and contaminated soil to ground water beneath the site. Analytical data from monitoring wells and private wells in the vicinity of the site are needed for comprehensive evaluation of ground water contamination.

5.0 SURFACE WATER PATHWAY

5.1 Hydrologic Setting

Surface runoff from the site follows a drainage ditch to a probable point of entry to surface water (PPE) at Cedar Creek about 1500 feet north of an area of contaminated soil on the property (Ref. 2, pp.2,9; Fig. 1). From the PPE, Cedar Creek flows to the east approximately 2 miles to its confluence with the Deep River. The Deep River continues in a generally northeasterly direction for about 13 miles to the end of the 15-mile surface water pathway, approximately 0.5 mile north of U.S. Highway 1 and west of the town of Moncure (Fig. 1). The flow rate for Cedar Creek near the site is approximately 4.6 cubic feet per second (cfs). The flow rate for the Deep River in the 15-mile target distance limit is about 1146 cfs (Ref. 9). The site is located outside the 500-year floodplain (Ref. 10).

5.2 Targets

There are no surface water intakes within 15 miles downstream of the site (Refs. 12, 16, 17). The intake for the Goldston-Gulf Sanitary District is located on the Deep River at Highway 421 and State Road 1007, upstream of the PPE (Ref. 11; Fig.1). The city of Sanford is served by an intake on the Cape Fear River, beyond the 15-mile surface water pathway target distance limit to the east (Ref. 12)

An investigation of N.C. Natural Heritage Program data revealed several sensitive environments in the 15-mile surface water pathway. Four habitats of the fish Notropis mekistocholas, or Cape Fear Shiner, an endangered species at both the U.S. and N.C. levels, were noted. These 4 habitats are located within a 4 mile portion of the Deep River ranging from

about 10.5 miles to 14.5 miles downstream of the PPE. Ptilimnium noduosum, or Harperella, an endangered plant species at both the U.S. and N.C. levels, occurs in the 15-mile surface water pathway at about 12 miles downstream of the PPE. Enemion biternatum, or Eastern Isopyrum, which is classified Significantly Rare at the N.C. level, is also found within the surface water target distance limit at about 12.5 miles downstream of the PPE (Ref. 13; Fig.1,4).

Wetlands occur at the PPE and continue for approximately 0.3 mile downstream. Other areas of wetlands occur intermittently for the remainder of the 15-mile surface water pathway. The total wetlands frontage adjacent to the 15-mile surface water pathway is about 7 miles (Ref. 14; Figs. 1,4).

The PPE is located at Cedar Creek. About 2 miles downstream from the PPE, Cedar Creek enters the Deep River (Figs. 1, 4). Cedar Creek has reportedly not been fished for several years and is not considered a fishery for purposes of this SIP, although it is easily accessible from bridges and may be lightly fished by local people. The Deep River is a fishery with heavy fishing pressure (Ref. 15).

The remaining 13 miles of the 15-mile surface water pathway consist of a portion of the Deep River (Figs. 1, 4). Cedar Creek is classified class "C", to be protected for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. The Deep River within the 15-mile surface water pathway pertinent to the site is divided into segments classified either "C" or "WS-IV", to be protected as water supplies which are generally in moderately to highly developed watersheds and suitable for all Class C uses (Ref. 19)

5.3 Sample Locations

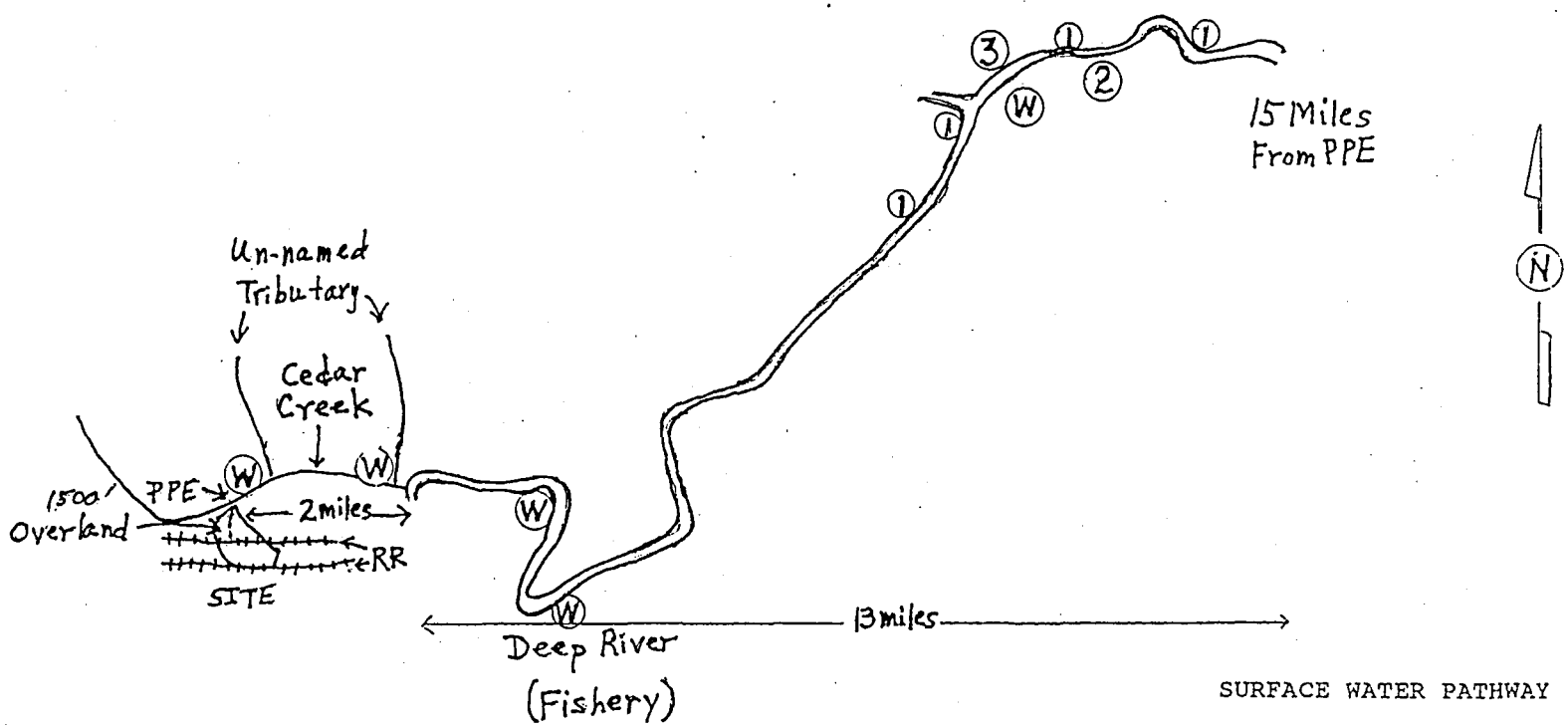
During the EPA investigation in September of 1983, sampling was performed to identify on-site sources and to determine migration paths of hazardous substances. The EPA sampled soil from the old lagoon areas, from the drainage ditch that carries runoff into Cedar Creek, and from the old operations area. They also sampled Cedar Creek sediment upstream and downstream of the confluence of the drainage ditch and Cedar Creek, sediment at the confluence, and soil from the creek floodplain adjacent to the site. Table I outlines locations for samples collected during the EPA investigation. Sampling locations are illustrated in Figure 3 (Ref. 2, pp.6,9).

5.4 Analytical Results

Analytical results from the EPA SI report indicate significantly elevated levels (greater than three times background level) of several metals, including arsenic, chromium, copper, nickel, and aluminum in sediment in the surface water pathway downstream of the confluence of the drainage ditch with Cedar Creek. Significantly elevated levels of barium, cobalt, chromium, copper, nickel, and aluminum were found in sediment at the PPE (Tables II, III, and IV) (Ref. 2, p.6).

Figure 4

SOUTHERN WOOD PIEDMONT
(GULF) SITE
NCD 053 488 557



SURFACE WATER PATHWAY

NOT TO SCALE

PPE PROBABLE POINT OF ENTRY

W WETLANDS

1. NOTROPIS MEKISTOCHOLAS

2. ENEMION BITERNATUM

3. PTILIMNIUM NODOSUM

SOUTHERN WOOD PIEDMONT (GULF)
NCD 053 488 557

TABLE V

POPULATION WITHIN FOUR-MILE RADIUS OF SITE

MILE RADIUS	GROUND WATER POPULATION (REF. 16)	TOTAL POPULATION PER RING (REF. 24)	TOTAL POPULATION CUMULATIVE (REF. 24)
0-0.25	0	27	27
>0.25-0.5	8	60	87
>0.5-1.0	50	103	190
>1.0-2.0	66	227	417
>2.0-3.0	123	464	881
>3.0-4.0	605	1052	1933
	TOTAL: 844	TOTAL:	3535

Analytical data also indicate that, with the exception of the soil sample from the southeast edge of the site (SWP-008), all of the soil and sediment samples collected by EPA in 1983, including an upstream sediment sample (SWP-009) contained organic compounds that were associated with wood preserving. These compounds include several PAH's and pentachlorophenol. The concentrations of these compounds ranged from 1100 ug/kg to 2,900,000 ug/kg. The off-site sediment samples collected in Cedar Creek and soil collected from the adjacent floodplain (SWP-006) contained many of the same organic compounds that were detected in the on-site sediment and soil samples, but in lower concentrations ranging from 2,200 ug/kg to 19,000 ug/kg. Analytical results are summarized in Tables II, III, and IV (Ref. 5; 2, p.7).

5.5 Conclusions

Analytical data for samples taken for the 1983 EPA investigation indicate that contamination from wood treating chemicals, including a significant concentration of chromium, existed in the soil in the drainage ditch as well as in sediment from Cedar Creek. Cedar Creek is a wetland in the area of the PPE, and there is evidence of significantly elevated levels of chromium in sediment at the PPE. Thus, an observed release of chromium to a wetland has been documented.

6.0 SOIL EXPOSURE AND AIR PATHWAYS

6.1 Physical Conditions

The site includes a number of backfilled lagoons and contaminated soil on property that once housed a wood preserving facility. Various wood preservatives were used in the operation, but creosote was the major preservative utilized. Process equipment for the wood treating plant was dismantled and removed. Process waste lagoons were covered with fill (Ref. 2, p.1). In 1990, approximately 35,000 tons of contaminated soil excavated from dry lagoons was removed to an incineration facility in Louisiana (Ref. 28, pp.2,5,6). There is no indication in available reports that the site has ever been securely fenced, although it is reportedly cordoned off along State Road 2139 and warning signs are posted (Ref. 25).

6.2 Soil and Air Targets

It is estimated that one hundred ninety (190) persons live within a 1-mile radius of the site. There is an estimated total population of 1,933 persons within a 4-mile radius. This population is apportioned as shown in Table V (Ref. 24).

There are an estimated 275 acres of wetlands within a 4-mile radius of the site (Ref. 14). There are no terrestrial sensitive environments within a 4-mile radius of the site (Ref. 13). There are, however, habitats of two plant species, classified as listed below and shown on the topographic map, that are located within a 4-mile radius of the site (Ref. 13; Fig.1).

Plant species and classification:

(1) Collinsonia tuberosa, or Piedmont Horsebalm, Candidate for Endangered at the N.C. level

(2) Porteranthus stipulatus, or Indian Physic, Significantly Rare at the N.C. level

6.3 Soil Sample Locations

During the EPA site investigation in 1983, the EPA sampled soil from several depths below land surface (greater than 5 feet) in the old lagoon areas, surface soil from the drainage ditch that carries runoff into Cedar Creek, surface soil from the old operations area, and surface soil from the floodplain of Cedar Creek adjacent to the site (Ref. 2, pp.3-4). Table I provides a description of locations for samples collected during this investigation (Ref. 2, p.9). Sampling locations are illustrated in Figure 3.

6.4 Soil Analytical Results

Analytical results for the soil samples taken in the 1983 EPA investigation indicate that, with the exception of the sample from the southeast edge of the site (SWP-008), on-site soil samples contained organic compounds including several PAH's and pentachlorophenol with concentrations ranging from 1100 ug/kg to 2,900,000 ug/kg. All of the organic compounds detected during this site investigation were associated with wood preserving. The off-site sediment samples collected in Cedar Creek and soil from the adjacent floodplain contained many of the same organic compounds that were detected in the on-site sediment and soil samples, but in lower concentrations ranging from 2,200 ug/kg to 19,000 ug/kg. Chromium was found in significantly elevated levels above background in soil in the drainage ditch. Analytical results are summarized in Tables II, III, and IV (Ref. 2, p.7).

6.5 Air Analytical Results

There is no mention of air monitoring activities at the site during the 1983 EPA site investigation (Ref. 2)

6.6 Conclusions

There is no indication in available reports that the site is securely fenced, although it is reportedly cordoned off along State Road 2139 and warning signs are posted there. As part of the permitted waste treatment process, water from the waste lagoons was applied to the land by spraying it onto about 40 acres of the site, producing contaminated soil. In 1991 approximately 35,000 tons of contaminated soil were reportedly removed from the site. This removal was not an EPA authorized removal. No analytical data supporting adequate removal of contaminated soil to depths necessary to achieve any clean-up standards have been made available to the N.C. Superfund Section. Data from this reported removal may impact future consideration of the soil

exposure pathway in evaluation of the site.

7.0 SUMMARY AND CONCLUSIONS

The Southern Wood Piedmont company operated a wood treating plant from 1946 until 1980 using creosote, chromated copper arsenate, and pentachlorophenol at the site. Wastes from the wood preserving process were treated using storage-settling ponds, aeration lagoons, and a spray irrigation system for land application of effluent. In 1980, the facility was closed by dismantling the plant, by evaporating the liquids remaining in the lagoons by increased spray irrigation, and by regrading and seeding the land. Prior to the construction of the treatment system described above, the facility had discharged effluent into Cedar Creek from an on-site wastewater treatment facility consisting of oil separators and holding ponds.

In January of 1982 sediment and surface water samples were collected by representatives of the NRCD on and near the site. Analytical results for these samples revealed levels of the metals arsenic, chromium, copper, lead, and mercury in surface water and sediments. A number of organic compounds were detected but not quantified. These included several polynuclear aromatic hydrocarbons (PAH's) such as anthracene, chrysene, napthalene, phenanthrene, and fluoranthene. Phenols were also detected, including pentachlorophenol, tetrachlorophenol, methylphenol and phenol.

In September of 1983, a site investigation was performed by the EPA Region IV. Sampling was performed to identify sources and determine migration of hazardous substances. The EPA sampled soil from the old lagoon areas and from the drainage ditch that carries runoff into Cedar Creek. They also sampled Cedar Creek sediment upstream and downstream of the confluence of the drainage ditch and Cedar Creek, sediment at the confluence, and soil from the creek floodplain adjacent to the site.

Analytical results of this EPA investigation indicate that, with the exception of the sample from the southeast edge of the site, all of the samples contained organic compounds that were positively identified and quantified. All of the organic compounds detected were associated with wood preserving. The off-site sediment samples collected in Cedar Creek and soil from the adjacent floodplain contained many of the same organic compounds that were detected in the on-site sediment and soil samples. Levels of chromium significantly above background were found in soil from the drainage ditch.

In April of 1988, the Southern Wood Piedmont Company filed a Notification of an Inactive Hazardous Substance or Waste Disposal Site which included data from analyses performed on 3 wells on the site from 1978 to 1980. Analytical results for these ground water samples indicate levels of phenols that were considerably higher than the current N.C. standard.

An extensive environmental assessment of the site has reportedly been performed for the Southern Wood Piedmont Company. Sampling information and analytical data from that assessment have not yet been made available to the N.C. Superfund Section. No analytical data related to the reported removal of contaminated soil and backfilling at the site by the Southern Wood Piedmont Company have been provided to the N.C. Superfund Section.

In summary, elevated levels of wood preserving chemicals, including arsenic, chromium, copper, and PAH's, were recorded in the surface water pathway in the 1984 EPA site investigation report. Contamination of the surface water pathway with chromium levels significantly above background was documented in this report. Contamination of ground water with phenols has been documented in Southern Wood Piedmont Company analytical data. Ground water contamination has also been acknowledged by a representative of the company. Risk of direct dermal exposure of the public to contaminated soil is likely since the site is not securely fenced. There is no available evidence of a release of contaminants to air, but this may have occurred during removal activities.

Based on the above factors, it is recommended that a status of high priority for an Expanded Site Inspection be assigned to the Southern Wood Piedmont (Gulf) site.

LIST OF REFERENCES
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NCD 053 488 557
Site Inspection Prioritization

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Federal Register

Friday
December 14, 1990

Part II

Environmental Protection Agency

40 CFR Part 300
Hazard Ranking System; Final Rule

SOUTHERN WOOD PIEDMONT
HAZARDOUS WASTE INVESTIGATION
GULF, NORTH CAROLINA
EPA ID NO. NC0053488557
ESD NO. 83-190
MAY 31, 1984

INTRODUCTION

A hazardous waste site investigation was conducted at the Southern Wood Piedmont site in Gulf, North Carolina, on September 21, 1983, by Messrs. Charles Till and Ted Vaughan of the US-EPA, Region IV, Environmental Services Division (ESD). This investigation was requested by the US-EPA, Region IV, Air and Hazardous Materials Division (AHMD). Mr. Ed Gibbs, representing Southern Wood Piedmont and Mr. Tom Karnoski, representing the North Carolina Department of Human Resources (NC-DHR) were present during the investigation.

The site is an abandoned landfill that was once used as a wood preserving facility. The process equipment has been dismantled and removed. After the process equipment was removed, the site and the process waste lagoons were covered with fill. Various wood preservatives were used in the operation, but creosote was the major preservative utilized.

The objective of the investigation was to determine if hazardous wastes were migrating off-site via surface drainage. Soil samples were collected from selected locations on and off-site. Surface water samples were not collected because there was no surface water. Groundwater samples could not be collected because there were no known wells (private or public) in the immediate vicinity of the site. Temporary monitoring wells could not be installed because the water table at the site was approximately 40-50 feet below the ground surface.

SUMMARY

Nine soil and sediment samples were collected from selected locations on and off-site. All of the samples contained organic compounds (except for the sample from the southeast edge of the site, SWP-008) that were positively identified and quantified with concentrations ranging from 1,100 ug/kg to 2,900,000 ug/kg. All of the organic compounds detected during this investigation were associated with wood preserving (i.e., creosote and PCP). The off-site sediment samples collected in Little Cedar Creek and the adjacent floodplain contained many of the same organic compounds that were detected in the on-site sediment and soil samples, but in lower concentrations ranging from 2,200 ug/kg to 19,000 ug/kg.

STUDY AREA

The site is located in the small community of Gulf approximately 10 miles from the town of Sanford, North Carolina (figure 1). The site consists of approximately 80 acres, and is bordered to the north by Little Cedar Creek, to the south by a clay mining operation, to the east by woods and to the west by residential areas. The site is divided into two sections by railroad tracks that run through the site in an east/west direction. The plant's main processing areas were located south of the railroad. All of the waste materials generated from the preserving operations were stored in waste lagoons located in the area north of the railroad track. Almost all of the drainage from the site flows north toward Little Cedar Creek via two on-site interconnecting drainage ditches (figure 2).

Geology

The rocks on site are associated with the Cumnock formation of the Deep River basin geologic belt which lies along the eastern edge of the Piedmont Plateau in Chatham County. This Deep River basin geologic belt is a part of the Newark group of Upper Triassic age. The rocks consist of fine-grained siltstones and sandstones (1). The upper portions (west) of the site along the drainage ditch and railroad cuts revealed outcrops of siltstone and sandstone. The rocks in the middle and lower portions of the site have been decomposed by differential weathering. The soils on-site are silt and clay sandy loams (1). The groundwater table in the area of the site is 40 to 50 feet below the ground surface according to state personnel (Tom Karnoski, NC-DHR). The community of Gulf has it's own water system, so there were no private wells in the vicinity of the site from which to collect groundwater samples. Surface water samples could not be collected because the on-site drainage ditches and Little Cedar Creek (intermittent stream) were dry.

RESULTS AND DISCUSSION

During this investigation nine soil and sediment samples were collected. Five of the nine samples were collected on site. The remaining four samples were collected off-site in Little Cedar Creek and the Little Cedar Creek floodplain (figure 2). Sampling location descriptions are given in table 1. The analytical data summary is given in table 2. The complete analytical data sheets are included in the Appendix.

The surface soils on-site had been hauled in or moved from different locations on the site making it very difficult to interpret the metals data in terms of original soil and fill material. All of the samples collected contained nearly the same metals with approximately the same range of concentrations (table 2).

All of the extractable organic compounds detected in the samples collected during this investigation were polynuclear aromatic hydrocarbons (coal-tar derivatives) except for pentachlorophenol and its related compounds. The purgeable organic compounds detected are commercial solvents and related compounds which were used in the wood preserving process.

On-Site Sampling Locations

Sampling location SWF-003 was located in the large drainage ditch (that received almost all of the site drainage) on the east side of the site. Drainage collected in this ditch flows north into Little Cedar Creek. A composite sediment sample (SWP-003) was collected in the ditch bed where sediment had been deposited. Pentrachlorophenol (110,000 ug/kg) and seven PNA compounds were positively identified and quantified with concentrations ranging from 3,200 ug/kg to 16,000 ug/kg. Four other PNA compounds were positively identified with estimated concentrations. One purgeable organic compound (tetrahydrofuran) was tentatively identified with an estimated concentration.

Sampling location SWP-004 was located on the east side of the site in the area where the buried waste lagoon no. 6 was reportedly located. The sample was collected from a depth of 7 to 7.5 feet (approximate bottom of lagoon). Ten PNA compounds were positively identified and quantified with concentrations ranging from 260,000 ug/kg to 2,900,000 ug/kg. Ten other PNA compounds were either tentatively identified or positively identified, all with estimated concentrations. Four purgeable organic compounds were positively identified and quantified with concentrations ranging from 1,100 ug/kg to 5,600 ug/kg. Five other purgeable organic compounds were tentatively identified or positively identified, all with estimated concentrations.

Sampling location SWP-005 was located on the east side of the site adja-adjacent to and south of sampling location SW-004. This location was in the approximate area of waste lagoon no. 5. A soil sample (SWP-005) was collected from a depth of 5 to 6 feet (approximate bottom of lagoon). Nine PNA compounds were positively identified and quantified with concentrations ranging from 690,000 ug/kg to 2,000,000 ug/kg. Ten other PNA compounds were tentatively identified or positively identified, all with estimated concentrations. Five purgeable organic compounds were positively identified with quantifiable concentrations ranging from 2,000 ug/kg to 10,000 ug/kg. Four other purgeable organic compounds were tentatively identified or positively identified, all with estimated concentrations.

Sampling location SWP-007 was located on the south central portion of the site south of the railroad. This area was the plant's main operations and processing area. A composite soil sample (SWP-007) was collected from this area. Pentrachlorophenol and eleven PNA compounds were positively identified and quantified with concentrations ranging from 53,000 ug/kg to 1,100,000 ug/kg. Eight other PNA compounds were positively identified or tentatively identified, all with estimated concentrations. Six purgeable organic compounds were positively identified or tentatively identified, all with estimated concentrations.

Sampling location SWP-008 was located on the southeastern portion of the site along the site boundary. This area (used mostly for storage) was selected to determine if waste materials were migrating from the operations area. A composite sediment sample (SWP-008) was collected from various depositional points in this area. The sample contained no PNA compounds. Two purgeable organic compounds were tentatively identified with estimated concentrations (table 2).

Off-Site Sampling

Sampling location SWP-001 was located in Little Cedar Creek approximately 200 feet downstream (downgradient) from the confluence of Little Cedar Creek and the on-site drainage ditch. A sediment sample (SWP-001) was collected from a depositional area in the streambed. Four extractable organic compounds (PNA's) were positively identified and quantified with concentrations ranging from 2,200 ug/kg to 3,800 ug/kg. Four other organic compounds (PNA's) were positively identified with estimated concentrations. One purgeable organic compound (tetrahydrofuran) was tentatively identified with an estimated concentration.

Sampling location SWP-002 was located in Little Cedar Creek where the large on-site drainage ditch drains into Little Cedar Creek. A sediment sample (SWP-002) was collected in a depositional area at this confluence point. Four PNA compounds were positively identified and quantified with concentrations ranging from 2,200 ug/kg to 4,300 ug/kg. Four other PNA compounds were positively identified with estimated concentrations. Tetrahydrofuran (purgeable organic compound) was tentatively identified with an estimated concentration.

Sampling location SWP-006 was located in the Little Cedar Creek floodplain adjacent to the landfill on the north side of the site. This area received direct drainage from the northern edge of the landfill. A sediment sample SWP-006 was collected in the floodplain along the toe of the landfill. Three PNA compounds were positively identified and quantified with concentrations ranging from 2,200 ug/kg to 4,300 ug/kg (table 2). Five other PNA compounds were positively identified with estimated concentrations. Two purgeable organic compounds (cyclohexanone and tetrahydrofuran) were tentatively identified with estimated concentrations.

Sampling location SWP-009 was located in Little Cedar Creek upstream (upgradient) from the site at the Pottsboro Road Bridge (figure 2). Ten PNA compounds were positively identified and quantified with concentrations ranging from 2,500 ug/kg to 19,000 ug/kg. Two other PNA compounds were positively identified with estimated concentrations. Tetrahydrofuran was tentatively identified with an estimated concentration.

METHODOLOGY

All of the soil samples were collected in accordance with standard operating procedures of the Engineering Support Branch, ESD (2). All laboratory analyses were conducted by the Analytical Support Branch, ESD, in accordance with standard procedures and protocols of the Branch (3).

REFERENCES

1. Explanatory Text for Geologic Map of North Carolina, Jasper L. Stuckey and Stephen G. Conrad, Bulletin Number 71, North Carolina Department of Conservation and Development, 1958.

2. Water Surveillance Branch Standard Operating Procedures and Quality Assurance Manual (Draft); U. S. Environmental Protection Agency, Region IV, Surveillance and Analysis Division, August 29, 1980.

3. Analytical Support Branch Operations and Quality Control Manual, U.S. Environmental Protection Agency, Region IV, Environmental Services Division, April 1982.

TABLE 1
SAMPLING LOCATION DATA
SOUTHERN WOOD PIEDMONT
GULF, NORTH CAROLINA

Field I.D.	Date	Time	Description	Depth (Feet)	Type of Sample
SWP-001	9/21/83	1200	Little Cedar Creek downstream from site	Surface	Sediment
SWP-002	9/21/83	1210	Confluence of site drainage ditch and Little Cedar Creek	Surface	Sediment
SWP-003	9/21/83	1215	Large drainage ditch	Surface	Sediment
SWP-004	9/21/83	1315	Old waste lagoon No. 6	7 to 7.5	Soil
SWP-005	9/21/83	1330	Old waste lagoon No. 5	5 to 6	Soil
SWP-006	9/21/83	1315	Little Cedar Creek floodplain, north side of site	Surface	Sediment
SWP-007	9/21/83	1445	Old operations area	Surface	Soil
SWP-008	9/21/83	1540	SE edge of site	Surface	Sediment
SWP-009	9/21/83	1600	Little Cedar Creek at Pittboro Road Bridge	Surface	Sediment

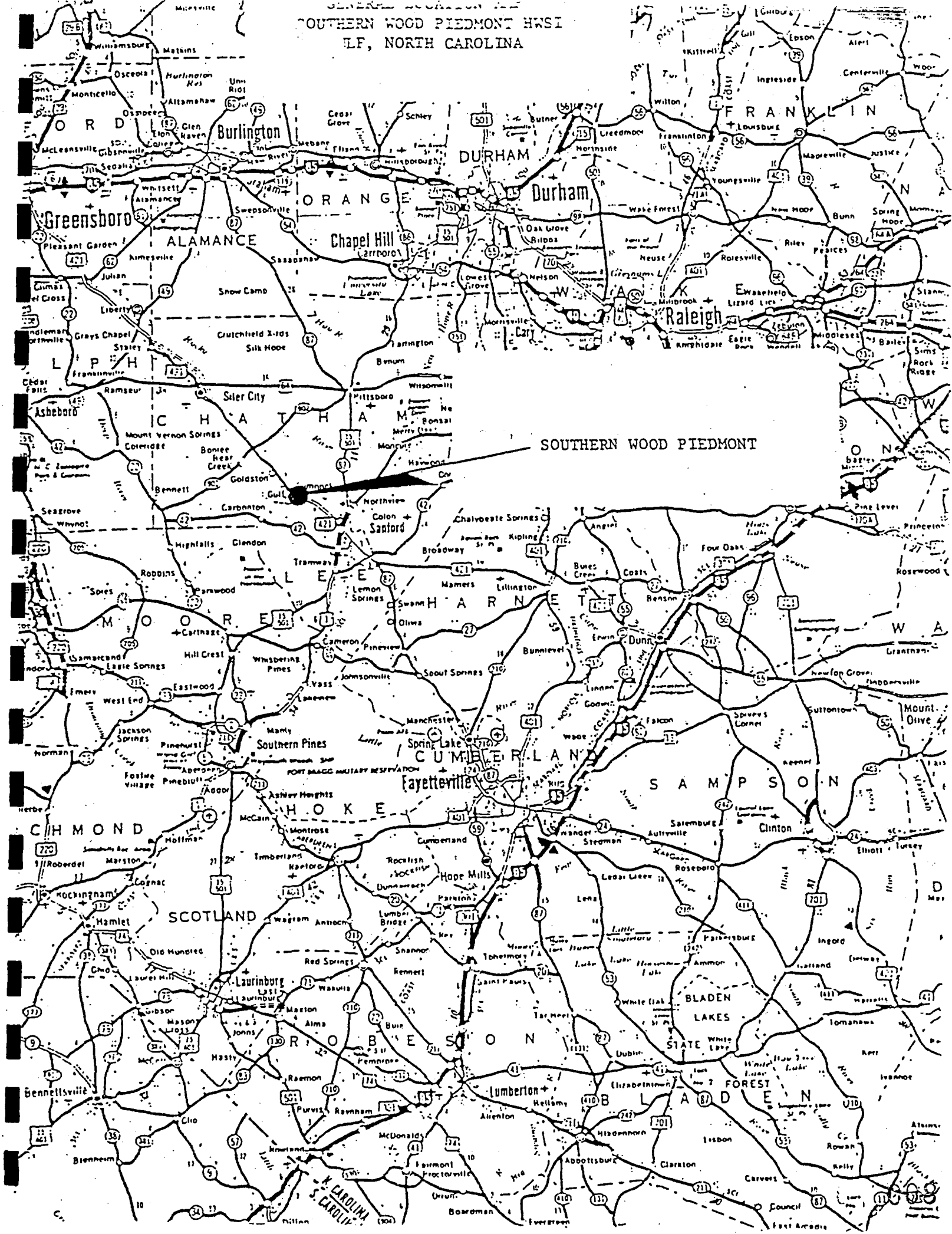
TABLE 2
Analytical Data Summary - Soil Samples
Southern Wood Piedmont HWSI
Gulf, North Carolina

	SWP-001	SWP-002	SWP-003	SWP-004	SWP-005	SWP-006	SWP-007	SWP-008	SWP-009
	09/21/83 1200	09/21/83 1210	09/21/83 1215	09/21/83 1315	09/21/83 1330	09/21/83 1315	09/21/83 1445	09/21/83 1540	09/21/83 1600
	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
NIC ELEMENT/COMPOUND									
SILVER	2.5	3.2	2.9	1.6	0.99	1.5	2.7	2.1	1.4
RSENIC	7.9	4.6	6.6	5.6	4.4	3.8	5.9	3.5	2.1
ARIUM	81	120	93	45	56	14	46	100	29
ERYLLIUM	--	--	0.32	0.38	1.1	0.16	0.4	0.3	--
CADMIUM	--	--	--	--	--	--	--	0.08	--
COBALT	10	24	12	9.4	15	15	9.2	11	5.4
CHROMIUM	22	29	26	7.4	6.3	7.2	9.7	13	4.6
COPPER	17	29	18	12	15	12	20	18	3.9
NICKEL	26	43	20	14	20	16	11	14	2.3
LEAD	20	23	20	15	13	15	19	21	6.9
TIN	19X	21X	13X	11X	11X	9.1X	7.7X	9.5X	3.3X
VANADIUM	23	34	25	--	--	--	14	19	12
ZINC	22	24	25	42	50	37	30	36	13
ALUMINUM	9700	12000	8800	5600	4900	5400	6600	6400	3200
MANGANESE	290	560	270	160	160	220	160	940	260
IRON	16000	22000	20000	11000	7600	10000	18000	14000	9500
TILE ORGANIC COMPOUNDS									
	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
NAPHTHALENE	--	--	--	1900000	1300000	--	320000	--	--
ACENAPHTHYLENE	--	--	500J	70000J	61000J	360J	37000J	--	1200J
ACENAPHTHENE	--	--	--	1200000	910000	--	490000	--	--
FLUORENE	700J	480J	1100J	1600000	1200000	--	690000	--	340J
PHENANTHRENE	1300J	1400J	2000J	2900000	2000000	450J	1000000	--	2500
ANTHRACENE	3800	2200	6300	880000	590000	4300	250000	--	3800
FLUORANTHENE	3000	4100	16000	1400000	1100000	1200J	1100000	--	14000
PYRENE	2200	3100	12000	1000000	780000	1400J	710000	--	13000
BENZO(A)ANTHRACENE	--	1600J	3900	190000J	150000J	900J	150000	--	5700
CHRYSENE	2500	4300	10000	260000	180000J	2700	760000	--	19000
BENZO(B)FLUORANTHENE	2000J	--	7900	140000J	110000J	2200	150000	--	13000
BENZO-A-PYRENE	--	1600J	3200	77000J	50000J	1300J	53000	--	9100
INDENO (1,2,3-CD) PYRENE	--	--	--	--	--	--	--	--	4400
DIBENZO(A,H)ANTHRACENE	900J	--	--	--	--	--	--	--	--
BENZO(GHI)PERYLENE	--	--	--	--	--	--	--	--	3000
PENTACHLOROPHENOL	--	--	11000	--	--	--	770000	--	--
C2 ALKYLNAPHTHALENE (4 ISOMERS)	--	--	--	800000JN	--	--	--	--	--
CARBAZOLE	--	--	--	300000JN	250000JN	--	--	--	--
1-METHYLNAPHTHALENE	--	--	--	600000JN	500000JN	--	200000JN	--	--
BIPHENYL	--	--	--	400000JN	300000JN	--	100000JN	--	--
C2 ALKYLNAPHTHALENE (2 ISOMERS)	--	--	--	--	500000JN	--	300000JN	--	--
METHYLDIBENZOFURAN	--	--	--	--	--	--	100000JN	--	--
METHYLBIPHENYL	--	--	--	--	--	--	100000JN	--	--
METHYLPHENANTHRENE	--	--	--	250000JN	--	--	300000JN	--	--
CYCLOPENTA(DEF)PHENANTHRENE	--	--	--	250000JN	250000JN	--	400000JN	--	--
PETROLEUM PRODUCT	--	--	--	N	N	--	N	--	--
DIBENZOFURAN	--	--	290J	1000000	700000	--	330000	--	--
2-METHYL NAPHTHALENE	--	--	--	1400000	1100000	--	250000	--	--
ABLE ORGANIC COMPOUNDS									
BENZENE	--	--	--	100J	430J	--	--	--	--
TOLUENE	--	--	--	1600	2500	--	100J	--	--
ETHYL BENZENE	--	--	--	1100	2000	--	100J	--	--
1 UNIDENTIFIED TERPENE	--	--	--	10000JN	10000JN	--	--	--	--
TRIMETHYLCYCLOHEXANONE	--	--	--	1000JN	1000JN	--	--	--	--
TOTAL XYLENES	--	--	--	5600	10000	--	300J	--	--
6 UNIDENTIFIED TERPENES	--	--	--	--	--	--	5000JN	--	--
CYCLOHEXANONE	--	--	--	--	--	20JN	--	10JN	--
ACETONE	--	--	--	2700	3800	--	--	--	--
STYRENE	--	--	--	900J	2000	--	100J	--	--
TETRAHYDROFURAN	10JN	10JN	10JN	100JN	100JN	20JN	100JN	20JN	20JN

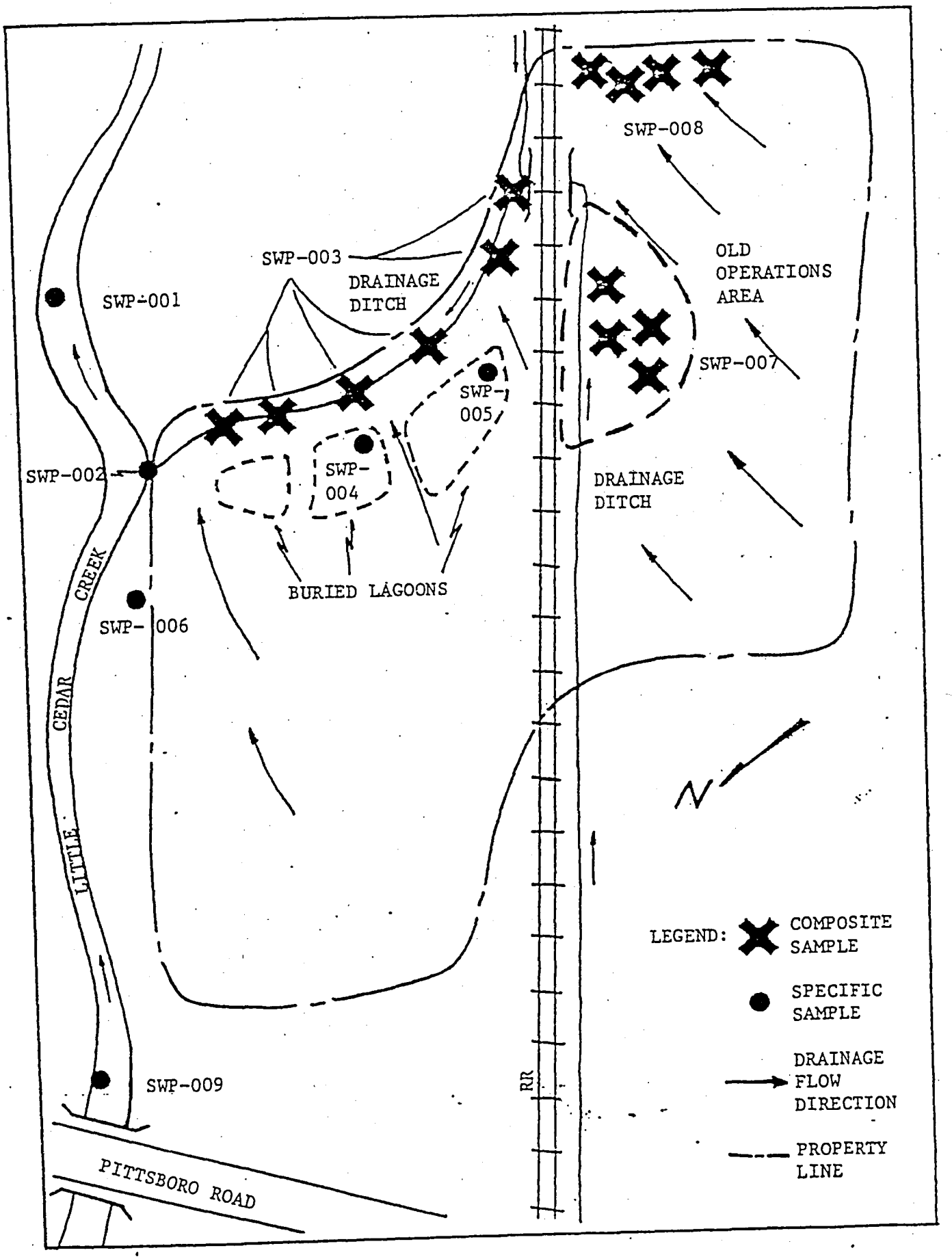
Note:

J - Estimated value
N - Presumptive evidence of presence of material
X - Value is suspect

GENERAL LOCATION OF
SOUTHERN WOOD PIEDMONT HWSI
ELF, NORTH CAROLINA



SAMPLING LOCATION MAP
SOUTHERN WOOD PIEDMONT HWS
GULF, NORTH CAROLINA



APPENDIX

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3808 SAMPLE TYPE: SEDIM

ANALYSIS RESULTS

RESULTS IN: UG/KG	COMPOUND NAME
10U	ACETONE
10U	METHYL ETHYL KETONE
10U	CARBON DISULFIDE
10U	METHYL BUTYL KETONE
10U	METHYL ISOBUTYL KETONE
10U	STYRENE
10U	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
10JN	TETRAHYDROFURAN

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-003
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1215
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
DATE REC'D: DATE/TIME 00/00/00 REC'D BY:
LAB:

CHEMIST:
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3348 INORG SAMPLE NO.: MD 355
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*J-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3809 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-006
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
ED:

CHEMIST:
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3349 INORG SAMPLE NO.: MD 356
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBR DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

ANALYTICAL RESULTS *

RESULTS IN: UG/KG	COMPOUND NAME
10U	ACETONE
10U	METHYL ETHYL KETONE
10U	CARBON DISULFIDE
10U	METHYL BUTYL KETONE
10U	METHYL ISOBUTYL KETONE
10U	STYRENE
10U	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
20JN	TETRAHYDROFURAN
20JN	CYCLOHEXANONE

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: B3C3814 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: DSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SNP-009
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1600
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

LLECTED BY: C TILL RECEIVED FROM:
MPLE REC'D: DATE,/TIME 00/00/00 REC'D BY:
LED:

CHEMIST:
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3354 INORG SAMPLE NO.: NO 361
CONTRACT LABORATORY(ORGANIC): VENSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRH DATA VERIFIED BY: JAS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG	COMPOUND NAME
100	ACETONE
100	METHYL ETHYL KETONE
100	CARBON DISULFIDE
100	METHYL BUTYL KETONE
100	METHYL ISOBUTYL KETONE
100	STYRENE
100	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
20JN -	TETRAHYDROFURAN

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSD,REG IV
ATHENS GEORGIA

03/02/84 PURGEABLE ORGANICS ANALYSIS, HISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: B3C3B13 SAMPLE TYPE: SEDIM

PROJECT NO.: B3-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-008
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1540
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEED:

CHEMIST:
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3351 INORG SAMPLE NO.: MD 360
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOD DATA VERIFIED BY: JHS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG	COMPOUND NAME
10U	ACETONE
10U	METHYL ETHYL KETONE
10U	CARBON DISULFIDE
10U	METHYL BUTYL KETONE
10U	METHYL ISOBUTYL KETONE
10U	STYRENE
10U	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
20JN	TETRAHYDROFURAN
10JN	CYCLOHEXANONE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3812 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-007
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1445
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
LED:

CHEMIST:
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3352 INORG SAMPLE NO.: MD 359
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB DATA VERIFIED BY: JMS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG	COMPOUND NAME
10000U	ACETONE
10000U	METHYL ETHYL KETONE
10000U	CARBON DISULFIDE
10000U	METHYL BUTYL KETONE
10000U	METHYL ISOBUTYL KETONE
100J	STYRENE
10000U	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
300J	TOTAL XYLENES
100JN	TETRAHYDROFURAN
5000JN	6 UNIDENTIFIED TERPENES

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3811 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN AOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SMP-004
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
LEO:

CHEMIST:
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3351 INORG SAMPLE NO.: ND 35H
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: JHS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG	COMPOUND NAME
2700 -	ACETONE
10000	METHYL ETHYL KETONE
10000	CARBON DISULFIDE
10000	METHYL BUTYL KETONE
10000	METHYL ISOBUTYL KETONE
9000J -	STYRENE
10000	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
5600 -	TOTAL XYLENES
100JN	TETRAHYDROFURAN
10000JN	1 UNIDENTIFIED TERPENE
1000JN	TRIMETHYLCYCLOHEXANONE

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3810 SAMPLE TYPE: SEDIM

PROJECT NO.: RJ-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN GOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SMP-005
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1330
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

LECTED BY: C TILL RECEIVED FROM:
PLE REC'D: DATE/TIME 00/00/00 REC'D BY:
ED:

CHEMIST:
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3350 INORG SAMPLE NO.: MD 357
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DMS DATA VERIFIED BY: JMS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG	COMPOUND NAME
-3800	ACETONE
10000U	METHYL ETHYL KETONE
1000U	CARBON DISULFIDE
10000U	METHYL BUTYL KETONE
10000U	METHYL ISOBUTYL KETONE
-2000	STYRENE
10000U	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
-10000	TOTAL XYLENES
100JN	TETRAHYDROFURAN
10000JN	1 UNIDENTIFIED TERPENE
1000JN	TRIMETHYLCYCLOHEXANONE

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84 PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3827 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-001
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1200
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ANALYST: JMS
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3346 INORG SAMPLE NO.: MD 353
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB SAMPLE DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
1000	UG/KG	ACROLEIN	34213
1000	UG/KG	ACRYLONITRILE	34218
100	UG/KG	CHLOROMETHANE	34421
100	UG/KG	BROMOMETHANE	34416
100	UG/KG	VINYL CHLORIDE	34495
100	UG/KG	CHLOROETHANE	34314
100	UG/KG	METHYLENE CHLORIDE	34426
100	UG/KG	1,1-DICHLOROETHENE	34504
100	UG/KG	1,1-DICHLOROETHANE	34499
100	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
100	UG/KG	CHLOROFORM	34318
100	UG/KG	1,2-DICHLOROETHANE	34534
100	UG/KG	1,1,1-TRICHLOROETHANE	34509
100	UG/KG	CARBON TETRACHLORIDE	34299
100	UG/KG	BROMODICHLOROMETHANE	34330
100	UG/KG	1,2-DICHLOROPROPANE	34544
100	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
100	UG/KG	TRICHLOROETHENE	34487
100	UG/KG	BENZENE	34237
100	UG/KG	DIBROMOCHLOROMETHANE	34309
100	UG/KG	1,1,2-TRICHLOROETHANE	34514
100	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
100	UG/KG	2-CHLOROETHYLVINYL ETHER	34579
100	UG/KG	BROMOFORM	34290
100	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
100	UG/KG	TETRACHLOROETHENE	34478
100	UG/KG	TOLUENE	34488
100	UG/KG	CHLOROBENZENE	34304
100	UG/KG	ETHYL BENZENE	34374
100	UG/KG	M-XYLENE	
100	UG/KG	O&P-XYLENE(MIXED)	
34	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3807 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-002
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1210
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

EMIST: JMS
ANALYTICAL METHOD:

CE NO.: 1789 ORG SAMPLE NO: D 3347 INORG SAMPLE NO.: MD 354
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB SAMPLE DATA VERIFIED BY: JHS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
1000	UG/KG	ACROLEIN	34213
1000	UG/KG	ACRYLONITRILE	34218
10U	UG/KG	CHLOROMETHANE	34421
10U	UG/KG	BROMOMETHANE	34416
10U	UG/KG	VINYL CHLORIDE	34495
10U	UG/KG	CHLOROETHANE	34314
10U	UG/KG	METHYLENE CHLORIDE	34426
10U	UG/KG	1,1-DICHLOROETHENE	34504
10U	UG/KG	1,1-DICHLOROETHANE	34499
10U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
10U	UG/KG	CHLOROFORM	34318
10U	UG/KG	1,2-DICHLOROETHANE	34534
10U	UG/KG	1,1,1-TRICHLOROETHANE	34509
10U	UG/KG	CARBON TETRACHLORIDE	34299
10U	UG/KG	BROMODICHLOROMETHANE	34330
10U	UG/KG	1,2-DICHLOROPROPANE	34544
10U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
10U	UG/KG	TRICHLOROETHENE	34487
10U	UG/KG	BENZENE	34237
10U	UG/KG	DIBROMOCHLOROMETHANE	34309
10U	UG/KG	1,1,2-TRICHLOROETHANE	34514
10U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
10U	UG/KG	2-CHLOROETHYLVINYL ETHER	34579
10U	UG/KG	BROMOFORM	34290
10U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
10U	UG/KG	TETRACHLOROETHENE	34478
10U	UG/KG	TOLUENE	34483
10U	UG/KG	CHLOROBENZENE	34304
10U	UG/KG	ETHYL BENZENE	34374
10U	UG/KG	M-XYLENE	
10U	UG/KG	O&P-XYLENE(MIXED)	
30	%	MOISTURE	70320

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3H08 SAMPLE TYPE: SEDIM

PROJECT NO.: H3-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SMP-003
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1215
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHIST: JMS
ALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3348 INORG SAMPLE NO.: MD 355
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TDB SAMPLE DATA VERIFIED BY: JMS

REMARKS

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
100U	UG/KG	ACROLEIN	34213
100U	UG/KG	ACRYLONITRILE	34218
10U	UG/KG	CHLOROMETHANE	34421
10U	UG/KG	BROMOMETHANE	34416
10U	UG/KG	VINYL CHLORIDE	34495
10U	UG/KG	CHLOROETHANE	34314
10U	UG/KG	METHYLENE CHLORIDE	34426
10U	UG/KG	1,1-DICHLOROETHENE	34504
10U	UG/KG	1,1-DICHLOROETHANE	34499
10U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
10U	UG/KG	CHLOROFORM	34318
10U	UG/KG	1,2-DICHLOROETHANE	34534
10U	UG/KG	1,1,1-TRICHLOROETHANE	34509
10U	UG/KG	CARBON TETRACHLORIDE	34299
10U	UG/KG	BROMODICHLOROMETHANE	34330
10U	UG/KG	1,2-DICHLOROPROPANE	34544
10U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
10U	UG/KG	TRICHLOROETHENE	34487
10U	UG/KG	BENZENE	34237
10U	UG/KG	DIBROMOCHLOROMETHANE	34309
10U	UG/KG	1,1,2-TRICHLOROETHANE	34514
10U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
10U	UG/KG	2-CHLOROETHYLVINYL ETHER	34579
10U	UG/KG	BROMOFORM	34290
10U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
10U	UG/KG	TETRACHLOROETHENE	34478
10U	UG/KG	TOLUENE	34483
10U	UG/KG	CHLOROBENZENE	34304
10U	UG/KG	ETHYL BENZENE	34371
10U	UG/KG	M-XYLENE	
10U	UG/KG	O&P-XYLENE(MIXED)	
29	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 03C3809 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN GOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SAP-006
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHIST: JMS
ALYTICAL METHOD:

: NO.: 1789 ORG SAMPLE NO: D 3349 INORG SAMPLE NO.: MD 356
TRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB SAMPLE DATA VERIFIED BY: JMS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
1000U	UG/KG	ACROLEIN	34213
1000U	UG/KG	ACRYLONITRILE	34218
100U	UG/KG	CHLOROMETHANE	34421
100U	UG/KG	BROMOMETHANE	34416
100U	UG/KG	VINYL CHLORIDE	34495
100U	UG/KG	CHLOROETHANE	34314
100U	UG/KG	METHYLENE CHLORIDE	34426
100U	UG/KG	1,1-DICHLOROETHENE	34504
100U	UG/KG	1,1-DICHLOROETHANE	34499
100U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
100U	UG/KG	CHLOROFORM	34318
100U	UG/KG	1,2-DICHLOROETHANE	34534
100U	UG/KG	1,1,1-TRICHLOROETHANE	34509
100U	UG/KG	CARBON TETRACHLORIDE	34299
100U	UG/KG	BROMODICHLOROMETHANE	34330
100U	UG/KG	1,2-DICHLOROPROPANE	34544
100U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
100U	UG/KG	TRICHLOROETHENE	34487
100U	UG/KG	BENZENE	34237
100U	UG/KG	DIBROMOCHLOROMETHANE	34309
100U	UG/KG	1,1,2-TRICHLOROETHANE	34514
100U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
100U	UG/KG	2-CHLOROETHYLVINYL ETHER	34579
100U	UG/KG	BROMOFORM	34290
100U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
100U	UG/KG	TETRACHLOROETHENE	34478
100U	UG/KG	TOLUENE	34483
100U	UG/KG	CHLOROBENZENE	34304
100U	UG/KG	ETHYL BENZENE	34371
100U	UG/KG	M-XYLENE	
100U	UG/KG	O&P-XYLENE(MIXED)	
12	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: B3C3810 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-005
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1330
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

MIST: JMS
LYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3350 INORG SAMPLE NO.: HD 357
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB SAMPLE DATA VERIFIED BY: JMS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
10000U	UG/KG	ACROLEIN	34213
10000U	UG/KG	ACRYLONITRILE	34218
1000U	UG/KG	CHLOROETHANE	34421
1000U	UG/KG	BROMOETHANE	34416
1000U	UG/KG	VINYL CHLORIDE	34495
1000U	UG/KG	CHLOROETHANE	34314
1000U	UG/KG	METHYLENE CHLORIDE	34426
1000U	UG/KG	1,1-DICHLOROETHENE	34504
1000U	UG/KG	1,1-DICHLOROETHANE	34499
1000U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
1000U	UG/KG	CHLOROFORM	34318
1000U	UG/KG	1,2-DICHLOROETHANE	34534
1000U	UG/KG	1,1,1-TRICHLOROETHANE	34509
1000U	UG/KG	CARBON TETRACHLORIDE	34299
1000U	UG/KG	BROMODICHLOROMETHANE	34330
1000U	UG/KG	1,2-DICHLOROPROPANE	34544
1000U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34097
1000U	UG/KG	TRICHLOROETHENE	34487
430J	UG/KG	BENZENE	34237
1000U	UG/KG	DIBROMOCHLOROMETHANE	34309
1000U	UG/KG	1,1,2-TRICHLOROETHANE	34514
1000U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
1000U	UG/KG	2-CHLOROETHYLVINYL ETHER	34579
1000U	UG/KG	BROMOFORM	34290
1000U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
1000U	UG/KG	TETRACHLOROETHENE	34478
2500	UG/KG	TOLUENE	34483
1000U	UG/KG	CHLOROBENZENE	34304
2000	UG/KG	ETHYL BENZENE	34374
--	UG/KG	M-XYLENE	
--	UG/KG	OXP-XYLENE(MIXED)	
17	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3011   SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190   PROGRAM ELEMENT: HSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF   STATE: NC

STATION I.D.: SWP-004
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C HILL   RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00   REC'D BY:
SEALED:

CHEMIST: JHS
ANALYTICAL METHOD:

SAMPLE NO.: 1789   ORG SAMPLE NO: C 3351   INORG SAMPLE NO.: MD 358
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TDH   SAMPLE DATA VERIFIED BY: JHS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
100000U	UG/KG	ACROLEIN	34213
100000U	UG/KG	ACRYLONITRILE	34218
10000U	UG/KG	CHLOROMETHANE	34421
10000U	UG/KG	BROMOMETHANE	34416
10000U	UG/KG	VINYL CHLORIDE	34495
10000U	UG/KG	CHLOROETHANE	34314
10000U	UG/KG	METHYLENE CHLORIDE	34426
10000U	UG/KG	1,1-DICHLOROETHENE	34504
10000U	UG/KG	1,1-DICHLOROETHANE	34499
10000U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
10000U	UG/KG	CHLOROFORM	34318
10000U	UG/KG	1,2-DICHLOROETHANE	34534
10000U	UG/KG	1,1,1-TRICHLOROETHANE	34509
10000U	UG/KG	CARBON TETRACHLORIDE	34299
10000U	UG/KG	BROMODICHLOROMETHANE	34330
10000U	UG/KG	1,2-DICHLOROPROPANE	34544
10000U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
10000U	UG/KG	TRICHLOROETHENE	34487
100J	UG/KG	BENZENE	34237
10000U	UG/KG	DIBROMOCHLOROMETHANE	34309
10000U	UG/KG	1,1,2-TRICHLOROETHANE	34514
10000U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
10000U	UG/KG	2-CHLOROETHYLVINYL ETHER	34579
10000U	UG/KG	BROMOFORM	34290
10000U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
10000U	UG/KG	TETRACHLOROETHENE	34478
1600	UG/KG	TOLUENE	34483
10000U	UG/KG	CHLOROBENZENE	34304
1100	UG/KG	ETHYL BENZENE	34374
--	UG/KG	M-XYLENE	
--	UG/KG	O&P-XYLENE(MIXED)	
22	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE.   *NA-NOT ANALYZED   *NAI-INTERFERENCES
*J-ESTIMATED VALUE   *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: B3C3812 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 - PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SMP-007
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1445
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMIST: JMS
ANALYTICAL METHOD:

LAB NO.: 1789 ORG SAMPLE NO: D 3352 INORG SAMPLE NO.: MD 359
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TMB SAMPLE DATA VERIFIED BY: JMS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
100000U	UG/KG	ACROLEIN	34213
100000U	UG/KG	ACRYLONITRILE	34218
1000U	UG/KG	CHLOROMETHANE	34421
1000U	UG/KG	BROMOMETHANE	34416
1000U	UG/KG	VINYL CHLORIDE	34495
1000U	UG/KG	CHLOROETHANE	34314
1000U	UG/KG	METHYLENE CHLORIDE	34426
1000U	UG/KG	1,1-DICHLOROETHENE	34504
1000U	UG/KG	1,1-DICHLOROETHANE	34499
1000U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
1000U	UG/KG	CHLOROFORM	34318
1000U	UG/KG	1,2-DICHLOROETHANE	34534
1000U	UG/KG	1,1,1-TRICHLOROETHANE	34509
1000U	UG/KG	CARBON TETRACHLORIDE	34299
1000U	UG/KG	BROMODICHLOROMETHANE	34330
1000U	UG/KG	1,2-DICHLOROPROPANE	34544
1000U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
1000U	UG/KG	TRICHLOROETHENE	34487
1000U	UG/KG	BENZENE	34237
1000U	UG/KG	DIBROMOCHLOROMETHANE	34309
1000U	UG/KG	1,1,2-TRICHLOROETHANE	34514
1000U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
1000U	UG/KG	2-CHLOROETHYLVINYL ETHER	31579
1000U	UG/KG	BROMOFORM	34290
1000U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
1000U	UG/KG	TETRACHLOROETHENE	34478
1000J	UG/KG	TOLUENE	34483
1000U	UG/KG	CHLOROBENZENE	34304
1000J	UG/KG	ETHYL BENZENE	34374
--	UG/KG	M-XYLENE	
--	UG/KG	O&P-XYLENE(MIXED)	
8	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE ANALYSIS DETECTION LIMIT

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3813 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSP
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-008
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1540
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ENIST: JHS
ALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3353 INORG SAMPLE NO.: BD 360
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TMB SAMPLE DATA VERIFIED BY: JHS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS.	UNITS	COMPOUND	STORET
1000U	UG/KG	ACROLEIN	34213
1000U	UG/KG	ACRYLONITRILE	34218
10U	UG/KG	CHLOROMETHANE	34421
10U	UG/KG	BROMOMETHANE	34418
10U	UG/KG	VINYL CHLORIDE	34495
10U	UG/KG	CHLOROETHANE	34314
10U	UG/KG	METHYLENE CHLORIDE	34426
10U	UG/KG	1,1-DICHLOROETHENE	34504
10U	UG/KG	1,1-DICHLOROETHANE	34499
10U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
10U	UG/KG	CHLOROFORM	34318
10U	UG/KG	1,2-DICHLOROETHANE	34534
10U	UG/KG	1,1,1-TRICHLOROETHANE	34509
10U	UG/KG	CARBON TETRACHLORIDE	34299
10U	UG/KG	BROMODICHLOROMETHANE	34330
10U	UG/KG	1,2-DICHLOROPROPANE	34544
10U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
10U	UG/KG	TRICHLOROETHENE	34487
10U	UG/KG	BENZENE	34231
10U	UG/KG	DIBROMOCHLOROMETHANE	34309
10U	UG/KG	1,1,2-TRICHLOROETHANE	34514
10U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
10U	UG/KG	2-CHLOROETHYLVINYL ETHER	34579
10U	UG/KG	BROMOFORM	34290
10U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
10U	UG/KG	TETRACHLOROETHENE	34478
10U	UG/KG	TOLUENE	34483
10U	UG/KG	CHLOROBENZENE	34304
10U	UG/KG	ETHYL BENZENE	34371
10U	UG/KG	M-XYLENE	
10U	UG/KG	O&P-XYLENE(MIXED)	
30	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3814 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN AOPD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SMP-009
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1600
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHIST: JHS
ALYTICAL METHOD:

C NO.: 1789 ORG SAMPLE NO: D 3354 INORG SAMPLE NO.: MD 361
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB SAMPLE DATA VERIFIED BY: JHS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE [illegible] DETECTION LIMIT

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
100U	UG/KG	ACROLEIN	34213
100U	UG/KG	ACRYLONITRILE	34218
10U	UG/KG	CHLOROMETHANE	34421
10U	UG/KG	BROMOMETHANE	34416
10U	UG/KG	VINYL CHLORIDE	34495
10U	UG/KG	CHLOROETHANE	34314
10U	UG/KG	METHYLENE CHLORIDE	34426
10U	UG/KG	1,1-DICHLOROETHENE	34504
10U	UG/KG	1,1-DICHLOROETHANE	34499
10U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
10U	UG/KG	CHLOROFORM	34318
10U	UG/KG	1,2-DICHLOROETHANE	34534
10U	UG/KG	1,1,1-TRICHLOROETHANE	34509
10U	UG/KG	CARBON TETRACHLORIDE	34299
10U	UG/KG	BROMODICHLOROMETHANE	34330
10U	UG/KG	1,2-DICHLOROPROPANE	34544
10U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34597
10U	UG/KG	TRICHLOROETHENE	34487
10U	UG/KG	BENZENE	34237
10U	UG/KG	DIBROMOCHLOROMETHANE	34309
10U	UG/KG	1,1,2-TRICHLOROETHANE	34514
10U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
10U	UG/KG	2-CHLOROETHYLVINYL ETHER	34579
10U	UG/KG	BROMOFORM	34290
10U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
10U	UG/KG	TETRACHLOROETHENE	34476
10U	UG/KG	TOLUENE	34483
10U	UG/KG	CHLOROBENZENE	34304
10U	UG/KG	ETHYL BENZENE	34371
10U	UG/KG	M-XYLENE	
10U	UG/KG	O&P-XYLENE(MIXED)	
11	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3827 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN OHIO DIED OUT
CITY: GOLF STATE: NC

STATION I.D.: SMP-001
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1200
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

LECTED BY: C TILL RECEIVED FROM:
PLE REC'D: DATE/TIME 00/00/00 REC'D BY:
ED:

ANALYST:
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3346 INORG SAMPLE NO.: NO 351
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TPB DATA VERIFIED BY: JBS

REMARKS

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *P-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

MANUAL CALCULATION

RESULTS IN: UG/KG	COMPOUND NAME
10U	ACETONE
10U	METHYL ETHYL KETONE
10U	CARBON DISULFIDE
10U	METHYL BUTYL KETONE
10U	METHYL ISOBUTYL KETONE
10U	STYRENE
10U	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
10JN	TETRAHYDROFURAN

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

2/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3H07 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SMP-002
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1210
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMIST:
ANALYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3347 INORG SAMPLE NO.: MD 354
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG	COMPOUND NAME
100U	ACETONE
100U	METHYL ETHYL KETONE
100U	CARBON DISULFIDE
100U	METHYL BUTYL KETONE
100U	METHYL ISOBUTYL KETONE
100U	STYRENE
100U	VINYL ACETATE
NA	DICHLORODIFLUOROMETHANE
NA	FLUOROTRICHLOROMETHANE
10JN	TETRAHYDROFURAN

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSD,REG IV
ATHENS GEORGIA

03/02/84

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3827 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: 6-P-001
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1200
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHIST: JMS
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3346 INORG SAMPLE NO.: MD 453
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TDB DATA VERIFIED BY: JMS

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
2000U	UG/KG	N-NITROSODIMETHYLAMINE	34441
2000U	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
2000U	UG/KG	BENZIDINE	39121
2000U	UG/KG	1,3-DICHLOROBENZENE	34569
2000U	UG/KG	1,4-DICHLOROBENZENE	34574
2000U	UG/KG	1,2-DICHLOROBENZENE	34539
2000U	UG/KG	BIS(2-CHLOROETHYL) ETHER	34276
2000U	UG/KG	HEXACHLOROETHANE	34399
2000U	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34286
2000U	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
2000U	UG/KG	NITROBENZENE	34450
2000U	UG/KG	HEXACHLOROBUTADIENE	39705
2000U	UG/KG	1,2,4-TRICHLOROBENZENE	34554
2000U	UG/KG	NAPHTHALENE	34445
2000U	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
2000U	UG/KG	ISOPHORONE	34411
2000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
2000U	UG/KG	2-CHLORONAPHTHALENE	34584
2000U	UG/KG	ACENAPHTHYLENE	34203
2000U	UG/KG	ACENAPHTHENE	34208
2000U	UG/KG	DIMETHYL PHTHALATE	34344
2000U	UG/KG	2,4-DINITROTOLUENE	34614
2000U	UG/KG	2,6-DINITROTOLUENE	34629
2000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
700J	UG/KG	FLUORENE	34334
2000U	UG/KG	DIETHYL PHTHALATE	34339
2000U	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34436
2000U	UG/KG	HEXACHLOROBENZENE (HCB)	39701
2000U	UG/KG	4-BROMOPHENYL PHENYL ETHER	34639
1300J	UG/KG	PHENANTHRENE	34464
3800	UG/KG	ANTHRACENE	34223
2000U	UG/KG	DI-N-BUTYLPHTHALATE	39112
3000	UG/KG	FLUORANTHENE	34379
2200	UG/KG	PYRENE	34472
2000U	UG/KG	BENZYL BUTYL PHTHALATE	34295
2000U	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
2000U	UG/KG	BENZO(A)ANTHRACENE	34529
2600	UG/KG	CHRYSENE	34323
2000U	UG/KG	3,3'-DICHLOROBENZIDINE	34634
2000U	UG/KG	DI-N-OCTYLPHTHALATE	34599
2000J	UG/KG	BENZO(B)FLUORANTHENE	
--	UG/KG	BENZO(K)FLUORANTHENE	
2000U	UG/KG	BENZO-A-PYRENE	34250
2000U	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
900J	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
2000U	UG/KG	BENZO(GHI)PERYLENE	34524
2000U	UG/KG	2-CHLOROPHENOL	34589
2000U	UG/KG	2-NITROPHENOL	34594
2000U	UG/KG	PHENOL	34695
2000U	UG/KG	2,4-DIMETHYLPHENOL	34609
2000U	UG/KG	2,4-DICHLOROPHENOL	34604
2000U	UG/KG	2,4,6-TRICHLOROPHENOL	34624
2000U	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
2000U	UG/KG	2,4-DINITROPHENOL	34619
2000U	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3807 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-002
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1210
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMIST: JMS
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3347 INORG SAMPLE NO.: MD 354
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
20000	UG/KG	N-NITROSODIMETHYLAMINE	34441
20000	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
20000	UG/KG	BENZIDINE	39121
20000	UG/KG	1,3-DICHLOROBENZENE	34569
20000	UG/KG	1,4-DICHLOROBENZENE	34574
20000	UG/KG	1,2-DICHLOROBENZENE	34539
20000	UG/KG	BIS(2-CHLOROETHYL) ETHER	34276
20000	UG/KG	HEXACHLOROETHANE	34399
20000	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34286
20000	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
20000	UG/KG	NITROBENZENE	34450
20000	UG/KG	HEXACHLOROBUTADIENE	39705
20000	UG/KG	1,2,4-TRICHLOROBENZENE	34554
20000	UG/KG	NAPHTHALENE	34445
20000	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
20000	UG/KG	ISOPHORONE	34411
20000	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
20000	UG/KG	2-CHLORONAPHTHALENE	34584
20000	UG/KG	ACENAPHTHYLENE	34203
20000	UG/KG	ACENAPHTHENE	34208
20000	UG/KG	DIMETHYL PHTHALATE	34344
20000	UG/KG	2,4-DINITROTOLUENE	34614
20000	UG/KG	2,6-DINITROTOLUENE	34629
20000	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
4801	UG/KG	FLUORENE	34384
20000	UG/KG	DIETHYL PHTHALATE	34339
20000	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34436
20000	UG/KG	HEXACHLOROBENZENE (HCB)	39701
20000	UG/KG	4-BROMOPHENYL PHENYL ETHER	34639
1400J	UG/KG	PHENANTHRENE	34464
2200	UG/KG	ANTHRACENE	34223
20000	UG/KG	DI-N-BUTYLPHTHALATE	39112
4100	UG/KG	FLUORANTHENE	34379
3100	UG/KG	PYRENE	34472
20000	UG/KG	BENZYL BUTYL PHTHALATE	34295
20000	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
1600J	UG/KG	BENZO(A)ANTHRACENE	34529
4300	UG/KG	CHRYSENE	34323
20000	UG/KG	3,3'-DICHLOROBENZIDINE	34634
20000	UG/KG	DI-N-OCTYLPHTHALATE	34599
20000	UG/KG	BENZO(B)FLUORANTHENE	
--	UG/KG	BENZO(K)FLUORANTHENE	
1600J	UG/KG	BENZO-A-PYRENE	34250
20000	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
20000	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
20000	UG/KG	BENZO(GHI)PERYLENE	34524
20000	UG/KG	2-CHLOROPHENOL	34569
20000	UG/KG	2-NITROPHENOL	34594
20000	UG/KG	PHENOL	34695
20000	UG/KG	2,4-DIMETHYLPHENOL	34609
20000	UG/KG	2,4-DICHLOROPHENOL	34604
20000	UG/KG	2,4,6-TRICHLOROPHENOL	34624
20000	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
20000	UG/KG	2,4-DINITROPHENOL	34619
20000	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660
20000	UG/KG	PENTACHLOROPHENOL	39061
			34649

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

..02/84

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3808 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN POOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SEP-003
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1215
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHIST: JMS
ALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3348 INORG SAMPLE NO.: MD 355
TRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
2000U	UG/KG	N-NITROSODIMETHYLAMINE	34441
2000U	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
2000U	UG/KG	BENZIDINE	39121
2000U	UG/KG	1,3-DICHLOROBENZENE	34569
2000U	UG/KG	1,4-DICHLOROBENZENE	34574
2000U	UG/KG	1,2-DICHLOROBENZENE	34539
2000U	UG/KG	BIS(2-CHLOROETHYL) ETHER	34276
2000U	UG/KG	HEXACHLOROETHANE	34399
2000U	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34286
2000U	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
2000U	UG/KG	NITROBENZENE	34450
2000U	UG/KG	HEXACHLOROBUTADIENE	39705
2000U	UG/KG	1,2,4-TRICHLOROBENZENE	34554
2000U	UG/KG	NAPHTHALENE	34445
2000U	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
2000U	UG/KG	ISOPHORONE	34411
2000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
2000U	UG/KG	2-CHLORONAPHTHALENE	34584
500J	UG/KG	ACENAPHTHYLENE	34203
2000U	UG/KG	ACENAPHTHENE	34208
2000U	UG/KG	DIMETHYL PHTHALATE	34344
2000U	UG/KG	2,4-DINITROTOLUENE	34614
2000U	UG/KG	2,6-DINITROTOLUENE	34629
2000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
1100J	UG/KG	FLUORENE	34384
2000U	UG/KG	DIETHYL PHTHALATE	34339
2000U	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34436
2000U	UG/KG	HEXACHLOROBENZENE (HCB)	39701
2000U	UG/KG	4-BROMOPHENYL PHENYL ETHER	34639
2000J	UG/KG	PHENANTHRENE	34464
8300	UG/KG	ANTHRACENE	34223
2000U	UG/KG	DI-N-BUTYLPHTHALATE	39112
16000	UG/KG	FLUORANTHENE	34379
12000	UG/KG	PYRENE	34472
2000U	UG/KG	BENZYL BUTYL PHTHALATE	34295
2000U	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
3900	UG/KG	BENZO(A)ANTHRACENE	34529
10000	UG/KG	CHRYSENE	34323
2000U	UG/KG	3,3'-DICHLOROBENZIDINE	34634
2000U	UG/KG	DI-N-OCTYLPHTHALATE	34599
7900	UG/KG	BENZO(B)FLUORANTHENE	
--	UG/KG	BENZO(K)FLUORANTHENE	
3200	UG/KG	BENZO-A-PYRENE	34250
2000U	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
2000U	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
2000U	UG/KG	BENZO(GHI)PERYLENE	34524
2000U	UG/KG	2-CHLOROPHENOL	34589
2000U	UG/KG	2-NITROPHENOL	34594
2000U	UG/KG	PHENOL	34695
2000U	UG/KG	2,4-DIMETHYLPHENOL	34609
2000U	UG/KG	2,4-DICHLOROPHENOL	34604
2000U	UG/KG	2,4,6-TRICHLOROPHENOL	34624
2000U	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
2000U	UG/KG	2,4-DINITROPHENOL	34619
2000U	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660
11000	UG/KG	PENTACHLOROPHENOL	39061

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSD,REG IV
ATHENS GEORGIA

05/02/84

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3809 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-006
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

HIST: JMS
LYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3349 INORG SAMPLE NO.: HD 356
RACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TAB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
2000U	UG/KG	N-NITROSODIMETHYLAMINE	34441
2000U	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
2000U	UG/KG	BENZIDINE	39121
2000U	UG/KG	1,3-DICHLOROBENZENE	34569
2000U	UG/KG	1,4-DICHLOROBENZENE	34574
2000U	UG/KG	1,2-DICHLOROBENZENE	34539
2000U	UG/KG	BIS(2-CHLOROETHYL) ETHER	34276
2000U	UG/KG	HEXACHLOROETHANE	34399
2000U	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	39286
2000U	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
2000U	UG/KG	NITROBENZENE	34450
2000U	UG/KG	HEXACHLOROBUTADIENE	39705
2000U	UG/KG	1,2,4-TRICHLOROBENZENE	34554
2000U	UG/KG	NAPHTHALENE	34445
2000U	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
2000U	UG/KG	ISOPHORONE	34411
2000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
2000U	UG/KG	2-CHLORONAPHTHALENE	34584
3600J	UG/KG	ACENAPHTHYLENE	34203
2000U	UG/KG	ACENAPHTHENE	34208
2000U	UG/KG	DIMETHYL PHTHALATE	34394
2000U	UG/KG	2,4-DINITROTOLUENE	34614
2000U	UG/KG	2,6-DINITROTOLUENE	34629
2000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
2000U	UG/KG	FLUORENE	34384
2000U	UG/KG	DIETHYL PHTHALATE	34339
2000U	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34436
2000U	UG/KG	HEXACHLOROBENZENE (HCB)	39701
2000U	UG/KG	4-BROMOPHENYL PHENYL ETHER	34639
4500J	UG/KG	PHENANTHRENE	34464
4300	UG/KG	ANTHRACENE	34223
2000U	UG/KG	DI-N-BUTYLPHTHALATE	39112
1200J	UG/KG	FLUORANTHENE	34379
1400J	UG/KG	PYRENE	34472
2000U	UG/KG	BENZYL BUTYL PHTHALATE	34295
2000U	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
900J	UG/KG	BENZO(A)ANTHRACENE	34529
2700	UG/KG	CHRYSENE	34323
2000U	UG/KG	3,3'-DICHLOROBENZIDINE	34634
2000U	UG/KG	DI-N-OCTYLPHTHALATE	34599
2200	UG/KG	BENZO(B)FLUORANTHENE	
--	UG/KG	BENZO(K)FLUORANTHENE	
1300J	UG/KG	BENZO-A-PYRENE	34250
2000U	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
2000U	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
2000U	UG/KG	BENZO(GHI)PERYLENE	34524
2000U	UG/KG	2-CHLOROPHENOL	34589
2000U	UG/KG	2-NITROPHENOL	34599
2000U	UG/KG	PHENOL	34695
2000U	UG/KG	2,4-DIMETHYLPHENOL	34609
2000U	UG/KG	2,4-DICHLOROPHENOL	34604
2000U	UG/KG	2,4,6-TRICHLOROPHENOL	34624
2000U	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
2000U	UG/KG	2,4-DINITROPHENOL	34619
2000U	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660
[illegible]	[illegible]	[illegible]	39061

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

05/02/84

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3810 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN SOUD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWF-005
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1330
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

MIST: JMS
LYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3350 INORG SAMPLE NO.: ND 357
RACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *ND-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
2500000U	UG/KG	N-NITROSODIMETHYLAMINE	34441
2500000U	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
2500000U	UG/KG	BENZIDINE	39121
2500000U	UG/KG	1,3-DICHLOROBENZENE	34569
2500000U	UG/KG	1,4-DICHLOROBENZENE	34574
2500000U	UG/KG	1,2-DICHLOROBENZENE	34539
2500000U	UG/KG	BIS(2-CHLOROETHYL) ETHER	34276
2500000U	UG/KG	HEXACHLOROETHANE	34399
2500000U	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34286
2500000U	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
2500000U	UG/KG	NITROBENZENE	34450
2500000U	UG/KG	HEXACHLOROBUTADIENE	39705
2500000U	UG/KG	1,2,4-TRICHLOROBENZENE	34554
1300000	UG/KG	NAPHTHALENE	34445
2500000U	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
2500000U	UG/KG	ISOPHORONE	34411
2500000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
2500000U	UG/KG	2-CHLORONAPHTHALENE	34584
610000J -	UG/KG	ACENAPHTHYLENE	34203
- 910000 -	UG/KG	ACENAPHTHENE	34208
2500000U	UG/KG	DIMETHYL PHTHALATE	34344
2500000U	UG/KG	2,4-DINITROTOLUENE	34614
2500000U	UG/KG	2,6-DINITROTOLUENE	34629
2500000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
1200000	UG/KG	FLUORENE	34384
2500000U	UG/KG	DIETHYL PHTHALATE	34339
2500000U	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34436
2500000U	UG/KG	HEXACHLOROBENZENE (HCB)	39701
2500000U	UG/KG	4-BROMOPHENYL PHENYL ETHER	34639
- 2000000 -	UG/KG	PHENANTHRENE	34464
- 690000 -	UG/KG	ANTHRACENE	34223
2500000U	UG/KG	DI-N-BUTYLPHTHALATE	39112
- 1100000 -	UG/KG	FLUORANTHENE	34379
- 780000 -	UG/KG	PYRENE	34472
2500000U	UG/KG	BENZYL BUTYL PHTHALATE	34295
2500000U	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
150000J-	UG/KG	BENZO(A)ANTHRACENE	34529
180000J-	UG/KG	CHRYSENE	34323
2500000U	UG/KG	3,3'-DICHLOROBENZIDINE	34634
2500000U	UG/KG	DI-N-OCTYLPHTHALATE	34599
110000J-	UG/KG	BENZO(B)FLUORANTHENE	
--	UG/KG	BENZO(K)FLUORANTHENE	
50000J -	UG/KG	BENZO-A-PYRENE	34250
2500000U	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
2500000U	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
2500000U	UG/KG	BENZO(GHI)PERYLENE	34524
2500000U	UG/KG	2-CHLOROPHENOL	34589
2500000U	UG/KG	2-NITROPHENOL	34594
2500000U	UG/KG	PHENOL	34695
2500000U	UG/KG	2,4-DIMETHYLPHENOL	34609
2500000U	UG/KG	2,4-DICHLOROPHENOL	34604
2500000U	UG/KG	2,4,6-TRICHLOROPHENOL	34624
2500000U	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
2500000U	UG/KG	2,4-DINITROPHENOL	34619
2500000U	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSD,REG IV
ATHENS GEORGIA

-3/02/84 EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: RJC3811 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SAP-004
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMIST: JMS
ANALYTICAL METHOD:

SE NO.: 1789 ORG SAMPLE NO: D 3351 INORG SAMPLE NO.: RD 358
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
2500000	UG/KG	N-NITROSODIMETHYLAMINE	34441
2500000	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
2500000	UG/KG	BENZIDINE	39121
2500000	UG/KG	1,3-DICHLOROBENZENE	34569
2500000	UG/KG	1,4-DICHLOROBENZENE	34574
2500000	UG/KG	1,2-DICHLOROBENZENE	34539
2500000	UG/KG	BIS(2-CHLOROETHYL) ETHER	34276
2500000	UG/KG	HEXACHLOROETHANE	34399
2500000	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34286
2500000	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
2500000	UG/KG	NITROBENZENE	34450
2500000	UG/KG	HEXACHLOROBUTADIENE	39705
2500000	UG/KG	1,2,4-TRICHLOROBENZENE	34554
1900000	UG/KG	NAPHTHALENE	34445
2500000	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
2500000	UG/KG	ISOPHORONE	34411
2500000	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
2500000	UG/KG	2-CHLORONAPHTHALENE	34584
700000J	UG/KG	ACENAPHTHYLENE	34203
-1200000 -	UG/KG	ACENAPHTHENE	34208
2500000	UG/KG	DIMETHYL PHTHALATE	34344
2500000	UG/KG	2,4-DINITROTOLUENE	34614
2500000	UG/KG	2,6-DINITROTOLUENE	34629
2500000	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
1800000	UG/KG	FLUORENE	34384
2500000	UG/KG	DIETHYL PHTHALATE	34339
2500000	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34436
2500000	UG/KG	HEXACHLOROBENZENE (HCB)	39701
2500000	UG/KG	4-BROMOPHENYL PHENYL ETHER	34639
2900000	UG/KG	PHENANTHRENE	34464
880000 -	UG/KG	ANTHRACENE	34223
2500000	UG/KG	DI-N-BUTYLPHTHALATE	39112
1400000	UG/KG	FLUORANTHENE	34379
1000000	UG/KG	PYRENE	34472
2500000	UG/KG	BENZYL BUTYL PHTHALATE	34295
2500000	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
190000J -	UG/KG	BENZO(A)ANTHRACENE	34529
-260000 -	UG/KG	CHRYSENE	34323
2500000	UG/KG	3,3'-DICHLOROBENZIDINE	34634
2500000	UG/KG	DI-N-OCTYLPHTHALATE	34599
140000J-	UG/KG	BENZO(B)FLUORANTHENE	
--	UG/KG	BENZO(K)FLUORANTHENE	
770000J -	UG/KG	BENZO-A-PYRENE	34250
2500000	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
2500000	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
2500000	UG/KG	BENZO(GHI)PERYLENE	34524
2500000	UG/KG	2-CHLOROPHENOL	34589
2500000	UG/KG	2-NITROPHENOL	34594
2500000	UG/KG	PHENOL	34695
2500000	UG/KG	2,4-DIMETHYLPHENOL	34609
2500000	UG/KG	2,4-DICHLOROPHENOL	34604
2500000	UG/KG	2,4,6-TRICHLOROPHENOL	34624
2500000	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
2500000	UG/KG	2,4-DINITROPHENOL	34619
2500000	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660
2500000	UG/KG	PENTACHLOROPHENOL	39061

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: B3C3H12 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SMP-007
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1445
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

EMIST: GAS
ANALYTICAL METHOD:

E NO.: 1769 DHG SAMPLE NO: D 3352 INORG SAMPLE NO.: HD 359
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOB DATA VERIFIED BY: JHS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *M-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
500000	UG/KG	N-NITROSODIMETHYLAMINE	34441
500000	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
500000	UG/KG	BENZIDINE	39121
500000	UG/KG	1,3-DICHLOROBENZENE	34569
500000	UG/KG	1,4-DICHLOROBENZENE	34574
500000	UG/KG	1,2-DICHLOROBENZENE	34539
500000	UG/KG	BIS(2-CHLOROETHYL) ETHER	34276
500000	UG/KG	HEXACHLOROETHANE	34399
500000	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34286
500000	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
500000	UG/KG	NITROBENZENE	34450
500000	UG/KG	HEXACHLOROBUTADIENE	39705
500000	UG/KG	1,2,4-TRICHLOROBENZENE	34554
-320000-	UG/KG	NAPHTHALENE	34445
500000	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
500000	UG/KG	ISOPHORONE	34411
500000	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
500000	UG/KG	2-CHLORONAPHTHALENE	34584
370000J-	UG/KG	ACENAPHTHYLENE	34203
-490000-	UG/KG	ACENAPHTHENE	34206
500000	UG/KG	DIMETHYL PHTHALATE	34394
500000	UG/KG	2,4-DINITROTOLUENE	34614
500000	UG/KG	2,6-DINITROTOLUENE	34629
500000	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
-690000-	UG/KG	FLUORENE	34384
500000	UG/KG	DIETHYL PHTHALATE	34339
500000	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34430
500000	UG/KG	HEXACHLOROBENZENE (HCB)	39701
500000	UG/KG	4-BROMOPHENYL PHENYL ETHER	34639
-1000000-	UG/KG	PHENANTHRENE	34464
-250000-	UG/KG	ANTHRACENE	34223
500000	UG/KG	DI-N-BUTYLPHTHALATE	39112
-1100000-	UG/KG	FLUORANTHENE	34379
-710000-	UG/KG	PYRENE	34472
500000	UG/KG	BENZYL BUTYL PHTHALATE	34295
500000	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
-150000-	UG/KG	BENZO(A)ANTHRACENE	34529
-260000-	UG/KG	CHRYSENE	34323
500000	UG/KG	3,3'-DICHLOROBENZIDINE	34634
500000	UG/KG	DI-N-OCTYLPHTHALATE	34599
-150000-	UG/KG	BENZO(B)FLUORANTHENE	
--	UG/KG	BENZO(K)FLUORANTHENE	
-53000-	UG/KG	BENZO-A-PYRENE	34250
500000	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
500000	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
500000	UG/KG	BENZO(GHI)PERYLENE	34524
500000	UG/KG	2-CHLOROPHENOL	34589
500000	UG/KG	2-NITROPHENOL	34594
500000	UG/KG	PHENOL	34695
500000	UG/KG	2,4-DIMETHYLPHENOL	34609
500000	UG/KG	2,4-DICHLOROPHENOL	34604
500000	UG/KG	2,4,6-TRICHLOROPHENOL	34624
500000	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
500000	UG/KG	2,4-DINITROPHENOL	34619
500000	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: H3C3813 SAMPLE TYPE: SEDIM

PROJECT NO.: H3-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SHP-008
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1540
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
ALED:

MIST: GAS
YTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3353 INORG SAMPLE NO.: HD 360
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TMB DATA VERIFIED BY: JMB

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
[illegible] BUT NOT DETECTED. THE NUMBER IS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
20000U	UG/KG	N-NITROSODIMETHYLAMINE	34441
20000U	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
20000U	UG/KG	BENZIDINE	39121
20000U	UG/KG	1,3-DICHLOROBENZENE	34569
20000U	UG/KG	1,4-DICHLOROBENZENE	34574
20000U	UG/KG	1,2-DICHLOROBENZENE	34539
20000U	UG/KG	BIS(2-CHLOROETHYL) ETHER	31276
20000U	UG/KG	HEXACHLOROETHANE	34399
20000U	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34286
20000U	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
20000U	UG/KG	NITROBENZENE	34450
20000U	UG/KG	HEXACHLOROBUTADIENE	39705
20000U	UG/KG	1,2,4-TRICHLOROBENZENE	34554
20000U	UG/KG	NAPHTHALENE	34445
20000U	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
20000U	UG/KG	ISOPHORONE	34411
20000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
20000U	UG/KG	2-CHLORONAPHTHALENE	34584
20000U	UG/KG	ACENAPHTHYLENE	34203
20000U	UG/KG	ACENAPHTHENE	34208
20000U	UG/KG	DIMETHYL PHTHALATE	34344
20000U	UG/KG	2,4-DINITROTOLUENE	34614
20000U	UG/KG	2,6-DINITROTOLUENE	34629
20000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
20000U	UG/KG	FLUORENE	34384
20000U	UG/KG	DIETHYL PHTHALATE	34339
20000U	UG/KG	N-NITROSODIPHENLYAMINE/DIPHENYLAMINE	34430
20000U	UG/KG	HEXACHLOROBENZENE (HCB)	39701
20000U	UG/KG	4-BROMOPHENYL PHENYL ETHER	34039
20000U	UG/KG	PHENANTHRENE	34464
20000U	UG/KG	ANTHRACENE	34223
20000U	UG/KG	DI-N-BUTYLPHTHALATE	39112
20000U	UG/KG	FLUORANTHENE	34379
20000U	UG/KG	PYRENE	34472
20000U	UG/KG	BENZYL BUTYL PHTHALATE	34295
20000U	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
20000U	UG/KG	BENZO(A)ANTHRACENE	34529
20000U	UG/KG	CHRYSENE	34323
20000U	UG/KG	3,3'-DICHLOROBENZIDINE	34634
20000U	UG/KG	DI-N-OCTYLPHTHALATE	34599
20000U	UG/KG	BENZO(B)FLUORANTHENE	
20000U	UG/KG	BENZO(K)FLUORANTHENE	
20000U	UG/KG	BENZO-A-PYRENE	34250
20000U	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
20000U	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
20000U	UG/KG	BENZO(GHI)PERYLENE	34524
20000U	UG/KG	2-CHLOROPHENOL	34589
20000U	UG/KG	2-NITROPHENOL	34594
20000U	UG/KG	PHENOL	34695
20000U	UG/KG	2,4-DIMETHYLPHENOL	34609
20000U	UG/KG	2,4-DICHLOROPHENOL	34604
20000U	UG/KG	2,4,6-TRICHLOROPHENOL	34624
20000U	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
20000U	UG/KG	2,4-DINITROPHENOL	34619
20000U	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660
			39061

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

0..,2/84 EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: B3C3814 SAMPLE TYPE: SEDIM

PROJECT NO.: B1-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SMP-009
STORET STATION NO.:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1600
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

...MIST: JMS
...LYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: B 3354 INORG SAMPLE NO.: BD 361
...ACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TAB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
2000U	UG/KG	N-NITROSODIMETHYLAMINE	34441
2000U	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
2000U	UG/KG	BENZIDINE	39121
2000U	UG/KG	1,3-DICHLOROBENZENE	34569
2000U	UG/KG	1,4-DICHLOROBENZENE	34574
2000U	UG/KG	1,2-DICHLOROBENZENE	34539
2000U	UG/KG	BIS(2-CHLOROETHYL) ETHER	34276
2000U	UG/KG	HEXACHLOROETHANE	34399
2000U	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34296
2000U	UG/KG	N-NITROSODI-N-PROPYLAMINE	34431
2000U	UG/KG	NITROBENZENE	34450
2000U	UG/KG	HEXACHLOROBUTADIENE	39705
2000U	UG/KG	1,2,4-TRICHLOROBENZENE	34554
2000U	UG/KG	NAPHTHALENE	34445
2000U	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34281
2000U	UG/KG	ISOPHORONE	34411
2000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34389
2000U	UG/KG	2-CHLORONAPHTHALENE	34584
1200J	UG/KG	ACENAPHTHYLENE	34203
2000U	UG/KG	ACENAPHTHENE	34208
2000U	UG/KG	DIMETHYL PHTHALATE	34344
2000U	UG/KG	2,4-DINITROTOLUENE	34614
2000U	UG/KG	2,6-DINITROTOLUENE	34629
2000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34644
3400J	UG/KG	FLUORENE	34384
2000U	UG/KG	DIETHYL PHTHALATE	34339
2000U	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34436
2000U	UG/KG	HEXACHLOROBENZENE (HCB)	39701
2000U	UG/KG	4-BROMOPHENYL PHENYL ETHER	34636
2500	UG/KG	PHENANTHRENE	34464
3000	UG/KG	ANTHRACENE	34223
2000U	UG/KG	DI-N-BUTYLPHTHALATE	39112
14000	UG/KG	FLUORANTHENE	34379
13000	UG/KG	PYRENE	34472
2000U	UG/KG	BENZYL BUTYL PHTHALATE	34295
2000U	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	39102
5700	UG/KG	BENZO(A)ANTHRACENE	34529
19000	UG/KG	CHRYSENE	34323
2000U	UG/KG	3,3'-DICHLOROBENZIDINE	34634
2000U	UG/KG	DI-N-OCTYLPHTHALATE	34599
13000	UG/KG	BENZO(B)FLUORANTHENE	
--	UG/KG	BENZO(K)FLUORANTHENE	
9100	UG/KG	BENZO-A-PYRENE	34250
4400	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
2000U	UG/KG	DIBENZO(A,H)ANTHRACENE	34559
3000	UG/KG	BENZO(GHI)PERYLENE	34524
2000U	UG/KG	2-CHLOROPHENOL	34589
2000U	UG/KG	2-NITROPHENOL	34594
2000U	UG/KG	PHENOL	34695
2000U	UG/KG	2,4-DIMETHYLPHENOL	34609
2000U	UG/KG	2,4-DICHLOROPHENOL	34604
2000U	UG/KG	2,4,6-TRICHLOROPHENOL	34624
2000U	UG/KG	4-CHLORO-3-METHYLPHENOL	34455
2000U	UG/KG	2,4-DINITROPHENOL	34619
2000U	UG/KG	2-METHYL-4,6-DINITROPHENOL	34660
2000U	UG/KG	PENTACHLOROPHENOL	39061

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

7/84 EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3827 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: S-P-001
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1200
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMIST:
ANALYTICAL METHOD:

: NO.: 1789 ORG SAMPLE NO: D 3346 INORG SAMPLE NO.: MD 353
RACT LABORATORY(ORGANIC): VERSAR
ACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG	COMPOUND NAME
2000U	BENZOIC ACID
2000U	2-METHYLPHENOL
2000U	4-METHYLPHENOL
2000U	2,4,5-TRICHLOROPHENOL
2000U	ANILINE
2000U	BENZYL ALCOHOL
2000U	4-CHLOROANILINE
2000U	DIBENZOFURAN
2000U	2-METHYL NAPHTHALENE
2000U	2-NITROANILINE
2000U	3-NITROANILINE
2000U	4-NITROANILINE

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATRPS GEORGIA

03/02/84 EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT) :

SAMPLE NO.: H1C3807 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: S-P-002
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1210
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

HIST:
ANALYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3347 INORG SAMPLE NO.: ND 354
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: JMS

REMARKS

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE ACTUAL DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS IN UG/KG	COMPOUND NAME
2000U	BENZOIC ACID
2000U	2-METHYLPHENOL
2000U	4-METHYLPHENOL
2000U	2,4,5-TRICHLOROPHENOL
2000U	ANILINE
2000U	BENZYL ALCOHOL
2000U	4-CHLOROANILINE
2000U	DIBENZOFURAN
2000U	2-METHYL NAPHTHALENE
2000U	2-NITROANILINE
2000U	3-NITROANILINE
2000U	4-NITROANILINE

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/02/84 EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3808 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN BOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-003
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1215
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

MIST:
LYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 334B INORG SAMPLE NO.: MD 355
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TPB DATA VERIFIED BY: JMS

REMARKS

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT

*****ANALYTICAL RESULTS*****

RESULTS (UG/KG	COMPOUND NAME
2000U	BENZOIC ACID
2000U	2-METHYLPHENOL
2000U	4-METHYLPHENOL
2000U	2,4,5-TRICHLOROPHENOL
2000U	ANILINE
2000U	BENZYL ALCOHOL
2000U	4-CHLOROANILINE
2000U	DIBENZOFURAN
2000U	2-METHYL NAPHTHALENE
2000U	2-NITROANILINE
2000U	3-NITROANILINE
2000U	4-NITROANILINE

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG-IV
ATHENS GEORGIA

03/02/84 EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 03C3809 SAMPLE TYPE: SEDIM

PROJECT NO.: NJ-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-046
STORET STATION: 601

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C FILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

C IST:
A YTICAL METHOD:

C NO.: 1789 ORG SAMPLE NO: D 3349 INORG SAMPLE NO.: MD 356
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB DATA VERIFIED BY: JMS

REMARKS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *M-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE LOWER DETECTION LIMIT

*****ANALYTICAL RESULTS*****

RESULTS	UG/KG	COMPOUND NAME
20000		BENZOIC ACID
20000		2-METHYLPHENOL
20000		4-METHYLPHENOL
20000		2,4,5-TRICHLOROPHENOL
20000		ANILINE
20000		BENZYL ALCOHOL
20000		4-CHLOROANILINE
20000		DIBENZOFURAN
20000		2-METHYL NAPHTHALENE
20000		2-NITROANILINE
20000		3-NITROANILINE
20000		4-NITROANILINE

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG-IV
ATHENS GEORGIA

..,09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: H3C3814 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-009
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1600
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMIST: CHH
ANALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3354 INORG SAMPLE NO.: MD 361
TRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
20U	UG/KG	ALDRIN	39333
20U	UG/KG	HEPTACHLOR	39413
20U	UG/KG	HEPTACHLOR EPOXIDE	39423
20U	UG/KG	ALPHA-BHC	39076
20U	UG/KG	BETA-BHC	34257
20U	UG/KG	GAMMA-BHC (LINDANE)	39343
20U	UG/KG	DELTA-BHC	34202
20U	UG/KG	ENDOSULFAN I (ALPHA)	34364
20U	UG/KG	DIELDRIN	39383
20U	UG/KG	4,4'-DDT (P,P'-DDT)	39301
20U	UG/KG	4,4'-DDE (P,P'-DDE)	39321
20U	UG/KG	4,4'-DDD (P,P'-DDD)	39311
20U	UG/KG	ENDRIN	39393
20U	UG/KG	ENDOSULFAN II (BETA)	34359
20U	UG/KG	ENDOSULFAN SULFATE	34354
20U	UG/KG	CHLORDANE (TECH, MIXTURE) /1	39351
20U	UG/KG	PCB-1242 (AROCLOR 1242)	39499
20U	UG/KG	PCB-1254 (AROCLOR 1254)	39507
20U	UG/KG	PCB-1221 (AROCLOR 1221)	39491
20U	UG/KG	PCB-1232 (AROCLOR 1232)	39495
20U	UG/KG	PCB-1248 (AROCLOR 1248)	39503
20U	UG/KG	PCB-1260 (AROCLOR 1260)	39511
20U	UG/KG	PCB-1016 (AROCLOR 1016)	39514
80U	UG/KG	TOXAPHENE	39403
20U	UG/KG	ENDRIN ALDEHYDE	34369
20U	UG/KG	2,3,7,8 TCDD(DIOXIN)	34678
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39811
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
11	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG-IV
ATHENS GEORGIA

--/09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3827 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-001
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1200
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

'EMIST: CHH
ALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3346 INORG SAMPLE NO.: MD 353
.TRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
200U	UG/KG	ALDRIN	39333
200U	UG/KG	HEPTACHLOR	39413
200U	UG/KG	HEPTACHLOR EPOXIDE	39423
200U	UG/KG	ALPHA-BHC	39076
200U	UG/KG	BETA-BHC	34257
200U	UG/KG	GAMMA-BHC (LINDANE)	39343
200U	UG/KG	DELTA-BHC	34262
200U	UG/KG	ENDOSULFAN I (ALPHA)	34364
200U	UG/KG	DIELDRIN	39383
200U	UG/KG	4,4'-DDT (P,P'-DDT)	39301
200U	UG/KG	4,4'-DDE (P,P'-DDE)	39321
200U	UG/KG	4,4'-DDD (P,P'-DDD)	39311
200U	UG/KG	ENDRIN	39393
200U	UG/KG	ENDOSULFAN II (BETA)	34359
200U	UG/KG	ENDOSULFAN SULFATE	34354
200U	UG/KG	CHLORDANE (TECH, MIXTURE) /1	39351
200U	UG/KG	PCB-1242 (AROCLOR 1242)	39499
200U	UG/KG	PCB-1254 (AROCLOR 1254)	39507
200U	UG/KG	PCB-1221 (AROCLOR 1221)	39491
200U	UG/KG	PCB-1232 (AROCLOR 1232)	39495
200U	UG/KG	PCB-1248 (AROCLOR 1248)	39503
200U	UG/KG	PCB-1260 (AROCLOR 1260)	39511
200U	UG/KG	PCB-1016 (AROCLOR 1016)	39514
800U	UG/KG	TOXAPHENE	39403
200U	UG/KG	ENDRIN ALDEHYDE	34369
200U	UG/KG	2,3,7,8 TCDD(DIOXIN)	34676
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39811
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
34	%	MOISTURE	70320

****

FOOTNOTES
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THE MINIMUM DETECTION LIMIT.
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

..2/20/83

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3807 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN AQUA PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SEP-002
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1210
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 09/00/00 REC'D BY:
SEALED:

CHEMIST: MAH
ANALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3347 INORG SAMPLE NO.: MD 354
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB SAMPLE DATA VERIFIED BY: HAU

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS
X-VALUE IS SUSPECT

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
3.2	MG/KG	SILVER	01078
4.6	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
120	MG/KG	BARIUM	01008
0.25U	MG/KG	BERYLLIUM	01013
0.05U	MG/KG	CADMIUM	01028
24	MG/KG	COBALT	01038
28	MG/KG	CHROMIUM	01029
29	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
43	MG/KG	NICKEL	01068
23	MG/KG	LEAD	01052
1U	MG/KG	ANTIMONY	01098
1U	MG/KG	SELENIUM	01148
21X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01083
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.5U	MG/KG	THALLIUM	34480
34	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
21	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.1U	MG/KG	MERCURY	71921
12000	MG/KG	ALUMINUM	01108
560	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
22000	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
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THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSD,REG IV
ATHENS GEORGIA

1/20/83 METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: N3C3N0R SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: S-P-003
SIGNET STATION LOC:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1215
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C JILL RECEIVED FROM:
SAMPLE RECD: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ANALYST: MAR
ANALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3340 INORG SAMPLE NO.: ND 355
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TMB SAMPLE DATA VERIFIED BY: MAR

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS
X-VALUE IS SUSPECT

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
2.9	MG/KG	SILVER	01078
6.6	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
93	MG/KG	BARIUM	01008
0.32	MG/KG	BERYLLIUM	01013
0.05U	MG/KG	CADMIUM	01028
12	MG/KG	COBALT	01038
26	MG/KG	CHROMIUM	01029
19	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
20	MG/KG	NICKEL	01066
20	MG/KG	LEAD	01052
1U	MG/KG	ANTIMONY	01098
1U	MG/KG	SELENIUM	01148
13X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01083
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.5U	MG/KG	THALLIUM	34480
25	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
25	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.1U	MG/KG	MERCURY	71921
8800	MG/KG	ALUMINUM	01108
270	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
20000	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

****

FOOTNOTES
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*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

12/20/83

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 63C3409 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: RSF
SOURCE: SOUTHERN HARD PIEDMONT
CITY: GOLF STATE: NC

STATION: 1.1.1 SAP-006
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

INITIAL MAN
ALYTICAL METHOD:

SAMPLE NO.: 1789 ORG SAMPLE NO: D 3349 INORG SAMPLE NO.: MD 356
EXTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRH SAMPLE DATA VERIFIED BY: MAW

REMARKS
DATA REPORTED ON WET WEIGHT BASIS
X-VALUE IS SUSPECT

****

FOOTNOTES
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*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
1.5	MG/KG	SILVER	01078
3.8	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
44	MG/KG	BARIUM	01008
0.46	MG/KG	BERYLLIUM	01013
0.050	MG/KG	CADMIUM	01028
15	MG/KG	COBALT	01038
7.2	MG/KG	CHROMIUM	01029
12	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
16	MG/KG	NICKEL	01068
15	MG/KG	LEAD	01052
10	MG/KG	ANTIMONY	01098
10	MG/KG	SELENIUM	01148
9.1X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01083
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.50	MG/KG	THALLIUM	34480
100	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
37	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.10	MG/KG	MERCURY	71921
5400	MG/KG	ALUMINUM	01108
220	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
10000	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

12/20/83

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3810 SAMPLE TYPE: SEDIM

PROJECT NO.: 81-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN JOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SAP-005
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1330
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ICMIST: MAW
ALYTICAL METHOD:

CASE NO.: 1749 ORG SAMPLE NO: D 3350 INORG SAMPLE NO.: MD 357
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TAR SAMPLE DATA VERIFIED BY: MAW

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS
X-VALUE IS SUSPECT

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
0.99	MG/KG	SILVER	01078
4.4	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
56	MG/KG	BARIUM	01008
1.1	MG/KG	BERYLLIUM	01013
0.05U	MG/KG	CADMIUM	01028
15	MG/KG	COBALT	01038
6.3	MG/KG	CHROMIUM	01029
15	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
20	MG/KG	NICKEL	01068
13	MG/KG	LEAD	01052
1U	MG/KG	ANTIMONY	01098
1U	MG/KG	SELENIUM	01148
11X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01083
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.5U	MG/KG	THALLIUM	34480
10U	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
50	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.1U	MG/KG	MERCURY	71921
4900	MG/KG	ALUMINUM	01108
160	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
7600	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

12/20/83

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3811 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN POND PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SAP-004
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

HIST: HAW
LYTICAL METHOD:

NO.: 1769 ORG SAMPLE NO: D 3351 INORG SAMPLE NO.: ND 358
RACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DBB SAMPLE DATA VERIFIED BY: HAW

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS
X-VALUE IS SUSPECT

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
1.6	MG/KG	SILVER	01078
5.6	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
45	MG/KG	BARIUM	01008
0.38	MG/KG	BERYLLIUM	01013
0.050	MG/KG	CADMIUM	01026
9.4	MG/KG	COBALT	01038
7.4	MG/KG	CHROMIUM	01029
12	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
14	MG/KG	NICKEL	01068
16	MG/KG	LEAD	01052
10	MG/KG	ANTIMONY	01098
10	MG/KG	SELENIUM	01148
11X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01083
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.50	MG/KG	THALLIUM	34480
100	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
42	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.10	MG/KG	MERCURY	71921
5800	MG/KG	ALUMINUM	01108
160	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
11000	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

12/20/83

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: R3C3812 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-199 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN 300M PIEDMONT
CITY: GULF STATE: NC

STATION NO.: SAP-007
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1445
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TIDL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ANIST: MAW
ALYTICAL METHOD:

E NO.: 1789 DEG SAMPLE NO: D 3352 INORG SAMPLE NO.: NO 359
TRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB SAMPLE DATA VERIFIED BY: MAW

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS
X-VALUE IS SUSPECT

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
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THE [illegible] LIMIT

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
2.7	MG/KG	SILVER	01078
5.9	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
46	MG/KG	BARIUM	01006
0.4	MG/KG	BERYLLIUM	01013
0.05U	MG/KG	CADMIUM	01028
9.2	MG/KG	COBALT	01036
9.7	MG/KG	CHROMIUM	01029
20	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
11	MG/KG	NICKEL	01068
19	MG/KG	LEAD	01052
1U	MG/KG	ANTIMONY	01098
1U	MG/KG	SELENIUM	01148
7.7X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01083
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.5U	MG/KG	THALLIUM	34480
14	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
30	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.1U	MG/KG	MERCURY	71921
6600	MG/KG	ALUMINUM	01108
160	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
18000	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

12/20/83

DETAILS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: S4C3513 SAMPLE TYPE: SEDIM

PROJECT NO.: 01-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN 7000 PLEASANT
CITY: GULF STATE: SC

STATION I.D.: S4C-000
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1540
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TUTT RECEIVED FROM:
SAMPLE RECD: DATE/TIME 00/00/00 RECD BY:
SEALED:

ANALYSIS NAME
ANALYTICAL METHOD:

E 40.1 1789 REG SAMPLE NO: D 3353 (WORG SAMPLE NO.: TD 360
CONTRACT LABORATORY(INORGANIC): VERSAR
CONTRACT LABORATORY(ORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOM SAMPLE DATA VERIFIED BY: MAW

REMARKS
DATA REPORTED ON A DRY WEIGHT BASIS
X-VALUE IS SUSPECT

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
2.1	MG/KG	SILVER	01078
3.5	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
100	MG/KG	BARIUM	01008
0.3	MG/KG	BERYLLIUM	01013
0.08	MG/KG	CADMIUM	01028
11	MG/KG	COBALT	01036
13	MG/KG	CHROMIUM	01029
18	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
14	MG/KG	NICKEL	01068
21	MG/KG	LEAD	01052
10	MG/KG	ANTIMONY	01096
10	MG/KG	SELENIUM	01148
9.5X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01063
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.5U	MG/KG	THALLIUM	34480
19	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
36	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.1U	MG/KG	MERCURY	71921
6300	MG/KG	ALUMINUM	01106
940	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
14000	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *R-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE [illegible] LIMIT

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

12/20/83

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: N3C3014 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN-APPL PIED.MAT
CITY: GULF STATE: NC

STATION I.D.: S W-009
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1600
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMISTRY
ANALYTICAL METHOD:

SAMPLE NO.: 1789 ORG SAMPLE NO: P 3354 INORG SAMPLE NO.: MD 361
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOR SAMPLE DATA VERIFIED BY: HAW

REMARKS
DATA REPORTED ON ALL WEIGHT BASIS
X-VALUE IS SUSPECT

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE LOWEST DETECTION LIMIT

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	SIGNEI
1.4	MG/KG	SILVER	01078
2.4	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
29	MG/KG	BARIUM	01008
0.25U	MG/KG	BERYLLIUM	01013
0.05U	MG/KG	CADMIUM	01028
5.4	MG/KG	COBALT	01038
4.6	MG/KG	CHROMIUM	01029
3.9	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
2.3	MG/KG	NICKEL	01068
8.9	MG/KG	LEAD	01052
10	MG/KG	ANTIMONY	01098
10	MG/KG	SELENIUM	01148
3.3X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01083
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.5U	MG/KG	THALLIUM	34480
12	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
13	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.1U	MG/KG	MERCURY	71921
3200	MG/KG	ALUMINUM	01108
260	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
9500	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

../20/84

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: H3C3H27 SAMPLE TYPE: SEDI

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN SOUD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: S00-001
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1200
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C FILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 09/00/00 REC'D BY:
SEALED:

CHEMIST: RAW
ANALYTICAL METHOD:

SE NO.: 1789 GRG SAMPLE NO: D 3346 INORG SAMPLE NO.: HD 353
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TMM SAMPLE DATA VERIFIED BY: RAW

REMARKS
X-VALUE IS SUSPECT
DATA REPORTED ON DRY WEIGHT BASIS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
2.5	MG/KG	SILVER	01078
7.8	MG/KG	ARSENIC	01003
50	MG/KG	BORON	01023
81	MG/KG	BARIUM	01008
0.250	MG/KG	BERYLLIUM	01013
0.050	MG/KG	CADMIUM	01028
10	MG/KG	COBALT	01038
22	MG/KG	CHROMIUM	01029
17	MG/KG	COPPER	01043
NA	MG/KG	MOLYBDENUM	01063
26	MG/KG	NICKEL	01068
20	MG/KG	LEAD	01052
10	MG/KG	ANTIMONY	01098
10	MG/KG	SELENIUM	01148
19X	MG/KG	TIN	01103
NA	MG/KG	STRONTIUM	01083
NA	MG/KG	TELLURIUM	45513
NA	MG/KG	TITANIUM	01153
0.50	MG/KG	THALLIUM	34480
23	MG/KG	VANADIUM	01088
NA	MG/KG	YTTRIUM	45514
22	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.10	MG/KG	MERCURY	71921
9700	MG/KG	ALUMINUM	01106
290	MG/KG	MANGANESE	01053
NA	MG/KG	CALCIUM	00917
NA	MG/KG	MAGNESIUM	00924
16000	MG/KG	IRON	01170
NA	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM,HEXAVALENT	
NA	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *M-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,SEG IV
ATHENS GEORGIA

12/20/83

SPECIFIED ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: R3C3H10 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHEAST SOUND DIEDMONT
CITY: GULF STATE: NC

STATION I.D.: NSF-005
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1330
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TOLL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ANALYSIS NAME: CHEMISTRY
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3350 INORG SAMPLE NO.: 20 357
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY FTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOM DATA VERIFIED BY: MAW

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-NOT DETECTED THE NUMBER IS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	PARAMETER
0.50	MG/KG	CYANIDE

SITEREF
03721

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

20/03

SPECIFIED ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: M3C3H1 SAMPLE TYPE: SEDIM

PROJECT NO.: H1-190 PROGRAM ELEMENT: HSF
SOURCE: SOUTHERN AMMO PIEDMONT
CITY: GOLF STATE: NC

STATION L.L.: S-P-004
STORET STATION NO.

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMIST: PA CHEMIST:
ANALYTICAL METHOD:

SAMPLE NO.: 1769 ORG SAMPLE NO: D 3351 INORG SAMPLE NO.: MB 35H
TRACE LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: PRB DATA VERIFIED BY: DAW

REMARKS
DATA REPORTED ON DRY WT EIGHT BASIS

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FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *P-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	PARAMETER	STORET
0.50	MG/KG	CYANIDE	00721

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	PARAMETER
0.50	MG/KG	CYANIDE

SHEET
00721

12/20/83

SPECIFIED ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: HJC1512 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 - PROGRAM ELEMENT: HSF
SOURCE: SOUTHERN OHIO PIPELINE
CITY: GULF STATE: OH

STATION I.D.: S-W-007
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1445
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C HILG RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ANALYST: MAL CHEMIST:
ANALYTICAL METHOD:

ORG NO.: 1789 ORG SAMPLE NO: P 3352 INORG SAMPLE NO.: SD 359
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOM DATA VERIFIED BY: MAW

REMARKS
DATA REPORTED ON WET WEIGHT BASIS

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATLANTA GEORGIA

..20/83

SPECIFIED ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C1313 SAMPLE TYPE: SEDIM

PROJECT NO.: 33-190 PROGRAM ELEMENT: HSF
SOURCE: SOUTHERN SUND PIEDMONT
CITY: GULF STATE: GC

STATION I.D.: SAP-008
SIDNEY STATION: 001

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1540
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILE RECEIVED FROM:
SAMPLE RECD: DATE/TIME 00/00/00 RECD BY:
SEALED:

CHIST: MAR CHEMIST:
ANALYTICAL METHOD:

NO.: 1749 ORG SAMPLE NO: D 3153 INORG SAMPLE NO.: LD 360
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOM DATA VERIFIED BY: MAR

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *P-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	PARAMETER	STORET
0.50	MG/KG	CYANIDE	00721

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3807 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-002
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1210
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ANIST: CHH
ALYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3347 INORG SAMPLE NO.: MD 354
TRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
20U	UG/KG	ALDRIN	39333
20U	UG/KG	HEPTACHLOR	39413
20U	UG/KG	HEPTACHLOR EPOXIDE	39423
20U	UG/KG	ALPHA-BHC	39076
20U	UG/KG	BETA-BHC	34257
20U	UG/KG	GAMMA-BHC (LINDANE)	39343
20U	UG/KG	DELTA-BHC	34262
20U	UG/KG	ENDOSULFAN 1 (ALPHA)	34364
20U	UG/KG	DIELDRIN	39383
20U	UG/KG	4,4'-DDT (P,P'-DDT)	39301
20U	UG/KG	4,4'-DDE (P,P'-DDE)	39321
20U	UG/KG	4,4'-DDD (P,P'-DDD)	39311
20U	UG/KG	ENDRIN	39393
20U	UG/KG	ENDOSULFAN 11 (BETA)	34359
20U	UG/KG	ENDOSULFAN SULFATE	34354
20U	UG/KG	CHLORDANE (TECH, MIXTURE) /1	39351
20U	UG/KG	PCB-1242 (AROCLOR 1242)	39499
20U	UG/KG	PCB-1254 (AROCLOR 1254)	39507
20U	UG/KG	PCB-1221 (AROCLOR 1221)	39491
20U	UG/KG	PCB-1232 (AROCLOR 1232)	39495
20U	UG/KG	PCB-1248 (AROCLOR 1248)	39503
20U	UG/KG	PCB-1260 (AROCLOR 1260)	39511
20U	UG/KG	PCB-1016 (AROCLOR 1016)	39514
80U	UG/KG	TOXAPHENE	39403
20U	UG/KG	ENDRIN ALDEHYDE	34369
20U	UG/KG	2,3,7,8 TCDD(DIOXIN)	34676
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39811
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
30	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.
1. WHEN NO VALUE IS REPORTED. SEE CHLORDANE CONSTITUENTS.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3808 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-003
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1215
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHEMIST: CHH
ANALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3348 INORG SAMPLE NO.: MD 355
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
20U	UG/KG	ALDRIN	39333
20U	UG/KG	HEPTACHLOR	39413
20U	UG/KG	HEPTACHLOR EPOXIDE	39423
20U	UG/KG	ALPHA-BHC	39076
20U	UG/KG	BETA-BHC	34257
20U	UG/KG	GAMMA-BHC (LINDANE)	39343
20U	UG/KG	DELTA-BHC	34262
20U	UG/KG	ENDOSULFAN I (ALPHA)	34364
20U	UG/KG	DIELDRIN	39383
20U	UG/KG	4,4'-DDT (P,P'-DDT)	39301
20U	UG/KG	4,4'-DDE (P,P'-DDE)	39321
20U	UG/KG	4,4'-DDD (P,P'-DDD)	39311
20U	UG/KG	ENDRIN	39393
20U	UG/KG	ENDOSULFAN II (BETA)	34359
20U	UG/KG	ENDOSULFAN SULFATE	34354
20U	UG/KG	CHLORDANE (TECH, MIXTURE) /1	39351
20U	UG/KG	PCB-1242 (AROCLOR 1242)	39499
20U	UG/KG	PCB-1254 (AROCLOR 1254)	39507
20U	UG/KG	PCB-1221 (AROCLOR 1221)	39491
20U	UG/KG	PCB-1232 (AROCLOR 1232)	39495
20U	UG/KG	PCB-1248 (AROCLOR 1248)	39503
20U	UG/KG	PCB-1260 (AROCLOR 1260)	39511
20U	UG/KG	PCB-1016 (AROCLOR 1016)	39514
80U	UG/KG	TOXAPHENE	39403
20U	UG/KG	ENDRIN ALDEHYDE	34369
20U	UG/KG	2,3,7,8 TCDD(DIOXIN)	34076
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39811
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
28	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.
WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3809 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-006
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

ANALYST: CHH
ANALYTICAL METHOD:

CASE NO.: 1789 ORG SAMPLE NO: D 3349 INORG SAMPLE NO.: MD 356
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
20U	UG/KG	ALDRIN	39333
20U	UG/KG	HEPTACHLOR	39413
20U	UG/KG	HEPTACHLOR EPOXIDE	39423
20U	UG/KG	ALPHA-BHC	39076
20U	UG/KG	BETA-BHC	34257
20U	UG/KG	GAMMA-BHC (LINDANE)	39343
20U	UG/KG	DELTA-BHC	34262
20U	UG/KG	ENDOSULFAN I (ALPHA)	34364
20U	UG/KG	DIELDRIN	39383
20U	UG/KG	4,4'-DDT (P,P'-DDT)	39301
20U	UG/KG	4,4'-DDE (P,P'-DDE)	39321
20U	UG/KG	4,4'-DDD (P,P'-DDD)	39311
20U	UG/KG	ENDRIN	39393
20U	UG/KG	ENDOSULFAN II (BETA)	34359
20U	UG/KG	ENDOSULFAN SULFATE	34354
20U	UG/KG	CHLORDANE (TECH, MIXTURE) /1	39351
20U	UG/KG	PCB-1242 (AROCLOR 1242)	39499
20U	UG/KG	PCB-1254 (AROCLOR 1254)	39507
20U	UG/KG	PCB-1221 (AROCLOR 1221)	39491
20U	UG/KG	PCB-1232 (AROCLOR 1232)	39495
20U	UG/KG	PCB-1248 (AROCLOR 1248)	39503
20U	UG/KG	PCB-1260 (AROCLOR 1260)	39511
20U	UG/KG	PCB-1016 (AROCLOR 1016)	39514
80U	UG/KG	TOXAPHENE	39403
20U	UG/KG	ENDRIN ALDEHYDE	34369
20U	UG/KG	2,3,7,8 TCDD(DIOXIN)	34678
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39811
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
12	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
[illegible] DETECTION LIMIT. [illegible] CONSTITUENTS.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3810 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-005
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1330
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHIST: CHH
ALYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3350 INORG SAMPLE NO.: MD 357
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THH DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
100U	UG/KG	ALDRIN	39333
100U	UG/KG	HEPTACHLOR	39413
100U	UG/KG	HEPTACHLOR EPOXIDE	39423
100U	UG/KG	ALPHA-BHC	39076
100U	UG/KG	BETA-BHC	34257
100U	UG/KG	GAMMA-BHC (LINDANE)	39343
100U	UG/KG	DELTA-BHC	34262
100U	UG/KG	ENDOSULFAN 1 (ALPHA)	34364
100U	UG/KG	DIELDRIN	39383
100U	UG/KG	4,4'-DDT (P,P'-DDT)	39301
100U	UG/KG	4,4'-DDE (P,P'-DDE)	39321
100U	UG/KG	4,4'-DDD (P,P'-DDD)	39311
100U	UG/KG	ENDRIN	39393
100U	UG/KG	ENDOSULFAN II (BETA)	34359
100U	UG/KG	ENDOSULFAN SULFATE	34354
100U	UG/KG	CHLORDANE (TECH. MIXTURE) /1	39351
100U	UG/KG	PCB-1242 (AROCLOR 1242)	39499
100U	UG/KG	PCB-1254 (AROCLOR 1254)	39507
100U	UG/KG	PCB-1221 (AROCLOR 1221)	39491
100U	UG/KG	PCB-1232 (AROCLOR 1232)	39495
100U	UG/KG	PCB-1248 (AROCLOR 1248)	39503
100U	UG/KG	PCB-1260 (AROCLOR 1260)	39511
100U	UG/KG	PCB-1016 (AROCLOR 1016)	39514
400U	UG/KG	TOXAPHENE	39403
100U	UG/KG	ENDRIN ALDEHYDE	34369
1000U	UG/KG	2,3,7,8 TCDD(DIOXIN)	34678
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39011
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
17	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.
*..... NO VALUE IS REPORTED. SEE CHLORDANE CONSTITUENTS.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: B3C3811 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-004
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1315
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHIST: CHH
ANALYTICAL METHOD:

LOT NO.: 1789 ORG SAMPLE NO: D 3351 INORG SAMPLE NO.: MD 358
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
100U	UG/KG	ALDRIN	39333
100U	UG/KG	HEPTACHLOR	39413
100U	UG/KG	HEPTACHLOR EPOXIDE	39423
100U	UG/KG	ALPHA-BHC	39076
100U	UG/KG	BETA-BHC	34257
100U	UG/KG	GAMMA-BHC (LINDANE)	39343
100U	UG/KG	DELTA-BHC	34262
100U	UG/KG	ENDOSULFAN I (ALPHA)	34364
100U	UG/KG	DIELDRIN	39383
100U	UG/KG	4,4'-DDT (P,P'-DDT)	39301
100U	UG/KG	4,4'-DDE (P,P'-DDE)	39321
100U	UG/KG	4,4'-DDD (P,P'-DDD)	39311
100U	UG/KG	ENDRIN	39393
100U	UG/KG	ENDOSULFAN II (BETA)	34359
100U	UG/KG	ENDOSULFAN SULFATE	34354
100U	UG/KG	CHLORDANE (TECH. MIXTURE) /1	39351
100U	UG/KG	PCB-1242 (AROCLOR 1242)	39499
100U	UG/KG	PCB-1254 (AROCLOR 1254)	39507
100U	UG/KG	PCB-1221 (AROCLOR 1221)	39491
100U	UG/KG	PCB-1232 (AROCLOR 1232)	39495
100U	UG/KG	PCB-1248 (AROCLOR 1248)	39503
100U	UG/KG	PCB-1260 (AROCLOR 1260)	39511
100U	UG/KG	PCB-1016 (AROCLOR 1016)	39514
400U	UG/KG	TOXAPHENE	39403
100U	UG/KG	ENDRIN ALDEHYDE	34369
100U	UG/KG	2,3,7,8 TCDD(DIOXIN)	34678
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39811
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
22	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.
*[illegible] CONSTITUENTS.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

.09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3812 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: S-P-007
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1445
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

'EMIST: CHH
ALYTICAL METHOD:

E NO.: 1789 ORG SAMPLE NO: D 3352 INORG SAMPLE NO.: MD 359
TRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TAB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
100U	UG/KG	ALDRIN	39333
100U	UG/KG	HEPTACHLOR	39413
100U	UG/KG	HEPTACHLOR EPOXIDE	39423
100U	UG/KG	ALPHA-BHC	39076
100U	UG/KG	BETA-BHC	39237
100U	UG/KG	GAMMA-BHC (LINDANE)	39343
100U	UG/KG	DELTA-BHC	34202
100U	UG/KG	ENDOSULFAN I (ALPHA)	34304
100U	UG/KG	DIELDRIN	39383
100U	UG/KG	4,4'-DDT (P,P'-DDT)	39301
100U	UG/KG	4,4'-DDE (P,P'-DDE)	39321
100U	UG/KG	4,4'-DDD (P,P'-DDD)	39311
100U	UG/KG	ENDRIN	39393
100U	UG/KG	ENDOSULFAN II (BETA)	34359
100U	UG/KG	ENDOSULFAN SULFATE	34354
100U	UG/KG	CHLORDANE (TECH, MIXTURE) /1	39351
100U	UG/KG	PCB-1242 (AROCLOR 1242)	39499
100U	UG/KG	PCB-1254 (AROCLOR 1254)	39507
100U	UG/KG	PCB-1221 (AROCLOR 1221)	39491
100U	UG/KG	PCB-1232 (AROCLOR 1232)	39495
100U	UG/KG	PCB-1248 (AROCLOR 1248)	39503
100U	UG/KG	PCB-1260 (AROCLOR 1260)	39511
100U	UG/KG	PCB-1016 (AROCLOR 1016)	39514
400U	UG/KG	TOXAPHENE	39403
100U	UG/KG	ENDRIN ALDEHYDE	34369
100U	UG/KG	2,3,7,8 TCDD(DIOXIN)	34678
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39811
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
8	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS,

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

03/09/84 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 83C3813 SAMPLE TYPE: SEDIM

PROJECT NO.: 83-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN WOOD PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: SWP-008
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1540
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

CHMIST: CHH
ANALYTICAL METHOD:

: NO.: 1789 ORG SAMPLE NO: D 3353 INORG SAMPLE NO.: MD 360
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TAB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
200	UG/KG	ALDRIN	39333
200	UG/KG	HEPTACHLOR	39413
200	UG/KG	HEPTACHLOR EPOXIDE	39423
200	UG/KG	ALPHA-BHC	39076
200	UG/KG	BETA-BHC	34257
200	UG/KG	GAMMA-BHC (LINDANE)	39343
200	UG/KG	DELTA-BHC	34262
200	UG/KG	ENDOSULFAN I (ALPHA)	34364
200	UG/KG	DIELDRIN	39363
200	UG/KG	4,4'-DDT (P,P'-DDT)	39301
200	UG/KG	4,4'-DDE (P,P'-DDE)	39321
200	UG/KG	4,4'-DDD (P,P'-DDD)	39311
200	UG/KG	ENDRIN	39393
200	UG/KG	ENDOSULFAN II (BETA)	34359
200	UG/KG	ENDOSULFAN SULFATE	34354
200	UG/KG	CHLORDANE (TECH. MIXTURE) /1	39351
200	UG/KG	PCB-1242 (AROCLOR 1242)	39499
200	UG/KG	PCB-1254 (AROCLOR 1254)	39507
200	UG/KG	PCB-1221 (AROCLOR 1221)	39491
200	UG/KG	PCB-1232 (AROCLOR 1232)	39495
200	UG/KG	PCB-1248 (AROCLOR 1248)	39503
200	UG/KG	PCB-1260 (AROCLOR 1260)	39511
200	UG/KG	PCB-1016 (AROCLOR 1016)	39514
800	UG/KG	TOXAPHENE	39403
200	UG/KG	ENDRIN ALDEHYDE	34369
200	UG/KG	2,3,7,8 TCDD(DIOXIN)	34678
--	UG/KG	CHLORDENE /2	81765
--	UG/KG	ALPHA-CHLORDENE /2	
--	UG/KG	GAMMA-CHLORDENE /2	
--	UG/KG	1-HYDROXYCHLORDENE /2	
--	UG/KG	GAMMA-CHLORDANE /2	39811
--	UG/KG	TRANS-NONACHLOR /2	39073
--	UG/KG	ALPHA-CHLORDANE /2	
--	UG/KG	CIS-NONACHLOR /2	39070
NA	UG/KG	METHOXYCHLOR	39481
30	%	MOISTURE	70320

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.
1 WHEN NO VALUE IS REPORTED. SEE CHLORDANE CONSTITUENTS.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
FPL-FSO,REG IV
ATHENS GEORGIA

12/20/83

SPECIFIED ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: N3C3414 SAMPLE TYPE: SEDIM

PROJECT NO.: R1-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN. CORP PIEDMONT
CITY: GULF STATE: GA

STATION I.D.: S-F-004
STORET STATION: 001

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1600
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TIBB RECEIVED FROM:
SAMPLE REC'D: DATE/TIME 00/00/00 REC'D BY:
SEALED:

HIST: NAW CHEMISTS
LYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3354 INORG SAMPLE NO.: GD 361
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOB DATA VERIFIED BY: NAW

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS

*****ANALYTICAL RESULTS****

RESULTS	UNITS	PARAMETER	STORET
0.50	MG/KG	CYANIDE	00721

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *P-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

12/20/83

SPECIFIED ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: R3C3827 SAMPLE TYPE: SEDIM

PROJECT NO.: R3-190 PROGRAM ELEMENT: NSF
SOURCE: SOUTHERN 2000 PIEDMONT
CITY: GULF STATE: NC

STATION I.D.: S P-001
STORET STATION 001:

SAMPLE COLLECTION: START DATE/TIME 09/21/83 1200
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: C TILL RECEIVED FROM:
SAMPLE RECD: DATE/TIME 00/00/00 REC'D BY:
SEALED:

LIST: MAN CHECKLIST:
ANALYTICAL METHOD:

NO.: 1789 ORG SAMPLE NO: D 3346 INORG SAMPLE NO.: BD 353
CONTRACT LABORATORY(ORGANIC): VERSAR
CONTRACT LABORATORY(INORGANIC): ROCKY MTN ANAL LAB

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THR DATA VERIFIED BY: MAW

REMARKS
DATA REPORTED ON DRY WEIGHT BASIS

****ANALYTICAL RESULTS****

RESULTS	UNITS	PARAMETER	STORET
0.5U	UG/KG	CYANIDE	00721

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *P-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE REPORTING DETECTION LIMIT.

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #2
LI USING ENGINEER'S SCALE (1/60)

SITE NAME: SOUTHERN WOOD Piedmont CERCLIS #: NCD 053 488 557

AKA: N/A SSID: N/A

ADDRESS: 2139 State Rd

CITY: Gulf STATE: NC ZIP CODE: 27256

SITE REFERENCE POINT: ACTUAL SITE

USGS QUAD MAP NAME: Goldstone TOWNSHIP: ____ N/S RANGE: ____ E/W

SCALE: 1:24,000 MAP DATE: 1970 Rv 1981 SECTION: ____ 1/4 ____ 1/4 ____ 1/4

MAP DATUM: (1927) 1983 (CIRCLE ONE) MERIDIAN: ____

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 79 ° 15 ' 00 " LATITUDE: 35 ° 30 ' 00

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 79 ° 15 ' 00 " LATITUDE: 35 ° 32 ' 30 "

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 204

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 67.40 "

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 1 ' 07 . 40

D) ADD TO STARTING LATITUDE: 35 ° 32 30 00 + 1 ' 07 . 40 =

SITE LATITUDE: 35 ° 33 ' 37 . 5 "

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 297

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 98 . 13 "

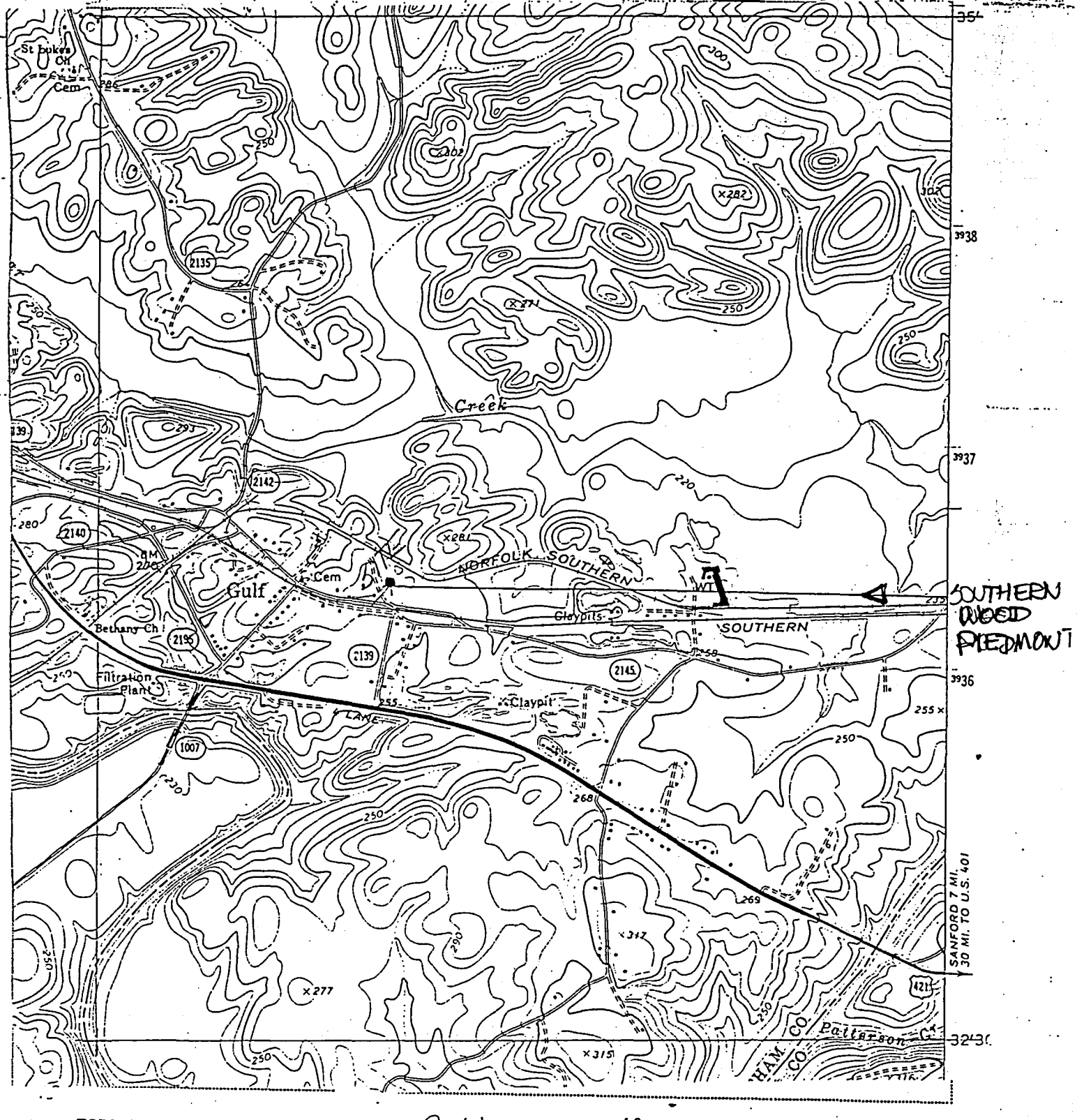
C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 1 ' 38 . 13 "

D) ADD TO STARTING LONGITUDE: 79 ° 15 ' 00 . 00 + 1 ' 38 . 13 =

SITE LONGITUDE: 79 ° 16 ' 38 . 0 "

INVESTIGATOR: Holly L Spires DATE: 4-15-92

SITE NAME: SOUTHERN WOOD Piedmont NUMBER: NCD 055 488 557



TOPOGRAPHIC MAP QUADRANGLE NAME: GOLDSTONE NC SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

LATITUDE: 35° 30' 00" LONGITUDE: 79° 15' 00"

Ref. 5

North Carolina Department of Human Resources
Division of Health Services
P.O. Box 2091 • Raleigh, North Carolina 27602-2091

James G. Martin, Governor
David T. Flaherty, Secretary

Ronald H. Levine, M.D., M.P.H.
State Health Director

24 November 1987

Mr. Bob Holman
NC Dept. of NRCD-DEM
Water Quality Planning
PO Box 27687
Raleigh, NC 27611

Dear Bob:

RE: Southern Wood Piedmont Company
NCD 053 488 557

In response to your questions about the impact of this facility on the proposed downstream water intake, I have reviewed our files and talked with USEPA about past waste handling practices and about closure actions at Southern Wood Piedmont. The facility began operations in 1946 as a wood preserving plant using creosote, pentachlorophenol, and chromated copper arsenate. The wastes were handled by an 8000 GPD non-discharge type waste water treatment facility which included storage-settling ponds, aeration lagoons, and a spray irrigation area (NC DEM Permit No. 3931). In 1980 the facility was closed by dismantling the plant, by evaporating the liquids remaining in the lagoons by increased spray irrigation (NC DEM Permit No. 3931-R), and by regrading and seeding the land. In 1981 the company filed a Notification of Hazardous Waste Site (CERCLA 103(C)) with USEPA.

In September 1983 the site was investigated by a Field Investigation Team (FIT) from USEPA. They sampled soil from the old lagoon areas and from the drainage ditch that carries run-off into Cedar Creek. They also sampled Cedar Creek sediment upstream and downstream of the confluence of the drainage ditch and Cedar Creek, sediment at the confluence, and sediment from the floodplain upstream of the confluence. Their sample analyses show plainly that contamination from wood treating chemicals exists in the soil in the old lagoon areas and along the drainage ditch. However, the data do not clearly show that stream sediment in Cedar Creek is contaminated with chemicals that originated at the wood treating site.

I contacted Ms. Giezelle Bennett of USEPA, Region IV, (404) 347-3402, who told me that the site achieved a Hazard Ranking System (HRS) score of 15.57 based on data gathered by the USEPA FIT. This score is insufficient to warrant the site's inclusion on the National Priorities List (NPL), and

presently, USEPA is taking no remedial action there. In the future some clean-up may be directed by either USEPA or by the state agency responsible for old hazardous waste sites, particularly since the new intake is just under three stream miles downstream of the site.

In summary, the FIT data show contamination by extractable organic compounds in the soil of the site and in the sediment of Cedar Creek. These contaminants are within three miles upstream of the proposed intake. It may be prudent to move the intake upstream of the confluence of Cedar Creek and the Deep River and therefore upstream of any contamination that could come from the Souther Wood Piedmont facility.

I have included copies of appropriate parts of our file. If you have any questions, please call me at 733-2801 or Ms. Giezelle Bennett at (404) 347-3402.

Sincerely,

Grover Nicholson

Grover Nicholson, Geologist
CERCLA Unit
Solid and Hazardous Waste Management Branch
Environmental Health Section

GN/ds/0400b/67-68

GEOLOGY AND GROUND-WATER
in the
DURHAM AREA, NORTH CAROLINA

By

GEORGE L. BAIN
Geologist, U. S. Geological Survey

Chemical Quality of Water Section

By

J. D. THOMAS, *Chemist*, U. S. Geological Survey

GROUND-WATER BULLETIN NUMBER 7

NORTH CAROLINA
DEPARTMENT OF WATER RESOURCES
GEORGE E. PICKETT, *Director*

Division of Ground Water
HARRY M. PEEK, *Chief*

Prepared Cooperatively By
the Geological Survey
United States Department of the Interior

May
1966

Ref. 6

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Geology and Ground Water in the Durham Area, North Carolina

By

GEORGE L. BAIN

ABSTRACT

The Durham area is in the north-central part of the Piedmont physiographic province and consists of Chatham, Durham, Orange, Person, and Randolph Counties—a total of 2,605 square miles. In 1960 the area had a population of 269,641.

The Durham area is geologically complex. Most of it lies within the so-called Carolina slate belt, which consists of slightly metamorphosed, volcanic, and sedimentary rocks. The volcanic and sedimentary rocks are tightly to openly folded and are faulted and intruded by igneous plutons. The volcanic rocks are felsic to mafic in composition. The plutonic igneous rocks range in composition from granite to gabbro. The area outside the Carolina slate belt is underlain by mica gneiss, mica schist, and hornblende gneiss, and by younger rocks of Triassic age.

Ground water in the area is obtained from drilled, bored, and dug wells and from springs. It is stored in secondary openings such as the planes of schistosity, joints, and cleavage of the unweathered rocks or in the voids of the overlying porous mantle of soil and weathered rock. The relative abundance of secondary openings for the storage and transmission of ground water is not necessarily related to any particular rock type or mapped unit in the area.

At least three factors—rock type, depth of weathering, and topography—govern the potential yield at any one place in the Durham area. A statistical treatment of the well data shows that the two highest average yields, 0.20 and 0.18 gallon per minute per foot of uncased hole, are in granodiorite and granite. Depth of weathering is shown to have a greater influence on yields from the metavolcanic, and argillite-graywacke units than it has on yields from the triassic, and granite and granodiorite units, which appear to reflect topographic control.

Comparison of yields from different topographic situations

GEOGRAPHY

Area and Population

The area covered by this report totals 2,605 square miles. According to the 1960 Bureau of the Census report, the Durham area has a population of 269,741, or about 103 per square mile. There are 15 cities and towns having a population of more than 1,000 each. Of these, Asheboro, Chapel Hill, and Durham have a population in excess of 10,000. The city of Durham is by far the largest with a population of 79,398. With the exception of the Durham-Chapel Hill, and Asheboro-Randleman areas, the report area is almost exclusively rural.

Economic Development

According to the 1960 Census, 62 percent of the Durham area is classed as farmland.

The agricultural products include tobacco, corn, hay, dairy products, livestock, and poultry. Tobacco is the chief cash crop and is the major source of income for many farm families. The broiler industry is an important source of farm income in Chatham County.

Manufacturing is important in the Durham area. Many people who operate small farms are employed on a full or part-time basis by industry. Industries include the manufacture of cigarettes, furniture, textiles, lumber, brick, and tile; the production of crushed stone, and poultry processing.

Mineral resources of economic importance include shale, clay, stone, pyrophyllite, and coal (Broadhurst, 1955). Copper, gold, lead, zinc, quartz, iron ore, and kyanite also are present in the Durham area. Triassic shale and clay used in the manufacture of brick and tile, and stone, which is crushed for road metal and general construction purposes, are the area's most valuable mineral resources. Argillite from the argillite-graywacke unit (pl. 2) meets the rigid requirements for primary highway construction. The argillite, where it is well sheared and jointed, has proved to be an economic source of crushed stone, owing to its ease of excavation and crushing. Where the argillite has a well-developed bedding plane cleavage and is not deformed, it is a potential source of building stone.

Pyrophyllite is mined only at Hillsboro in Orange County.

Coal is interbedded with the Triassic rocks in southern Chatham County in economic quantities (Reinemund, 1955), but it is not being mined at the present time. Copper deposits occur in Person County, and in Chatham County near Harpers Cross Roads, but they are not economically important under present market conditions.

Climate

Comparison of U. S. Weather Bureau records at five stations for the 30-year period 1931-60 reveals that the Durham area has a normal annual temperature of 60.1° F. Records of precipitation for the same period show that the normal annual precipitation at nine stations ranges from a maximum of 45.14 in. at Moncure in Chatham County to a minimum of 42.65 in. at Durham in Durham County. The normal monthly precipitation and temperature at the Chapel Hill station are plotted on figure 2.

Physiography and Drainage

The Durham area is within the Piedmont physiographic province. According to Fenneman (1938), the Piedmont is an uplifted peneplain in various stages of dissection, having a general slope from the mountains toward the Coastal Plain. In the southern part of Durham County and in the eastern part of Chatham County (pl. 2) the Piedmont upland is interrupted by a distinct lowland developed on weak Triassic rocks.

Topographic coverage is available for approximately one-tenth of the report area. Where coverage is not available, relief is estimated to rarely exceed 300 feet and to average about 50 feet per mile. An exception is in the vicinity of the Uwharrie Mountains in Randolph County, where relief commonly is in excess of 400 feet per mile. The Piedmont upland slopes from 850 feet in northwestern Randolph County to 180 feet in southeastern Chatham County, and from 700 feet in northeastern Orange County to 250 feet in eastern Durham County.

Surface water, derived from direct runoff and ground-water discharge, is drained by four major stream systems—the Pee Dee, the Cape Fear, the Neuse, and the Roanoke Rivers (fig. 3). Randolph County is drained by the Uwharrie River, which empties into the Pee Dee River, and by the Deep River, which empties into the Cape Fear River. The Deep River, which

Table 3. Average yield of wells in the argillite-graywacke unit

According to Range in Depth

Range in depth (feet)	Number of wells	Average depth (feet)	Average uncased depth 1/ (feet)	Yield (gallons per minute)		
				Average	Per foot of well	Per foot of uncased hole
0-100	49	73.7	37.9	7.4	0.10	0.20
0-150	64	87.1	51.3	7.2	.08	.14
0-200	72	96.6	60.8	7.5	.08	.12
0-283	74	100.6	64.8	7.4	.07	.11

1/Average casing depth for argillite-graywacke unit is 35.8 feet.

According to Topographic Location

Topographic location	Number of wells	Average depth (feet)	Average casing depth (feet)	Average uncased depth (feet)	Yield (gallons per minute)		
					Average	Per foot of well	Per foot of uncased hole
Hill	16	112.0	42.6	69.4	9.4	0.08	0.14
Knoll	11	100.5	40.1	60.4	4.8	.05	.08
Slope	18	92.4	32.2	60.2	4.1	.04	.07
Flat	15	86.6	36.2	50.4	10.3	.12	.20
Valley and draw	4	101.2	10.5	90.7	5.7	.06	.06

Table 4. Average yield of wells in the Triassic unit

According to Range in Depth

Range in depth (feet)	Number of wells	Average depth (feet)	Average uncased depth 1/ (feet)	Yield (gallons per minute)		
				Average	Per foot of well	Per foot of uncased hole
0-100	50	78.1	51.6	7.4	0.10	0.14
0-150	94	99.0	72.5	7.1	.07	.10
0-200	99	102.4	75.9	7.1	.07	.09
0-300	106	112.0	85.5	7.2	.06	.08

1/Average casing depth for the Triassic unit is 26.5.

According to Topographic Location

Topographic location	Number of wells	Average depth (feet)	Average casing depth (feet)	Average uncased depth (feet)	Yield (gallons per minute)		
					Average	Per foot of well	Per foot of uncased hole
Hill	22	125.2	25.4	99.8	8.3	0.07	0.08
Knoll	25	121.6	34.1	87.5	6.2	.05	.07
Slope	25	101.4	20.6	80.8	9.3	.09	.12
Flat	23	127.5	27.8	99.7	7.0	.06	.07
Valley and draw	10	102.1	27.4	74.7	11.1	.11	.15

Table 5. Average yield of wells in the granite and granodiorite unit

According to Range in Depth

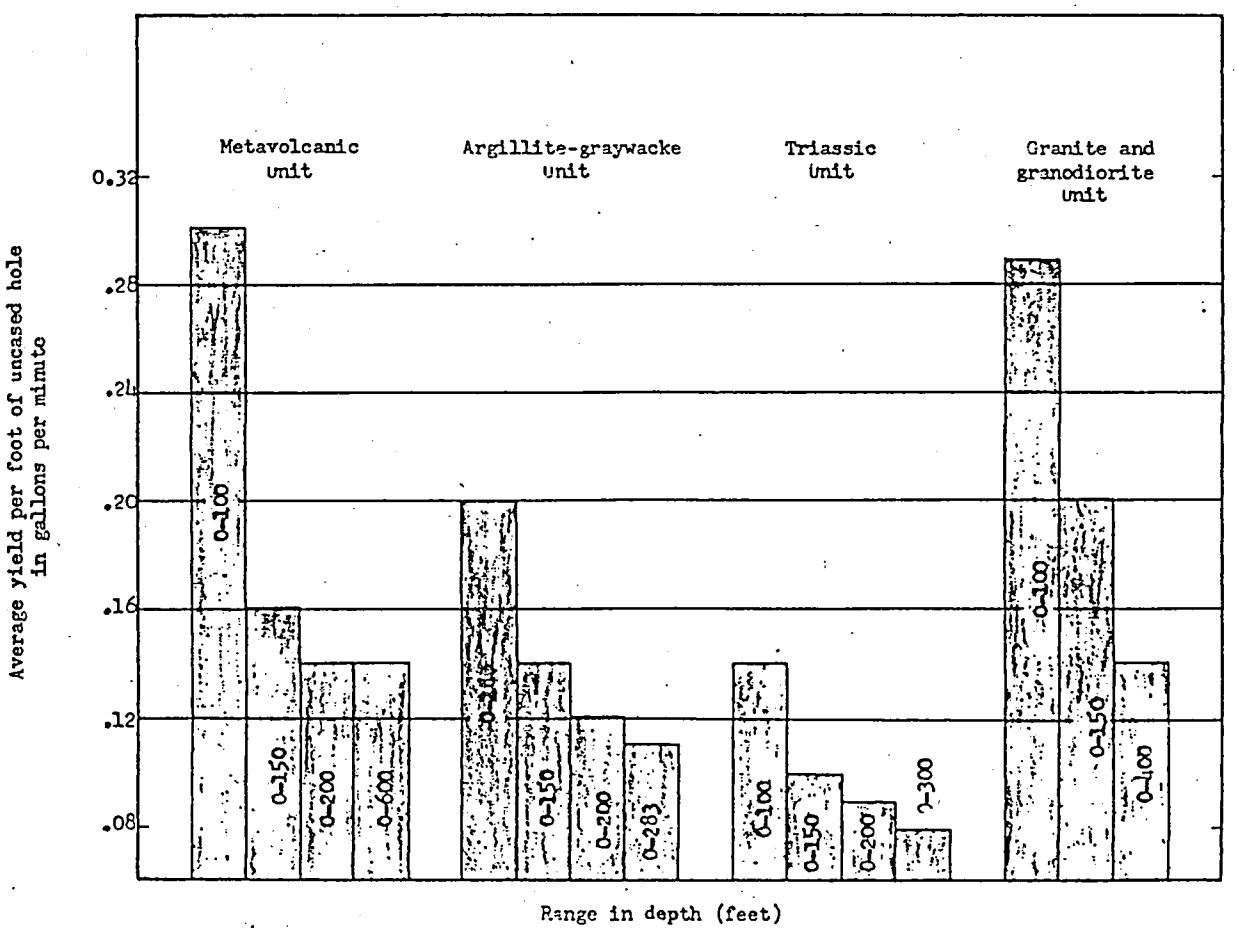
Range in depth (feet)	Number of wells	Average depth (feet)	Average uncased depth 1/ (feet)	Yield (gallons per minute)		
				Average	Per foot of well	Per foot of uncased hole
0-100	59	63.1	27.1	7.9	0.12	0.29
0-150	75	75.8	39.8	8.0	.10	.20
0-400	81	86.8	50.8	8.2	.09	.16

1/Average casing depth for the granite and granodiorite unit is 36.0 feet.

According to Topographic Location

Topographic location	Number of wells	Average depth (feet)	Average casing depth (feet)	Average uncased depth (feet)	Yield (gallons per minute)		
					Average	Per foot of well	Per foot of uncased hole
Hill	37	94.4	34.5	59.9	7.5	0.08	0.12
Knoll	14	103.3	42.3	61.0	10.4	.10	.17
Slope	18	68.4	31.6	36.8	6.9	.10	.19
Flat	12	69.7	34.3	35.4	8.8	.13	.25

Figure 14. Average yield per foot of uncased hole of the lithologic units according to range in depth.



depth are more tightly pressed together with increasing depth owing to the weight of overburden.

The average depth of all wells inventoried in the Durham area is 99.2 feet. Wells drilled to depths below 200 feet are not usually successful in obtaining large additional quantities of water. There are notable exceptions, but if enough water is not obtained at 200 feet of depth, the prospective well owner is advised to drill three or more wells rather than one well 600 feet deep.

The thickness of weathered material above solid rock apparently has a very significant effect on yield in the Durham area. In some places it may be more important than either topography or rock type. The relation of weathered material to yield in different topographic situations is shown graphically in figures 15-18.

Yields from wells in the argillite-graywacke and metavolcanic units appear to be directly proportional to depth of weathering except on the slopes, where the somewhat anomalous yields are probably due to influent seepage from upslope. A thick section of weathered material serves both as a reservoir for increased infiltration and as an aquifer. Depth of weathering appears to have little relation to yield in the Triassic and granite and granodiorite units. However, at least 50 percent of the wells in granite and granodiorite obtain their water from the weathered upper surface. The effect of depth of weathering on yield in these units is probably masked by the topographic effect.

The effect of rock type on yield has already been shown (tables 2-5). The relative ability of the different rock units to yield water can be directly related to the type, size, and amount of original openings and to the ease with which secondary openings are produced by weathering processes and dynamic metamorphism.

Secondary pore spaces such as joints, planes of schistosity, and cleavage planes are important for storage and transmittal of water in the Durham area. Figure 21 illustrates how water percolates downward through fracture systems to a drilled well. Figures 11, 19, and 20 illustrate several types of secondary pore spaces.

Quartz veins are important sources of ground water in the Durham area. Because quartz (commonly called white flint) is

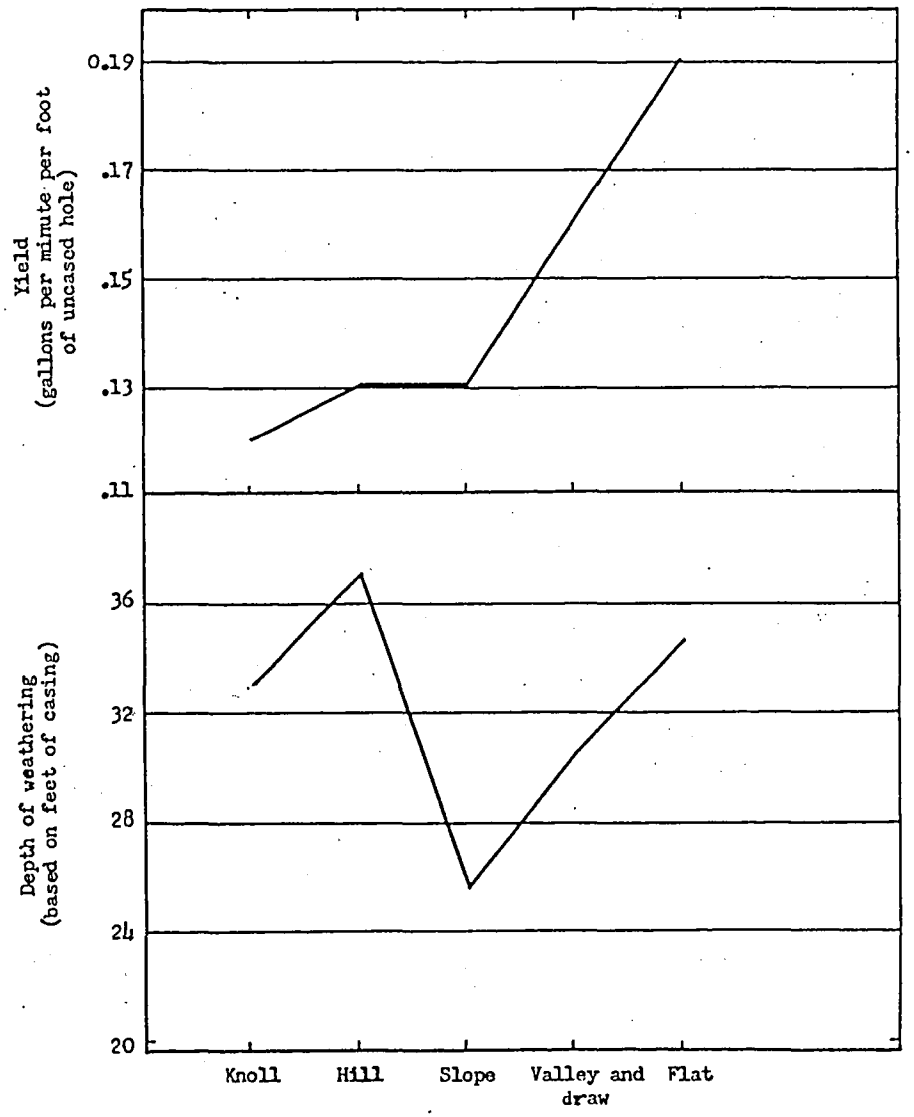


Figure 15. Relation of depth of weathering to average yield of the metavolcanic unit in different topographic situations.

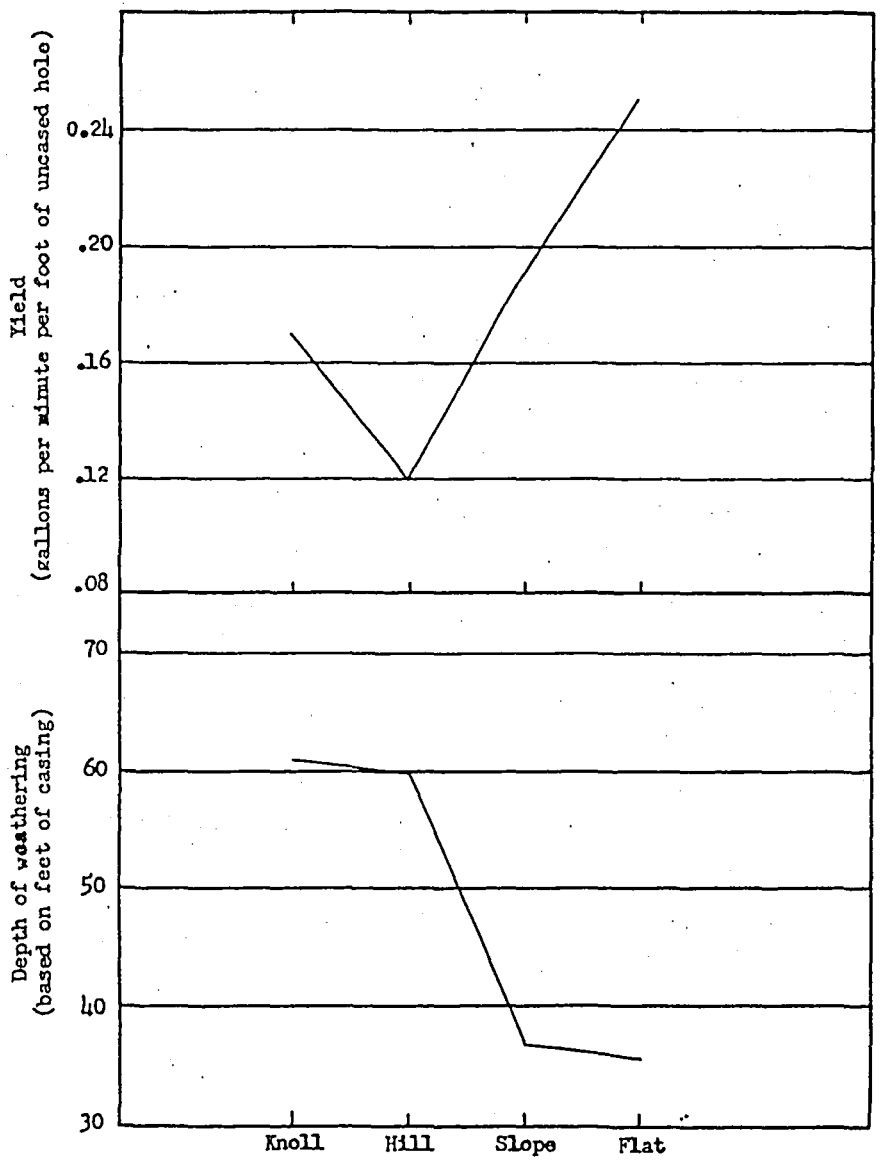


Figure 18. Relation of depth of weathering to average yield of the granite and granodiorite unit in different topographic situations.

brittle, quartz veins are well fractured. Consequently, they store and yield their water freely compared to the surrounding rock. Many of the wells having high yields in the Durham area are in quartz veins. Most large quartz veins were observed to dip steeply to the northwest. Care should be exercised in locating a well on or near a quartz dike so that the well will intersect the dike below the water table. Figure 21 illustrates a drilled well that intersects both fracture systems and quartz dikes. A well drilled at position *B* will penetrate a quartz dike, but the dike will be devoid of water at this point because of its position above the water table.

Where practicable, wells should be spaced far enough apart to avoid mutual interference through pumping. How far apart they should be spaced depends on the pumping rate and permeability of the surrounding rock.

The Triassic rocks in the Durham area are intruded by numerous diabase dikes that are dense and impermeable. Where cut by transverse streams or located downgradient from the direction of groundwater movement, dikes tend to impound ground water behind them. One such dike which is very large is just northwest of the junction of the Eno and Little Rivers in Durham County. Yields in the Triassic rocks north of this point are greater than average.

Relative Water-Yielding Properties of the Map Units

General Conditions

The rocks of the Durham area include igneous, metamorphic, and highly indurated sedimentary rocks in which secondary interstices are the principal storage spaces for ground water.

The factors which have determined the distribution and relative abundance of secondary interstices in the Durham area are complex and interrelated. They include the composition of the rock, the degree of dynamic metamorphism, the relative ability of the rocks to weather, the degree to which the rocks have been intruded by quartz dikes, and the relative position of the rock with respect to drainage systems. Thus, the occurrence of suitable secondary openings for the storage and transmission of ground water in the Durham area is not necessarily related to any particular rock type or lithologic unit. For example, an acid tuff may be a good aquifer in one locality because it is deeply weathered and well jointed, but the same tuff

ppm. Total hardness ranged from 11 ppm to 492 ppm and the median was 102 ppm. Chloride ranged from 0.2 ppm to 311 ppm and the median was 12 ppm.

Analyses of water from selected wells in this unit are listed in tables 9, 12, 15, 18, and 21.

Argillite-Graywacke Unit

The argillite-graywacke unit includes interbedded argillite, graywacke sandstone, graywacke conglomerate, and felsic tuff. Analyses of water from selected wells in this unit are listed in tables 9, 15, 18, and 21.

The waters from this unit are principally calcium and magnesium bicarbonate and calcium chloride types. One sodium chloride type water and one sodium bicarbonate water were analyzed. The inherent low sodium content of shales and argillites probably accounts for the low sodium concentrations in the ground water from this unit.

Iron ranged from 0.04 ppm to 1.4 ppm. The median for iron was 0.15 ppm. Total hardness ranged from 33 ppm to 1340 ppm and the median was 63 ppm. Chloride ranged from 3 ppm to 750 ppm and the median was 16 ppm.

Granite and Granodiorite Unit

The granite and granodiorite unit includes plutonic igneous rocks which range in composition from the typical granite through granodiorite. This unit also includes small bodies of diorite and xenoliths of volcanic rock too small to map. Analyses of ground water from selected wells in this unit are listed in tables 9, 12, 15, 18, and 21.

The water from granite and granodiorite is predominantly a calcium bicarbonate type (46%). Sodium and magnesium bicarbonate types constitute 23 and 30 percent, respectively, of the waters analyzed from this unit. The relative proportions of sodium, calcium, and magnesium in this unit are quite similar to those of the metavolcanic unit, indicating that their bulk compositions are approximately the same.

Triassic Unit

The rocks of Triassic age are principally continental and consist of maroon to reddish-gray sandstones, shales, siltstones,

conglomerates, and fanglomerates. Waters from this unit differ from those of the other map units in that there are an equal number of calcium and sodium bicarbonate types and no magnesium bicarbonate types. One each of the sodium and calcium chloride types was present.

Analyses of water from selected wells in the Triassic unit are listed in tables 9 and 12.

Iron ranged from 0.01 ppm to 0.90 ppm, and the median was 0.15 ppm. Total hardness ranged from 46 ppm to 524 ppm, and the median was 158 ppm. Chloride ranged from 12 to 384 ppm, and the median was 75 ppm.

Summary and Conclusions

The chemical character of the ground water in the Durham area shows little relation to the rock units. Water from the Triassic unit usually contained more dissolved solids than water from the other units. Water from the metavolcanic unit is similar to that of the granite and granodiorite unit. Calcium and sodium chloride water was found in a few wells in the metavolcanic, argillite-graywacke, and Triassic units. Bromide occurred in association with excessive chloride in two wells in the metavolcanic unit. Objectionable amounts of iron were reported in some samples from the metavolcanic unit. Ground water in the area is of the sodium, calcium, and magnesium bicarbonate type, and is suitable for most domestic, municipal, and industrial uses.

COUNTY DESCRIPTIONS

Chatham County

(Area 707 square miles; population 26,785)

Chatham County is the southeasternmost county in the Durham area. It is bounded on the north by Alamance, Orange, and Durham Counties, to the west by Randolph County, to the south by Moore and Lee Counties, and to the east by Harnett and Wake Counties. Pittsboro, the county seat, is the second largest town in Chatham County. Siler City, near the Randolph-Chatham County line, is the largest town, with a population of 4,455 according to the 1960 Bureau of the Census report. Other towns in the county are Bennett, Goldston, and Moncure.

The county is drained by the Deep, Rocky, Haw, and New Hope Rivers. The Haw and Deep Rivers become the Cape Fear River at their confluence south of Moncure.

The topography of Chatham County is similar to that of other counties in the Piedmont province. The upland surface generally slopes toward the southeast and is submaturely dissected by southeastward-flowing antecedent streams. A topographic lowland has developed on the Triassic rocks in the eastern and southeastern parts of the county. Highest elevations occur along a northeastward-trending ridge between Siler City and Pittsboro and on the large granite pluton between Bynum and Chapel Hill. The lowest altitude is along the Cape Fear River on the Chatham-Harnett County line.

The economy of the county depends largely on its agriculture. The production of broilers is quite important and one of the largest poultry-processing plants in the State is at Pittsboro. Other agricultural products include tobacco, corn, small grains, and livestock. Textile plants are at Bynum, Pittsboro, and Siler City.

Geology

Most of Chatham County is underlain by rocks of the metavolcanic unit (pl. 2), which include felsic to mafic pyroclastics, flows, and interbedded sedimentary rocks. The volcanic rocks are deeply weathered and poorly exposed. Where unweathered they are dense, flinty rocks that break with a conchoidal fracture and are green to gray in color. Tuffs ranging in texture from glassy varieties to coarse agglomerates are present. Most

interbedded sedimentary rocks in the metavolcanic unit appear to be silicified argillite. They are aphanitic and glassy and are easily confused with rhyolite flows.

Rocks of the metavolcanic unit grade upward into a predominantly sedimentary unit, which is mapped as the argillite-graywacke unit. The argillite-graywacke unit includes argillite, slate, graywacke, sandstone, graywacke conglomerate, and minor amounts of tuff. The argillite-graywacke unit is exposed in tightly folded, northeastward-trending synclines in the western half of the county. The sedimentary rocks of the argillite-graywacke unit are apparently overlain by andesitic tuffs and flows included in the mafic tuff and flow unit.

The sedimentary and volcanic rocks have been intruded and locally metamorphosed by igneous plutons of granite to granodiorite composition. The largest of these plutons is north of Pittsboro. Smaller plutons are exposed northwest of Terrells, east of Bynum, and south and east of Corinth. One outcrop of biotite schist is exposed in the southeastern tip of the county.

The eastern and south-central parts of Chatham County are underlain by rocks of Triassic age. These rocks include maroon to gray arkosic sandstones, siltstones, shales, and fanglomerates. The Triassic rocks dip to the southeast where they abut against the Jonesboro fault. The Triassic rocks as well as the surrounding volcanic-sedimentary terrane have been intruded by diabase dikes of Triassic age.

Ground Water

All water used for domestic and industrial purposes in Chatham County is obtained from wells or springs except in the towns of Pittsboro and Siler City, which utilize surface water. Most dug wells obtain their water from the saprolite overlying unweathered rock and they frequently go dry during periods of drought. Drilled wells in Chatham County obtain their water from fractures, planes of schistosity, and other secondary openings below the water table, and are more dependable sources of water than the dug wells. (See figs. 22 and 23.)

Data from 228 wells in Chatham County are summarized in table 7. Comparison of yields in table 7 indicates that wells in granite and granodiorite have three times the yield per foot of well that wells in the argillite-graywacke unit have, and nearly

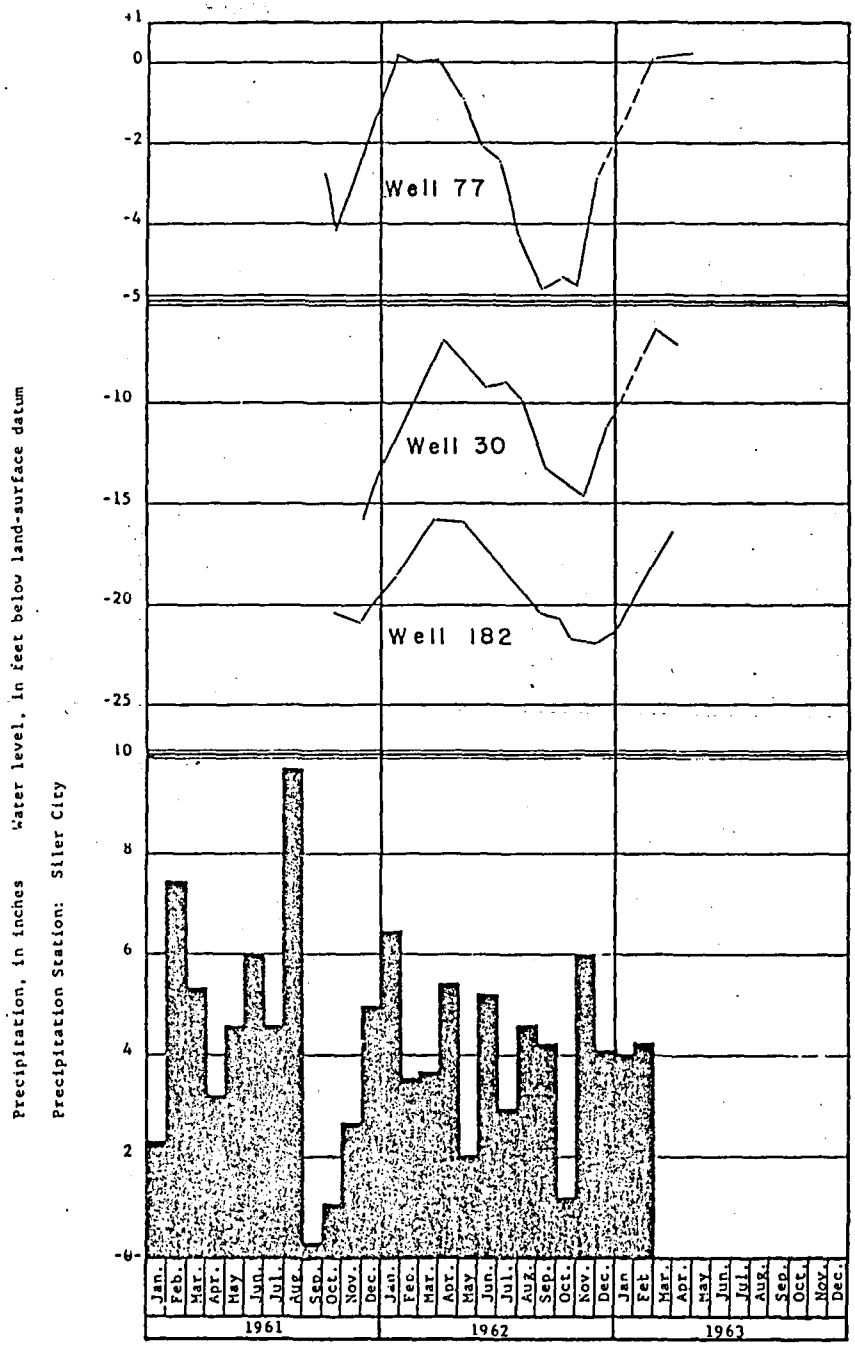


Figure 22. Selected hydrographs showing seasonal fluctuation of the water table in Chatham County.

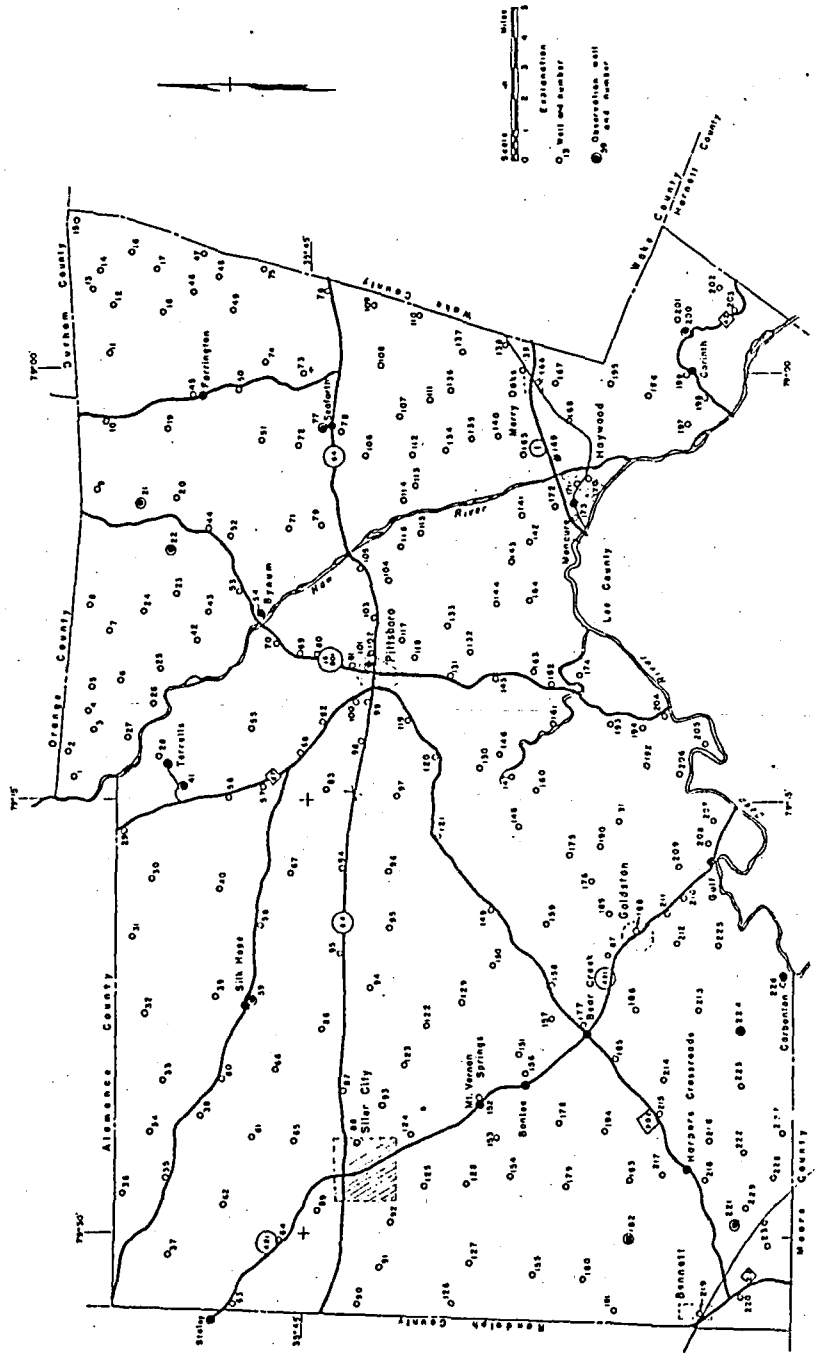


Figure 23. Map of Chatham County showing the location of wells.

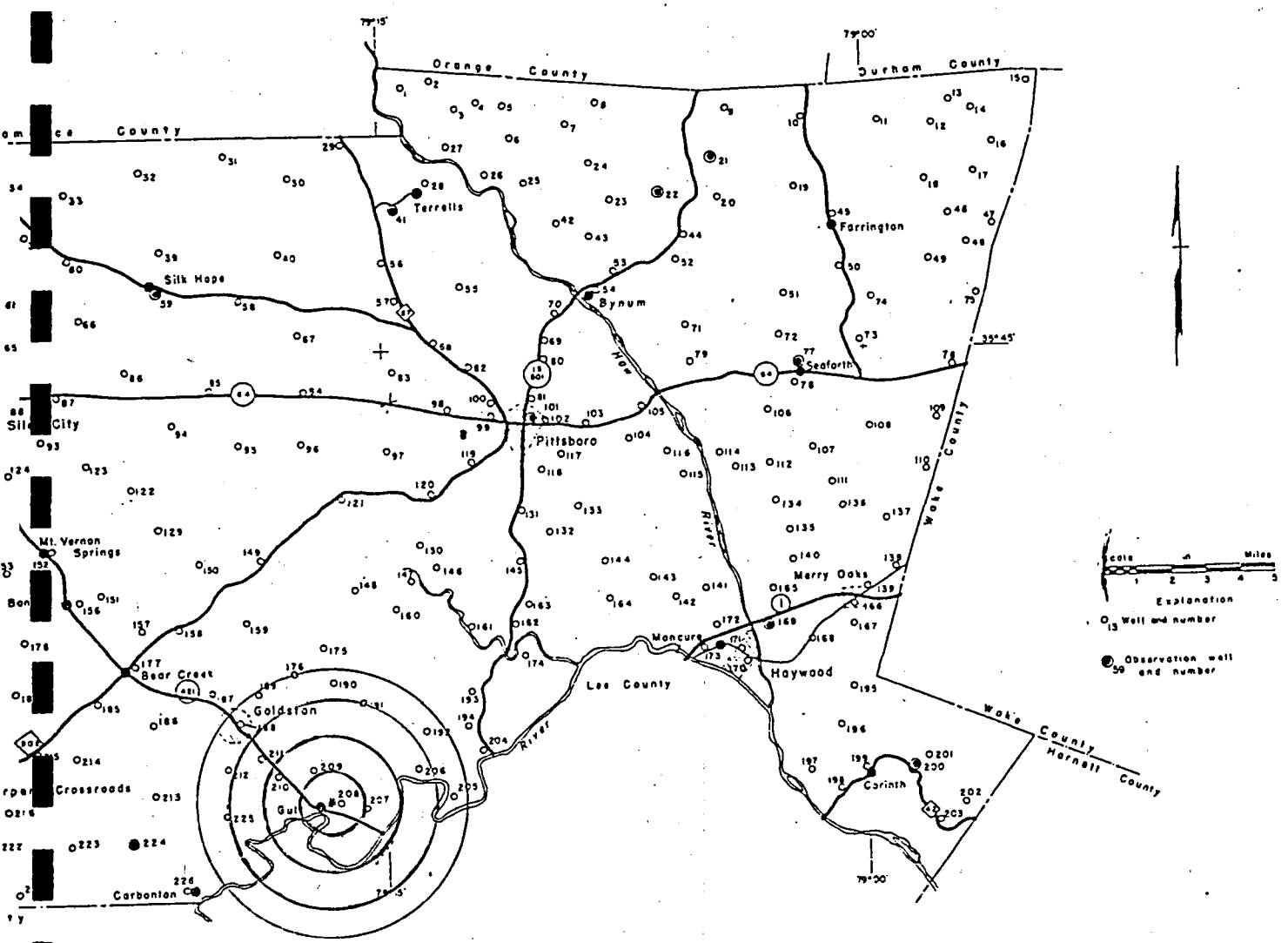


Figure 23. Map of Chatham County showing the location of wells.

Enlargement of p. 69

Table 7. Summary of Well Data in Chatham County according to Rock Type

Map unit	Number of wells	Yield (gallons per minute)		Average depth (feet)
		Average	Per foot of well	
Granite and granodiorite	21	8.0	0.12	68.1
Triassic	64	6.7	.07	97.7
Argillite-graywacke	17	5.0	.04	123.4
Metavolcanic	120	7.3	.07	99.2

Average water level in Chatham County is 24.2 feet below land surface.

twice the yield of wells in the Triassic and volcanic rocks. The higher yield in granite and granodiorite is attributed to deep weathering and to the higher permeability of the weathered material. The poorer yields in the argillite-graywacke unit (table 7) can no doubt be attributed to the thinner veneer of weathered material on this unit in Chatham County.

There is a great difference in yield from place to place in the same rock unit. Figures 15 and 16 show that depth of weathered material has a greater influence on yield in the metavolcanic and argillite-graywacke units than does topography. Plate 1 shows the areal distribution of relative yields for the Durham area. It can be seen from this map that a large area extending northeastward across Chatham County has yields that exceed 0.1 gpm per foot of uncased hole. In this area an 80-foot well cased to a depth of 30 feet should yield 5 gpm or more. The areas having a horizontal-line pattern should yield less than 5 gpm for the same well and casing depths. Areas in which yields would be expected to be less than 1 gpm under the same conditions are shown in a cross-hatched pattern. Records of wells in Chatham County are shown in table 8.

Table 8. Records of Wells in Chatham County

(Type of well: B,bored; D,dug; Dr,drilled. Reported hardness: H,hard; M,medium; S,soft. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
1	3.1 mi. N of Terrells	F. J. Ferguson	Hill	Dr	100	6	Mafic tuff	30	20	6	0.09	M	
2	3.2 mi. N of Terrells	Walter Atwater	Slope	do	63	6	do		20	6		S	
3	3.1 mi. NE of Terrells	Ben Mann	Hill	do	84	6	Granite		20	0.5		H	
4	4.4 mi. NE of Terrells	Mrs. K. H. Hackney	do	D	52	36	do	0	46	4		S	
5	3.1 mi. NE of Terrells	E. F. Moses	do	B	33	20	do	33	21	3		S	
6	5.6 mi. NE of Terrells	Mrs. John Kenfield	do	Dr	90	6	do		25	15		S	
7	5.9 mi. NE of Terrells	J. B. Faircloth	Slope	D	26	24	do	0	21	1		S	
8	4.6 mi. NW of Farrington	Mrs. Pendergraph	do	do	21	30	do	0	15	2		M	Iron taste reported.
9	3.2 mi. N of Farrington	Dennis Boggs	Draw	Dr	107	6	Triassic	35	19	6	0.08	M	
10	3.3 mi. NE of Farrington	N. C. State College	Flat	D	30	48	do	0	14	5		S	
11	4.1 mi. NE of Farrington	A. C. Horton	Hill	Dr	104	6	do	36	19	5	0.07	H	
12	5.0 mi. NE of Farrington	J. E. Burke	do	do	133	6	do	20	20	5	.04	M	Limy taste reported.
13	5.3 mi. NE of Farrington	M. A. Sims	do	do	92	6	Triassic diabase		50	3		M	Do.
14	7.0 mi NE of Farrington	W. W. High	do	do	85	6	Triassic		35	4		M	
15	5.3 mi. NE of Farrington	J. B. Slade	Slope	Dr	96	6	Triassic	20	60	1.5	0.20	M	Limy taste reported.
16	4.5 mi. NE of Farrington	J. C. Riggsbee	Hill	D	49	48	do	0	41	0.5		M	Do.
17	3.0 mi. NE of Farrington	Hallie Council	Upland flat	Dr	105	6	do		21	3		M	

Table 8. Records of Wells in Chatham oun y

(Reported hardness: H,hard; M,medium; S,soft)
(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
81	2.2 mi. NW of Pittsboro---	Leon Brooks---	Slope--	-Dr--	148	6	Mafic tuff---	28	-----	4	0.03	M	Slight taste reported.
82	4.1 mi. NW of Pittsboro---	J. Horace Mangum------	Flat---	-do--	60	6	Andesitic tuff-------	45	20	8	0.32	S	
83	6.5 mi. W of Pittsboro---	C. p. Clark---	Knoll--	-do--	105	6	-----do------	50	50	20	0.36	[illegible]	Analysis in table.
84	3.7 mi. SE of Silk Hope---	Floyd Bowers--	Flat---	-do--	43	8	-----do------	15	13	6	0.21	S	
85	2.5 mi. S of Silk Hope---	H. C. Owens---	Hill---	-do--	60	6	Argillite and tuff-------	-------	20	5	--------	S	
86	2.4 mi. E of Siler City--	J. E. Lemon---	Knoll--	-do--	115	4	Argillite----	60	-----	5	0.09	S	Do.
87	Siler City----	N. C. State Highway-----	Flat---	-do--	190	-----	-----do------	175	-----	8	0.53	M	Do.
88	2.0 mi. NW of Siler City--	L. W. Craig---	Valley-	-do--	120	6	-----do------	7	-----	1	0.01	H	Bad taste reported.
89	4.5 mi. W of Siler City--	C. A. Burke---	Draw---	-do--	33	6	-----do------	15	15	4.5	0.25	S	
90	3.3 mi. W of Siler City--	C. K. Fox-----	Hill---	-do--	138	4	Mafic tuff---	30	40	3	0.03	S	Reported to be corrosive.
91	2.0 mi. SW of Siler City--	Fletcher Brooks	Flat	-do--	72	6	Argillite and felsic tuff	20	20	1.5	.03	--------	
92	2.0 mi. SE of Siler City--	Chatham Poultry	Slope--	-do--	100	6	Andesitic tuff-------	35	3	1	.02	S	
93	5.7 mi. E of Siler City--	Joe Johnson---	Hill---	-do--	60	6	-----do------	-------	44	5	.23	S	
94	7.8 mi. E of Siler City--	Walter Powers	--do---	-do--	102	6	-----do------	80	30	20	--------	S	
95	6.0 mi. W of Pittsboro---	Jim Clark-----	--do---	-do--	150	6	-----do------	20	40	1	0.01	--------	
96	4.0 mi. SW of Pittsboro---	Ed Johnson----	Flat---	-do--	42	36	-----do------	2	32	5	--------	S	

Table 8. Records of Wells in Chatham County (Continued)

(Reported hardness: H,hard; M,medium; S,soft)
(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
97	2.2 mi. W of Pittsboro---	Mrs. J. A. Webster-----	Hill---	-Dr--	60	6	Andesitic tuff-------	34	-----	3	0.12	M	
98	0.8 mi. W of Pittsboro---	F. C. Justice	--do---	-do--	140	6	Mafic tuff---	56	40	5	.06	S	
99	1.0 mi. NW of Pittsboro---	J. B. Reeves--	Knoll--	-do--	135	6	Andesitic tuff-------	125	30	10	1.00	--------	Analysis in table.
100	Pittsboro-----	Town of Pittsboro---	Slope--	-do--	117	6	Mafic tuff---	-------	16	10+	--------	--------	Observation. well.
101	Pittsboro-----	A. J. Boone---	--do---	-do--	36	6	-----do------	20	5	4	0.25	--------	
102	1.8 mi. E of Pittsboro---	W. L. Mann----	--do---	-do--	70	6	-----do------	24	20	3	.67	S	
103	3.1 mi. E of Pittsboro---	H. D. Amos----	Flat---	-do--	96	6	-----do------	28	30	4.5	.06	S	
104	3.5 mi. E of Pittsboro---	David L. Richards----	Hill---	-do--	47	6	-----do------	21	-----	10	0.28	H	Bad taste reported.
105	1.5 mi. SW of Seaforth----	C. M. and W. W. Ward--------	Knoll--	-do--	107	6	Triassic-----	77	30	9	0.30	S	
106	2.2 mi. S of Seaforth----	Roy B. Farrar-	--do---	-do--	135	6	-----do------	50	50	2.5	.03	M	
107	2.6 mi. SE of Seaforth----	Dewey Poe-----	--do---	-do--	110	6	-----do------	11	22	15	.16	S	
108	4.3 mi. SE of Seaforth----	Earl G. Goodwin---------	Draw---	-do--	80	6	-----do------	40	8	30	.77	S	
109	4.6 mi. SE of Seaforth----	A. L. Barker--	Knoll--	-do--	215	6	-----do------	20	22	3	.02	M	
110	3.2 mi. S of Seaforth----	Mrs. J. L. Mathews-----	Slope--	-do--	109	6	-----do------	18	24	5	.06	M	
111	2.7 mi. SW of Seaforth----	Sam Jones-----	Knoll--	-do--	92	6	-----do------	39	15	5	.09	M	Lizy taste reported.
112	3.3 mi. SW of Seaforth----	Harold Lasater	--do---	-do--	107	6	-----do------	40	40	6	.09	--------	Use water softener.
113	3.3 mi. SW of Seaforth----	Mrs. Eva Thomas	Hill---	-do--	100	6	Andesitic tuff-------	50	45	2.5	.05	S	

(Reported hardness: H,hard; M,medium; S,soft)
(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
148	5.1 mi. NE of Bear Creek--	Gerald Rives--	Flat--	-Dr--	150	6	Mafic tuff---	20	17	1.5	0.01	M	
149	3.9 mi. NE of Bear Creek--	A. J. McLaurin	Hill--	-do--	57	6	-----do------	21	25	8	.22	M	
150	1.0 mi. E of Bonlee------	McKinlew Marsh	Flat--	-do--	48	6¼	-----do------	-----	10	6	--------	--------	
151	Mt. Vernon Springs-----	J. E. Rice----	Slope-	-do--	40	4	Andesitic tuff-------	24	35	35	2.00	S	
152	1.2 mi. SW of Mt. Vernon Springs-----	Hugh Tillman--	Hill--	-do--	60	4	-----do------	-----	20	5	--------	S	
153	2.5 mi. SW of Mt. Vernon Springs-----	B. E. Webster	--do--	-do--	80	6	-----do------	-----	30	9.5	--------	S	
154	6.1 mi. W of Bonlee------	L. T. Bray----	Flat--	-do--	67	6	Tuff and graywacke--	-----	19	5	--------	S	
155	Bonlee--------	Jullian Williams	Hill--	-do--	125	6	Quartz dike in mafic tuff-------	-----	25	100	--------	S	
156	1.3 mi. NE of Bonlee------	L. T. Jones---	--do--	-do--	114	6	Felsic tuff--	-----	14	4	--------	S	Analysis in table.
157	2.0 mi. NE of Bear Creek--	J. J. Ivey----	--do--	-do--	92	6	Tuffaceous argillite--	70	33	16	0.72	S	
158	3.0 mi. N of Goldston---	Tommy Fields--	Slope-	-do--	72	6	Tuff breccia	28	24	5.5	.13	S	
159	5.9 mi. NE of Goldston----	Beatrice Watson	Flat--	-do--	32	6	Mafic tuff---	-----	11	2	--------	S	
160	6.1 mi. S of Pittsboro---	W. L. Cheek---	Hill--	-do--	225	6	Felsic tuff--	25	35	2.5	0.01	H	
161	5.8 mi. S of Pittsboro---	H. L. Hardwood	Knoll-	-do--	96	6	Mafic tuff---	-----	20	5	--------	S	
162	5.2 mi. S of Pittsboro---	Silas Williams, Jr.---------	Flat--	-do--	56	6	Felsic tuff--	11	15	2.5	0.06	S	
163	3.4 mi. NW of Moncure-----	Mrs. D. L. Burns-------	Hill--	-do--	65	6	Mafic tuff---	41	55	8	.33	H	

Table 8. Records of Wells in Chatham County (Continued)

(Reported hardness: H,hard; M,medium; S,soft)
(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
164	2.5 mi. NE of Moncure----	G. F. Carr----	Hill---	-Dr--	82	6	Triassic-----	-----	15	5	--------	S	
165	Merry Oaks---	L. S. Howard--	Knoll--	-do--	115	6	-----do------	12	10	1.5	0.02	H	
166	0.6 mi. S of Merry Oaks-	T. F. Williams	Slope--	-do--	53	6	Triassic shale and diabase----	20	18	12	.36	S	
167	1.5 mi. SW of Merry Oaks-	Sam Jones-----	Flat---	-do--	95	6	Triassic-----	20	29	10	0.13	M	
168	1.8 mi. E of Moncure----	J. T. Moore---	Knoll--	-do--	140	6	-----do------	------	13	0.5	--------	--------	Observation well; analysis in table.
169	Haywood------	O. M. Covert--	Slope--	-do--	100	6	-----do------	25	------	20	0.27	S	
170	Haywood------	C. M. Burke---	--do---	-do--	74	6	-----do------	21	11	2	.04	M	Limy taste reported.
171	0.5 mi. N of Moncure----	Chatham County Schools-----	Flat---	-do--	120	4	-----do------	-----	22	8	--------	--------	Analysis in table.
172	Moncure------	O. M. Covert--	Slope--	-do--	100	6	-----do------	-----	------	18	--------	S	Bad taste reported.
173	5.4 mi. W of Moncure----	Sam Williams--	--do---	-do--	63	6	Quartz dike in mafic tuff-------	-----	------	8	--------	M	
174	3.4 mi. NE of Goldston---	Virgil Rives--	Hill---	-do--	95	6	Mafic tuff---	33	40	2	0.03	S	
175	2.3 mi. NE of Goldston---	Mrs. W. C. McMillian-----	Knoll--	-do--	155	2½	Felsic tuff--	40	1	4	.04	H	Reported bad taste & corrosive.
176	Bear Creek---	John A. Gilmore	Draw---	-do--	180	6	Argillite----	10	------	2	.01	S	
177	1.6 mi. SW of Bonlee-----	Mrs. E. M. Leonard-----	Hill---	-do--	101	6	Mafic tuff---	30	27	8	.11	S	
178	3.6 mi. SW of Bonlee-----	A. B. Chilton-	--do---	-do--	167	6	-----do------	30	36	1	.01	H	Limy taste reported.
179	4.1 mi. N of Bennett----	C. L. Welch---	--do---	-do--	92	6	Quartz dike in felsic tuff or argillite--	80	32	10	.83	S	

Table 8. Records of Wells in Chatham County (Continued)

(Reported hardness: H,hard; M,medium; S,soft)
(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
180	2.9 mi. N of Bennett	Mrs. B. F. Brown	Knoll	Dr	50	6	Felsic tuff	28	-----	10	0.46	S	
181	3.3 mi. NE of Bennett	E. R. Teague	Hill	do	170	4	Quartz dike in felsic tuff	24	16	5	.03	S	Observation well; analysis in table.
182	2.0 mi. N of Harper's Crossroads	B. P. Phillips	Flat	do	133	6	Felsic tuff	30	56	6	.06	H	Analysis in table.
183	3.2 mi. W of Bear Creek	Paul Fesmire	do	do	187	4	Mafic tuff	18	30	0.5	.00	M	Slight lime taste reported.
184	1.2 mi. SW of Bear Creek	Charles Tillman	Hill	do	220	6	Felsic tuff	23	25	2	.01	M	
185	1.7 mi. S of Bear Creek	Talmadge Elkins	Flat	do	130	1½	Tuffaceous argillite	18	30	4.5	.04	S	
186	1.3 mi. NW of Goldston	W. F. Moses	do	do	81	6	Mafic tuff	40	15	2	.05	M	Some iron reported.
187	Goldston	H. H. Elder Oil Company	do	do	115	6	do	------	10	17	--------	M	
188	1.1 mi. NW of Goldston	Marion Williams	do	do	93	6	do	18	16	2	0.03	M	
189	3.2 mi. NE of Goldston	J. W. Poe	Slope	do	55	6	do	16	12	0.5	.13	M	
190	3.8 mi. E of Goldston	J. B. Oldham	Hill	do	200	6¼	Felsic tuff	28	25	2.5	.02	--------	
191	4.0 mi. NE of Gulf	L. W. Burns	Knoll	do	65	6	Triassic	20	27	12	.23	S	
192	7.0 mi. E of Goldston	Johnson's Grocery	Flat	do	180	6	Argillite and graywacke	------	22	5	--------	H	
193	5.0 mi. NE of Gulf	Margaret Gunter	do	do	90	6	Argillite	20	15	1	0.01	M	
194	2.3 mi. S of Merry Oaks	R. M. Cotten	do	do	95	6	Triassic	------	20	3	--------	H	

Table 8. Records of Wells in Chatham County (Continued)

(Reported hardness: H,hard; M,medium; S,soft)
(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
195	1.6 mi. NW of Corinth	W. E. Peele	Flat	Dr	72	5	Triassic	32	40	5	0.13	S	
196	1.8 mi. W of Corinth	C. H. Marks	Knoll	do	63	4	do	------	8	0.5	-------	S	
197	0.8 mi. W of Corinth	Fred L. Cross	do	do	81	6	do	19	52	4.5	0.07	S	
198	Corinth	A. A. Marks	do	do	67	6	do	30	23	1.5	.04	S	Some iron reported.
199	1.4 mi. E of Corinth	W. O. Jeffries	Hill	do	118	6	do	28	2	0	.00	H	Observation well; analysis in table.
200	1.8 mi. E of Corinth	James Cross	do	do	75	------	do	------	------	3	-------	H	
201	2.8 mi. SE of Corinth	C. R. Cotten	do	do	101	6	Schist	------	41	5	-------	S	
202	2.5 mi. SE of Corinth	J. L. Ragland	do	do	140	6	do	100	70	13	0.33	S	
203	5.2 mi. E of Gulf	Clyde Williams	Slope	do	150	6	Mafic tuff	20	40	.1	.00	S	
204	4.0 mi. E of Gulf	C. V. Dowdy	Valley	do	45	6	Triassic	20	30	6	.24	S	Some iron reported.
205	3.2 mi. E of Gulf	E. O. Dowdy	Flat	do	100	6	do	------	20	.5	-------	H	
206	1.0 mi. E. of Gulf	Chatham Brick and Tile	Valley	do	90	4	do	------	20	8	-------	--------	
207	Gulf	Gulf Creosot Company	Flat	do	220	6	do	------	25	15	-------	H	Analysis in table.
208	1.1 mi. N of Gulf	Charles E. Frazier	Knoll	do	143	6	do	11	35	2	0.02	M	
209	1.5 mi. NW of Gulf	Murchison Store	do	do	90	6	do	------	20	3	-------	M	

(Reported hardness: H,hard; M,medium; S,soft)
(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
210	1.2 mi. SE of Goldston----	Gaines Lumber Company-----	Knoll--	-Dr--	110	6	Felsic tuff--	-----	20	3	-------	H	
211	1.3 mi. S of Goldston----	Thomas Martin-	Slope--	-do--	136	6	-----do------	-----	-----	3	-------	S	
212	3.1 mi. SW of Goldston----	G. J. Wilkie--	Hill---	-do--	100	6	Argillite----	27	45	2	0.03	S	
213	3.0 mi. SW of Bear Creek--	Aubrey Fields-	Flat---	-do--	140	6	Argillaceous tuff-------	10	27	3.5	.03	S	
214	2.0 mi. NE of Harper's Crossroads--	James Phillips	--do---	-do--	100	6	Felsic tuff--	20	50	1	.01	H	Limy taste reported.
215	1.2 mi. SE of Harper's Crossroads--	Willie Scott--	Knoll--	-do--	57	6	Mafic tuff and phyllite---	-----	20	4	-------	S	
216	0.9 mi. N of Harper's Crossroads--	Mossie Johnson	--do---	-do--	50	6	Mafic and Felsic tuff	10	20	1	0.02	S	
217	0.6 mi. SW of Harper's Crossroads--	Jack Dark-----	Hill---	-do--	105	6	Bedded mafic tuff-------	30	25	3	.04	M	
218	Bennett-------	Wade Brawer---	Flat---	-do--	149	6	Felsic tuff--	-----	20	6	-------	H	Use water softener; some iron reported.
219	1.5 mi. SE of Bennett-----	M. Z. Manoss--	Knoll--	-do--	155	6	Mafic tuff---	20	19	3	0.02	H	
220	3.0 mi. SE of Bennett-----	Archie Councilman---------	--do---	-do--	120	6	Felsic tuff--	22	16	0.8	.08	-------	Observation well.
221	1.8 mi. S of Harper's Crossroads--	Eugene Gaines-	--do---	-do--	77	6	Mafic tuff---	6	15	2	.03	H	

Table 8. Records of Wells in Chatham County (Continued)

(Reported hardness: H,hard; M,medium; S,soft)
(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
222	3.5 mi. NW of Carbonton---	Daniel Wilson	Knoll--	-Dr--	56	6	Argillite----	------	15	11	-------	S	
223	4.5 mi. SW of Goldston----	Ronald Gilliland---	--do---	-do--	163	6	-----do------	------	38	11	-------	S	Observation well; analysis in table.
224	2.6 mi. S of Goldston----	Robert Palmer	Hill---	-do--	218	6	Triassic-----	30	50	2.5	0.01	-------	
225	Carbonton-----	Walter Heron--	Valley-	-do--	90	6	-----do------	------	15	5	-------	S	
226	3.3 mi. SE of Harper's Crossroads--	W. D. Wilson--	Hill--	-do--	60	6	Mafic tuff---	------	-----	40	-------	S	
227	2.9 mi. S of Harper's Crossroads--	Paul H. Phillips	--do--	-do--	150	6	Felsic tuff--	20	37	2.5	0.02	S	Some iron reported.
228	3.5 mi. SE of Bennett-----	Archie Councilman---------	Flat--	-do--	135	6	Mafic tuff---	10	40	.8	.00	M	
229	3.0 mi. SE of Bennett-----	Mrs. Burt Brewer	Draw--	-do--	232	6	-----do------	18	-----	2	.01	M	

(Type of well: B,bored; D,dug; Dr,drilled. Relative yield: gallons per minute per foot of uncased hole.)

Well no.	Location	Owner	Topography	Type of well	Depth (ft.)	Diameter (in.)	Water-bearing material	Depth of casing (ft.)	Water level (ft.)	Yield (gpm)	Relative yield (gallons per foot)	Reported hardness	Remarks
1A	2.7 mi. NE of Terrells---	Grady Snipes---	Draw---	Spring	----	-----	Granite------	-----	-----	1.5	--------	S	

Quality of Water

Ground water in Chatham County is principally of the calcium and sodium bicarbonate types and is suitable for most domestic, industrial, and municipal purposes. Calcium and sodium chloride waters are present at some localities in the county.

Iron ranges from 0.00 to 5.0 ppm. Fifty percent of the wells analyzed for iron had iron concentrations below the 0.3 ppm maximum recommended by the U. S. Public Health Service. Chloride ranged from 0.2 ppm to 384 ppm. Eighty percent of the wells sampled had chloride concentrations below the 250 ppm limit recommended by Public Health Service. Hardness ranged from 5 ppm to 492 ppm. Analyses from 20 selected wells in Chatham County are listed in table 9.

Table. 9. Chemical Analyses of Ground Water for Chatham County
(Numbers heading the columns correspond to well numbers in table 8)

(Parts per million)

	22	22	32[1]	33	41	53	71	74	97	99	100	145	151	152	153	172	226	229	274
Date of collection	12/1/61	12/1/61	12/17/62	7/10/58	12/1/61	12/1/61	12/1/61	12/1/61	7/10/58	7/10/58	12/1/61	12/1/61	12/17/62	12/1/61	7/10/58	7/10/58	12/1/61	12/1/61	12/7/61
Silica (SiO_2)	35	31	35	30	28	22	21	19	28	30	33	21	41	16	25	25	23	21	17
Aluminum (Al)	.0	.1	.2	.0	.1	.2	.1	.2	.2	.2	.1	.1	.2	.1	.0	.0	.2	.1	.1
Iron (Fe)	.15	.16	.17	.1	.12	.12	.1	.11	.1	.03	.1	.15	.14	5.0	.1	.1	.23	.30	.14
Manganese (Mn)	.00	.06	.03	.00	.20	.24	.11	.06	.1	.00	.1	.03	.03	.00	.1	.1	.03	.03	.03
Calcium (Ca)	1.1	23	142	37	109	39	39	7.4	19	61	31	27	22	72	25	72	45	22	4.2
Magnesium (Mg)	.4	3.1	23	8.1	27	23	4.3	2.3	12	5.0	4.1	4.1	6.3	33	5.8	33	22	12	5.3
Sodium (Na)	7.6	11	42	15	56	21	22	9.2	8.3	13	11	23	15	119	7.7	45	156	25	14
Potassium (K)	1.7	4.1	1.1	1.5	2.4	1.1	1.2	1.1	.7	1.3	.7	1.1	.1	6.3	.5	1.9	4.8	.4	.1
Lithium (Li)	.0	.2	.4	.1	.3	.2	.1	.0	.0	.1	.1	.0	.0	1.3	.0	.3	1.3	.2	.2
Bicarbonate (HCO_3)	14	44	224	258	38	144	112	44	110	179	115	220	236	199	115	160	79	275	18
Sulfate (SO_4)	1.6	12	4.4	1.3	18	3.6	3.4	1.2	1.3	3.5	11	2.3	1.8	3.0	7.1	2.8	7.5	2.4	3.4
Chloride (Cl)	4.6	16	260	7.6	363	21	22	3.4	14	51	11	71	1.2	311	9.3	13	364	2.5	26
Fluoride (F)	.0	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.3	.1	.2	.1	.1	.1
Nitrate (NO_3)	1.0	4	.2	.1	17	.1	.1	4.1	1.1	.4	1.1	.4	.1	2.2	.1	.4	.4	.8	21
Phosphate (PO_4)	.0	.0	.0	.1	.0	.0	.1	.1	.0	.1	.1	.0	.0	.0	.0	.1	.1	.1	.0
Dissolved solids	81	147	634	134	564	276	142	90	125	263	133	257	116	673	156	129	495	253	121
Hardness as $CaCO_3$	5	71	492	125	342	113	93	19	88	285	113	136	96	335	87	44	206	145	33
Noncarbonate	0	35	299	0	358	0	0	0	-	-	12	72	0	172	0	0	141	0	18
Specific conductance	47	180	1100	287	920	285	218	92	205	460	251	535	245	1100	290	180	1150	533	180
pH	6.1	6.8	7.3	7.5	6.1	7.2	7.3	6.7	7.2	7.0	7.1	7.0	7.3	7.3	6.7	7.4	7.2	7.6	6.1
Color	3	3	3	5	3	15	5	3	10	2	5	-	-	5	10	3	3	7	7
Map unit	Granite and granodiorite	Granite and granodiorite	Metavolcanic	Metavolcanic	Metavolcanic	Metavolcanic	Triassic	Metatriassic	Argillite-graywacke	Metavolcanic	Metavolcanic	Metatriassic	Metavolcanic	Metavolcanic	Triassic	Triassic	Triassic	Argillite-graywacke

[1] Bromide (Br)--2.5 ppm.

Durham County

(Area 299 square miles; population 111,995)

Durham County is the smallest county in the Durham area. It is bounded on the north by Person County, on the west by ~~Alamance~~ Orange County, on the south by Chatham and Wake Counties, and on the east by Wake and Granville Counties. Durham, the county seat, is the largest city in the Durham area and has a population of 78,302. Other towns include Bethesda and Rougemont. Most of the people in Durham County are employed by industry and supporting services in the city of Durham. The American Tobacco Co. and the Liggett and Myers Tobacco Co. are located in the city of Durham. The northern and eastern parts of the county are still largely devoted to agriculture. Tobacco, corn, small grains, and livestock are the chief agricultural products.

Durham County is drained by the New Hope, Neuse, Eno, Little, and Flat Rivers. The confluence of the Eno and Flat Rivers east of Fairntosh marks the beginning of the Neuse River.

The topography of Durham County is dominated by a lowland developed on Triassic rocks. The Triassic lowland, which occupies most of the county, is bordered on the northwest and the southeast by a distinct excarpment of the resistant volcanic rocks. The undulating, submaturely dissected upland surface developed on the resistant volcanic rocks is similar to that of adjacent counties in the Piedmont province. This surface generally slopes to the southeast. The highest elevations are in the northern part, north and east of Rougemont. The lowest elevations are in the eastern part of the county along the Neuse River and in the southern part of the county along the tributaries of the New Hope River.

Geology

The northwestern third of the county is underlain by rocks included in the metavolcanic unit (pl. 2). The metavolcanic unit in Durham County includes felsic to mafic tuffs and flows and thin interbeds of sedimentary rock. Acidic volcanic rocks predominate in a belt ranging from 2 to 4 miles in width along the Triassic contact. Intermediate to basic volcanic rocks crop out in the northwest corner, and a narrow belt of volcanic rock

Ref. 7 Keith

Ronald H. Levine, M.D., M.P.H.
STATE HEALTH DIRECTOR

DIVISION OF HEALTH SERVICES
P.O. Box 2091
Raleigh, N.C. 27602-2091

Date: February 25, 1983

Mr. Joe Morgan
Southern Wood Piedmont Co.
P.O. Box 5447
Spartanburg, N. C. 29304

Re: Facility ID No. NCD053488557

Dear Mr. Morgan:

Based on information supplied by you we have processed and accepted at the State level your request for the facility identified with the above ID number to receive the indicated change in classification under RCRA:

Add As	Delete As	
☐	☒	generator
☐	☒	transporter
☐	☐	treater
☐	☐	storer
☐	☐	disposer
☐	☐	small generator

We are advising EPA of the change in your status. Please notify us if there is any further change in your operations which would again affect your status. Your EPA ID NO. is ☒ is not ☐ being cancelled.

Cordially,

O. W. Strickland, Head
Solid & Hazardous Waste Management Branch
Environmental Health Section

OWS

cc: Doug McCurry
EPA Region IV
Emil Breckling
Larry Perry

This is to show that this plant is closed.

DHS Form 3048 3/82
Solid & Haz. Waste Mgt. Branch

001

Dan.

(1)

DIVISION OF ENVIRONMENTAL MANAGEMENT

RECEIVED
FEB 11 1982
SOLID & HAZARDOUS WASTE MANAGEMENT BRANCH

August 20, 1980

Mr. Joe Morgan, Environmental Manager
Southern Wood Piedmont Company
P.O. Box 5447
Spartanburg, South Carolina 29304

SUBJECT: Permit No. 3931-R
Southern Wood Piedmont Company
Gulf, North Carolina
Chatham County

Dear Mr. Morgan:

In accordance with your application received August 8, 1980, we are forwarding herewith Permit No. 3931-R, dated August 20, 1980, to Southern Wood Piedmont Company for the construction and operation of the subject non-discharge type waste treatment facilities.

This permit shall be effective from the date of issuance until rescinded, and shall be subject to the conditions and limitations as specified therein.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to an adjudicatory hearing before a hearing officer upon written demand to the Director within thirty (30) days following receipt of this permit, identifying the specific issues to be contended. Unless such demand is made, this permit shall be final and binding.

One (1) set of approved plans and specifications is being forwarded to you.

Yours very truly,

Original Signed by
L. P. BENTON, JR.

for Neil S. Grigg, Director
Division of Environmental Management

Enclosures
cc: Chatham County Health Department
Mr. Stan Taylor Regional Supervisor
Mr. A. C. Turnage, Jr.
Raleigh Regional Office Manager

DST:tcs

NORTH CAROLINA

ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF NATURAL RESOURCES & COMMUNITY DEVELOPMENT

RALEIGH

P E R M I T

For the Discharge of Sewage, Industrial Wastes, or Other Wastes

---

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations

PERMISSION IS HEREBY GRANTED TO

Southern Wood Piedmont Company
Chatham County

FOR THE

construction and operation of 8,000 GPD non-discharge type industrial wastewater treatment facilities consisting of a monitoring system, runoff collection systems for process areas and irrigation areas, gravity oil separator system, storage-setting ponds and appurtenances in series with two (2) aerated lagoons followed by a spray irrigation system with approximately 40 acres of properly terraced irrigation area, so that there shall not be any discharge of wastewater to the surface waters of the State,

pursuant to the application received August 8, 1980, and in conformity with the project plans, specifications, and other supporting data, subsequently filed and approved by the Department of Natural Resources and Community Development and considered a part of this Permit.

This Permit shall be effective from the date of issuance until rescinded, and shall be subject to the following specified conditions and limitations:

1. This permit shall become voidable unless the facilities are constructed in accordance with the approved plans, specifications and other supporting data.

2. This permit is effective only with respect to the nature and volume of wastes described in the application and other supporting data.

3. The facilities shall be properly maintained and operated at all times.

4. This permit is not transferable.

5. This permit shall become voidable in the event of failure of the soil to adequately absorb the wastes, and may be rescinded unless the facilities are installed, maintained and operated in a manner which will protect the assigned water quality standards of the surface waters, and prevent any contamination of the ground waters which will render them unsatisfactory for normal use.

6. In event the facilities fail to perform satisfactorily, the Permittee shall take such immediate corrective action as may be required by this Department.

7. Solids, sludges, or other pollutants removed or resulting from the wastewater treatment process shall be contained and disposed of in such a manner as to prevent any contamination of the surface or ground waters of the State.

8. This is a Class II Wastewater Treatment Plant and the person in responsible charge must hold a valid Grade II Certificate.

9. Diversion or bypassing of the untreated wastewater from the treatment facilities is prohibited.

10. Terracing shall be provided for all wastewater application areas so that all surface runoff will be returned to the treatment system.

11. Appropriate warning signs shall be posted around the wastewater treatment areas.

12. Reports on the operations of the spray irrigation facilities shall be submitted to the North Carolina Division of Environmental Management at regular intervals and in such form and detail as may be required by the Governing Board of the Division of Environmental Management.

13. The application rate shall not exceed one (1) inch/acre/week.

14. The Permittee, at least six (6) months prior to the expiration of this Permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if indicated, will extend the Permit for such period of time and under such conditions and limitations as it may deem.

15. Freeboard in the wastewater treatment facility basins shall not be less than two (2) feet at any time.

16. Monitoring facilities including a groundwater monitoring well located approximately 50 feet north of pond No. 7 shall be constructed, and monitoring reports and data shall be submitted as required by the Division of Environmental Management, Water Quality Section.

Permit issued this the 20th day of August, 1980.

NORTH CAROLINA EVNIRONMENTAL MANAGEMENT COMMISSION
Original Signed by
L. P. BENTON, JR

for Neil S. Grigg, Director
Division of Environmental Management
By Authority of the Secretary of the Department
of Natural Resources & Community Development

Permit No. 3931-R

Ref. 8

PRELIMINARY EXPLANATORY TEXT FOR THE 1985 GEOLOGIC MAP OF NORTH CAROLINA

Contractual Report 88-1

by

The North Carolina Geological Survey

November 4, 1988

Deep River Basin

The Deep River Basin is a northeast-southwest trending fault trough filled with nonmarine sedimentary rocks of the Late Triassic Chatham Group of the Newark Supergroup which were been intruded by Jurassic age diabase dikes and sheets. Strata in this basin generally strike northeast-southwest and dip to the southeast. The basin ranges between 6 and 16 miles in width and is approximately 150 miles long. The basin lies within the eastern edge of the North Carolina Piedmont physiographic province. The northernmost portion of the basin is near Oxford, North Carolina; the southern terminus is in Chesterfield County, South Carolina, just south of the North Carolina line. The basin is surrounded by pre-Triassic metavolcanic and metasedimentary rocks of the Carolina Slate belt and by intrusive rocks of the Raleigh belt along the northeast edge. Triassic rocks of the Deep River Basin occur in Granville, Durham, Wake, Orange, Lee, Chatham, Moore, Montgomery, Anson, and Richmond counties.

The Deep River Basin is subdivided into three sub-basins which are separated by cross-structures. These sub-basins are, from north to south: the Durham basin, the Sanford basin, and the Wadesboro basin. Prouty (1926) named the Durham and Sanford sub-basins. Traditionally, these three basins have been referred to as the Deep River-Wadesboro Basin. Gore (1986) included the Wadesboro basin in the Deep River Basin and that convention is followed in this report.

The southeastern border of the Deep River Basin is structurally defined by the Jonesboro fault, a northeast-southwest trending high angle normal fault that dips to the northwest. The fault was named by Campbell and Kimball (1923) for the town of Jonesboro which is now within the Sanford city limits. Bain and Brown (1980) and Reinemund (1955) interpreted the Jonesboro fault to actually be a series of en echelon block faults that step down to the basin. Reinemund (1955) estimated the vertical displacement along the Jonesboro fault to be between 6,000 to 10,000 feet. The Wadesboro basin is terminated on the southeastern side by either a subsidiary branch of the Jonesboro fault or by an extension of the Governors Creek fault, an intrabasinal structure of the Sanford basin (Randazzo and Copeland, 1976). Small detached Triassic basins lying southeast of the Wadesboro basin in Richmond County and possibly others to the north beneath Cretaceous Coastal Plain "cover" are thought to be bounded on the southeast by a continuation of the Jonesboro fault (Randazzo and Copeland, 1976).

The Durham and Sanford basins are bounded on the northwest in part by an unconformity between pre-Triassic crystalline rocks and sedimentary rocks and in part by high angle normal faults of low magnitude (Prouty, 1931; Reinemund, 1955; Harrington, 1958). The Wadesboro basin, on the other hand, is bounded on the northwest by a series of closely spaced, parallel, high angle normal faults (Swe, 1963).

The Colon cross-structure which separates the Durham and Sanford basins was first recognized by Emmons (1852). Campbell and Kimball (1923) named the feature and described it as a anticlinal warp that was cross-faulted. The Colon cross-structure is located between the communities of Moncure and Colon and is 8 miles long and 5 miles wide. Reinemund (1955) thought that the Colon cross-structure developed by differential subsidence of the Durham and Sanford basins. He speculated that initial movement started before the end of Triassic sedimentation and that the

structure was principally developed at the same time as the Jonesboro fault. Bain and Brown (1980) thought that the Colon cross-structure was a negative topographic feature during Pekin time and was later elevated.

The Pekin cross-structure which separates the Sanford and Wadesboro basins, was recognized by Mann and Zablocki (1961) on the basis of gravity data. Mann and Zablocki (1961) interpreted the structure as being analogous to the Colon cross-structure except that the Pekin cross-structure developed more by faulting than by folding. The Pekin cross-structure trends N25W and is centered between the towns of Pekin and Harrisville (Randazzo and Copeland, 1976). Randazzo and Copeland (1976) suggested that as much as 5,000 feet of sedimentary rocks have been eroded from this structure.

The Deep River Basin strata are cut by two sets of post-depositional normal faults: a longitudinal set trending northeast-southwest, roughly parallel to the Jonesboro fault, and a second set of cross faults which trend northwest-southeast. This latter set is commonly followed by diabase dikes (Campbell and Kimball, 1923; Reinemund, 1955; Bain and Harvey, 1977). These post-depositional faults, in combination, break the basin up into rectangular, triangular, and diamond shaped blocks that usually are tilted south and southeast (Reinemund, 1955; Bain and Harvey, 1977). Cross faults terminate the Deep River Basin to the south (Randazzo and Copeland, 1976). The northern terminus is also formed by faults.

Reinemund (1955) estimated the thickness of sedimentary rocks overlying the Colon cross-structure to be 4,000-5,000 feet. He estimated the thickness of sedimentary rocks to be 7,000-8,000 feet in the Sanford basin and 10,000 feet in the Durham basin. Mann and Zablocki (1961) estimated the thickness of strata over the Colon cross-structure to be 2,000 feet, thickening to 6,100-7,700 feet in the Sanford basin and 6,100 feet in the Durham basin. They estimated the thickness of strata in the Wadesboro basin to 3,800 feet. Bain and Harvey (1977) estimated the thickness of strata in the Durham basin to be 6,800 feet in the vicinity of Apex in southern Wake County.

DURHAM BASIN

The Durham basin is the largest and northernmost Triassic basin within the greater Deep River Basin. The Durham basin is approximately 52 miles long and attains a maximum width of 16 miles. The eastern margin is defined by the Jonesboro fault, a major northeast trending high angle normal fault which dips to the northwest. The western margin consists of unconformities and minor northwest-trending high angle normal faults which dip to the southeast. The southernmost boundary of the Durham basin is the Colon cross-structure. In the northernmost Durham basin, the eastern boundary fault abruptly changes trend from northeast to north-northwest in the vicinity of Creedmoor. Wright Horton (personal communication, 1988) traced the Jonesboro fault along its northeast trend into the Piedmont from this junction. North of this junction the basin is probably bounded by a north-northwest trending cross fault that intersects the western boundary fault and terminates the basin in the vicinity of Oxford, Granville County.

Very little detailed geologic work is published on the Durham basin. Prouty (1926, 1931) published a general report on the Durham basin and noted the presence of fossil and coalified wood in conglomerates along the western margin of the basin between Chapel Hill and Durham. He also named

October 22, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Estimation of flow rates

The annual runoff near the site was estimated to be 14 inches using the "Map of Mean Annual Runoff for the Northeastern, Southeastern, and Mid-Atlantic United States, Water Years 1951-1980, U.S. Geologic Survey, Water-Resources Investigations Report 88-4094," Madison, Wisconsin, 1990 (1).

The drainage area for Cedar Creek near the site was found to be 4.42 square miles using "Drainage Areas of Selected Sites on Streams in North Carolina, Open-File Report 83-211, U.S. Department of the Interior Geological Survey," Raleigh, N.C., 1983, page 64 (2).

Using reference (1), formula given on page 10, the flow rate for Cedar Creek near the site was calculated to be 4.6 cubic feet/second as shown below.

(14 inches/year)(4.42 square miles)/13.58=4.6 cfs

Using data from reference (2), the drainage area for the Deep River near the site was found to be 1112 square miles. Applying the formula mentioned above, the flow for the Deep River was determined to be 1146 cubic feet per second as shown below.

(14 inches/year)(1112 square miles)/13.58=1146 cfs

References (1) and (2) are attached to this memorandum.

MAP OF MEAN ANNUAL RUNOFF FOR THE NORTHEASTERN, SOUTHEASTERN, AND MID-ATLANTIC UNITED STATES, WATER YEARS 1951–80

By
William R. Krug, Warren A. Gebert, David J. Graczyk, U.S. Geological Survey;
Donald L. Stevens, Jr., Eastern Oregon State College;
Barry P. Rochelle, Northrop Services, Inc.;
and M. Robbins Church, U.S. Environmental Protection Agency

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 88–4094

Prepared in cooperation with the
U.S. ENVIRONMENTAL PROTECTION AGENCY

Madison, Wisconsin
1990

002

sions that the methods that used the area-weighted average of the drainage area or the centroid of the drainage area produced somewhat better correlations—that is, the interecept was closer to zero, the standard errors were small, and the correlation coefficients were larger. These methods have slightly greater power to predict actual runoff. Additional statistical investigation found no significant differences in reliability of the runoff estimates among the areas. No significant differences existed in the errors for stations with drainage areas of differing size.

USE OF MEAN ANNUAL RUNOFF MAP

Mean annual runoff for a site can be estimated from the runoff map by several methods. The simplest method of estimating the runoff is to locate the site on the runoff map and to identify the runoff contour nearest the site. This method, however, is less accurate than other methods. The most accurate method is to draw the drainage basin on the runoff map, and use the runoff contours to divide the basin into bands of differing runoff. The area of each of the bands within the drainage basin is then determined. The areas of the separate bands are then used to compute a weighted average runoff for the basin. For example, if 50 percent of the basin is in an area of 18 in/yr (inches per year) of runoff, 30 percent in an area of 20 in/yr of runoff and 20 percent in an area of 22 in/yr of runoff the mean annual runoff would be calculated as follows:

$$0.5 \times 18 + 0.3 \times 20 + 0.2 \times 22 = 19.4$$

Runoff estimated from the map is in inches per year, averaged over the entire drainage basin. Multiply this value by the drainage area, in square miles, and divide by 13.58 to convert to mean annual discharge, in cubic feet per second. In the above example, assume the drainage area of the site is 100 mi^2. The mean annual discharge, in cubic feet per second, would be:

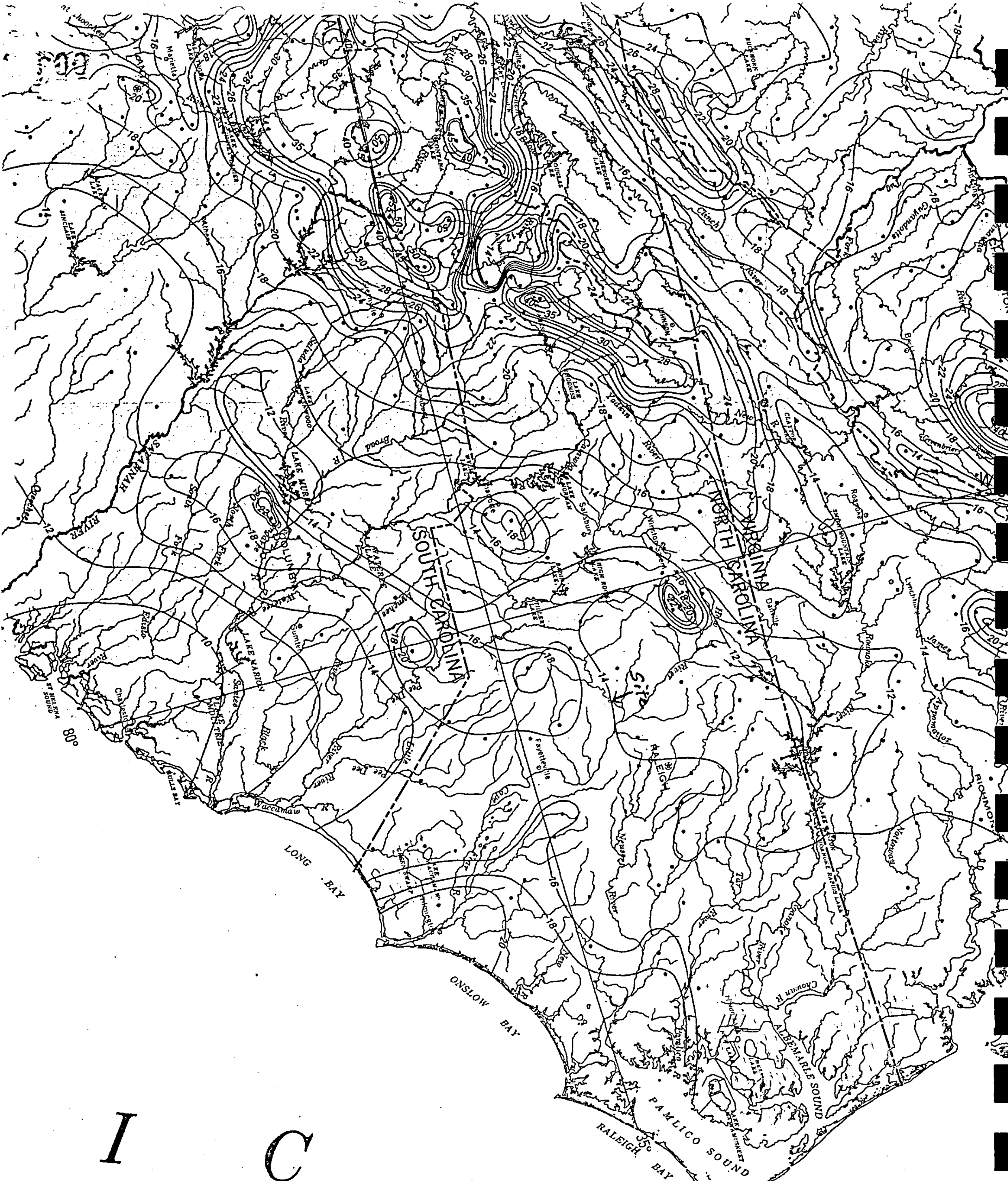
$$19.4 \times 100/13.58 = 143$$

The runoff map was prepared to allow estimation of mean annual runoff at sites where no streamflow data are available. The map represents mean annual runoff for areas with natural land cover. Caution should be used in applying the map to estimate runoff for areas that are not natural land areas. The runoff map should not be used for areas, such as large urban areas, where the land cover has been altered in ways that would change the amount of runoff. The runoff map is not applicable for lakes or bays, for coastal wetlands affected by tides, for streams controlled by reservoirs large enough to influence the total annual streamflow, or for streams with substantial diversions.

Local features could cause the runoff at a particular site to differ substantially from the runoff indicated by the runoff map. The geology of the drainage basin might cause substantial amounts of water to enter or leave the basin as ground water. This could substantially increase or decrease the runoff. For example, a stream with a small drainage area that includes a large spring probably would have higher average streamflow than indicated by the runoff map.

Table 5.—Descriptive statistics of errors in estimated runoff at 93 test stations

Method	Mean absolute value	Mean	Standard error of mean	Standard deviation
		Error, in inches		
Area-weighted	2.0	–0.35	0.30	2.9
Centroid	2.2	–.71	.33	3.1
GIS	2.7	–1.74	.37	3.6
Nearest-inch	2.8	–1.77	.38	3.7
Nearest contour	2.8	–1.79	.39	3.8
		Percent error		
Area-weighted	9.0	–0.54	1.3	12.9
Centroid	9.8	–.71	1.4	13.5
GIS	12.0	–6.42	1.6	15.9
Nearest-inch	12.1	–6.20	1.6	15.6
Nearest-contour	12.2	–6.26	1.6	15.8



SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
LONG BAY
ONSLOW BAY
PAMLICO SOUND
RALEIGH BAY
ALBEMARLE SOUND
RALEIGH
Fayetteville
Site
LAKE MARION
LAKE MURRAY
SAVANNAH RIVER
80°
35°
I
C

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DRAINAGE AREAS OF SELECTED SITES ON STREAMS IN NORTH CAROLINA

By Robert L. Meikle

Open-File Report 83-211

Prepared in cooperation with the
NORTH CAROLINA DEPARTMENT OF NATURAL
RESOURCES AND COMMUNITY DEVELOPMENT

Raleigh, North Carolina
1983

005

STATION NUMBER	STATION NAME	DRAINAGE AREA (SQ MI)	SITE TYPE	LAT	LONG	QUAD NAME	COUNTY CODE
0210146300	DEEP R AT SR 1007 AT GULF	1063.	20	353418	791714	GOLDSTON	037
0210146329	INDIAN C AT MTH NR GULF	26.0	20	353238	791928	GOLDSTON	037
0210147850	POCKET C AT SR 1303 NR WHITE HILL	5.23	20	352500	791539	WHITE HILL	105
0210148350	POCKET C AT SR 1305 NR WHITE HILL	10.4	20	352616	791546	WHITE HILL	105
0210148365	POCKET C AT SR 1318 NR CUMNOCK	15.0	20	352732	791552	WHITE HILL	105
0210148375	RACCOON C AT SR 1318 NR COOL SPRINGS	2.68	20	352750	791509	WHITE HILL	053
0210148385	RACCOON C AT MTH NR CUMNOCK	4.08	20	352900	791607	WHITE HILL	105
0210148400	POCKET C NR CUMNOCK	23.2	02	352925	791624	WHITE HILL	105
0210148479	L POCKET C AT SR 1314 NR WHITE HILL	1.14	20	352546	791825	WHITE HILL	105
0210148499	L POCKET C AT SR 1318 NR HAW BRANCH	4.21	20	352732	791830	WHITE HILL	105
0210148699	L POCKET C AT SR 1326 NR HAW BRANCH	5.84	20	352828	791821	WHITE HILL	105
0210148800	L POCKET NR CUMNOCK	9.52	20	353017	791732	GOLDSTON	105
0210148829	L POCKET C AT MTH NR GULF	11.3	20	353119	791641	GOLDSTON	105
0210148889	POCKET C AT MTH NR GULF	37.7	20	353202	791651	GOLDSTON	105
0210149579	PATTERSON C AT MTH NR GULF	7.24	20	353233	791522	GOLDSTON	105
0210149600	DEEP R AT US 421 NR GULF	1112.	20	353244	791512	GOLDSTON	037
0210150000	DEEP R AT CUMNOCK	1112.	01	353331	791436	COLON	037
0210150190	CEDAR C HEADWATERS AT GOLDSTON	2.23	20	353504	791841	GOLDSTON	037
0210150400	CEDAR C AT SR 2142 AT GULF	4.42	11	353400	791705	GOLDSTON	037
0210150459	CEDAR C TRIB HEADWATERS NR GOLDSTON	1.82	20	353609	791730	GOLDSTON	037
0210150509	CEDAR C TRIB AT MTH AT GULF	5.49	20	353401	791628	GOLDSTON	037
0210150600	CEDAR C AT SR 2145 NR GULF	13.0	11	353405	791445	COLON	037
0210150739	ROCKY B AT SR 2153 NR FARMVILLE	2.48	20	353547	791442	COLON	037
0210150769	ROCKY B AT MTH NR FARMVILLE	4.07	20	353459	791431	COLON	037
0210150779	GEORGES C AT SR 2153 NR FARMVILLE	8.67	20	353458	791430	COLON	037
0210151082	PERSIMMON C TRIB AT MTH AT SANFORD	1.58	20	352755	791208	SANFORD	105
0210151095	PERSIMMON C AT MTH AT SANFORD	4.37	20	352832	791151	SANFORD	105
0210151100	SKUNK C AT MTH AT SANFORD	2.68	20	352832	791150	SANFORD	105
0210152400	BIG BUFFALO C AT SR 1100 NR SANFORD	8.64	11	352919	791208	SANFORD	105
0210152494	BIG BUFFALO C TRIB AT MTH AT SANFORD	1.10	20	352917	791210	SANFORD	105
0210152600	BIG BUFFALO C AT US 421 NR SANFORD	10.9	20	353002	791211	COLON	105
0210153900	BIG BUFFALO C NR COLON	12.5	11	353040	791212	COLON	105
0210154200	PURGATORY B AT US 421 NR CUMNOCK	1.27	11	353144	791403	COLON	105
0210155200	BIG BUFFALO C NR CUMNOCK	19.7	20	353230	791347	COLON	105
0210155333	BIG BUFFALO C AT MTH NR FARMVILLE	20.4	20	353307	791336	COLON	105
0210155469	DEEP R TRIB AT MTH AT FARMVILLE	2.56	20	353323	791234	COLON	105
0210156400	DEEP R NR CUMNOCK	1151.	20	353328	791208	COLON	105
0210157100	GEORGES C AT FARMVILLE	11.8	02	353423	791255	COLON	037
0210157125	GEORGES C AT MTH AT FARMVILLE	12.8	20	353401	791203	COLON	037
0210157700	DEEP R NR COALGLEN	1165.	20	353441	791140	COLON	105
0210160400	L BUFFALO C AT SCLRR AT SANFORD	2.75	20	353008	791027	COLON	105
0210161200	L BUFFALO C NR COLON	4.79	02	353154	791027	COLON	105
0210161695	L BUFFALO C AT US 1 NR NORTHVIEW	6.62	20	353317	791122	COLON	105
0210161800	L BUFFALO C AT MTH NR FARMVILLE	8.08	20	353443	791123	COLON	105
0210163100	ROCKY R AT LIBERTY	2.18	02	354930	793424	LIBERTY	151
0210166000	ROCKY R NR LIBERTY	4.52	02	354909	793324	LIBERTY	151
0210166019	ROCKY R TRIB AT MTH NR LIBERTY	1.29	20	354917	793305	LIBERTY	151
0210166029	ROCKY R AT SR 1300 NR CRUTCHFIELD X RDS	7.42	20	354825	793141	LIBERTY	037
0210167212	ROCKY R AB LAKE NR CRUTCHFIELD X RDS	12.2	20	354755	793029	LIBERTY	037
0210167225	ROCKY R TRIB NR CRUTCHFIELD X RDS	1.93	20	354803	792941	CRUTCHFIELD CROSSROA	037
0210168600	N P ROCKY R NR LIBERTY	2.70	11	355151	793234	LIBERTY	151
0210168709	N P ROCKY R TRIB AT MTH NR SNOW CAMP	1.10	20	355127	793141	LIBERTY	001
0210168809	N P ROCKY R AT SR 1301 NR SILER CITY	7.37	20	355029	793148	LIBERTY	037
0210169900	N P ROCKY R NR STALEY	10.1	11	354921	793047	LIBERTY	037
0210171200	N P ROCKY R NR SILER CITY	11.7	11	354852	793013	LIBERTY	037
0210171300	N P ROCKY R NR CRUTCHFIELD X RDS	12.7	20	354829	792929	CRUTCHFIELD CROSSROA	037
0210171409	GREENBRIER C NR PLEASANT HILL	3.64	20	355031	792928	CRUTCHFIELD CROSSROA	037
0210171459	GREENBRIER C AT MTH NR PLEASANT HILL	8.55	20	354832	792849	CRUTCHFIELD CROSSROA	037
0210171555	ROCKY R AT DAM NR CRUTCHFIELD X RDS	37.1	20	354742	792839	CRUTCHFIELD CROSSROA	037
0210171659	LICK C AT SR 1004 CRUTCHFIELD X RDS	1.58	20	354916	792556	CRUTCHFIELD CROSSROA	037
0210171699	LICK C NR CRUTCHFIELD X RDS	4.79	20	354830	792722	CRUTCHFIELD CROSSROA	037
0210171739	JOHNSON C NR CRUTCHFIELD X RDS	2.72	20	354830	792723	CRUTCHFIELD CROSSROA	037
0210171900	MUD C NR SILER CITY	7.99	02	354753	792747	CRUTCHFIELD CROSSROA	037
0210171929	MUD C AT MTH NR SILER CITY	8.58	20	354730	792755	CRUTCHFIELD CROSSROA	037
0210172059	LACYS C NR SILER CITY	3.67	20	354629	792820	CRUTCHFIELD CROSSROA	037
0210172200	ROCKY R AT SILER CITY	54.0	20	354547	792727	CRUTCHFIELD CROSSROA	037
0210172209	ROCKY R TRIB BL WTP NR SILER CITY	0.72	20	354541	792719	CRUTCHFIELD CROSSROA	037
0210172220	ROCKY R AT SR 1004 NR SILER CITY	56.2	20	354542	792638	CRUTCHFIELD CROSSROA	037
0210172250	NICK C TRIB NR CRUTCHFIELD X RDS	1.87	20	354651	792544	CRUTCHFIELD CROSSROA	037
0210172300	NICK C NR SILER CITY	5.01	02	354558	792613	CRUTCHFIELD CROSSROA	037
0210172399	NICK C AT MTH NR SILER CITY	7.27	20	354539	792603	CRUTCHFIELD CROSSROA	037
0210172580	ROCKY R TRIB AT MTH NR SILER CITY	2.28	20	354418	792535	SILER CITY	037
0210172600	ROCKY R AT US 64 NR SILER CITY	69.1	20	354406	792524	SILER CITY	037
0210172650	LOVES C AT SR 1006 NR SILER CITY	1.06	20	354134	792826	SILER CITY	037
0210172810	LOVES C TRIB AT MTH AT SILER CITY	2.05	20	354301	792725	SILER CITY	037
0210173002	LOVES C AT SR 2208 AT SILER CITY	5.32	20	354305	792722	SILER CITY	037
0210173900	LOVES C AB SEO NR SILER CITY	7.51	02	354343	792619	SILER CITY	037
0210175555	LOVES C AT MTH NR SILER CITY	7.99	11	354357	792523	SILER CITY	037
0210176700	VARNELL C AT SR 1003 NR SILK HOPE	2.02	20	354618	792304	CRUTCHFIELD CROSSROA	037
0210176819	VARNELL C TRIB NR SILK HOPE	1.07	20	354529	792232	CRUTCHFIELD CROSSROA	037
0210177219	VARNELL C TRIB AT SR 1500 NR SILK HOPE	1.90	20	354510	792232	CRUTCHFIELD CROSSROA	037
0210177819	VARNELL C TRIB AT MTH NR SILER CITY	1.06	20	354421	792347	SILER CITY	037
0210177900	VARNELL C NR SILER CITY	9.74	02	354404	792408	SILER CITY	037
0210177950	VARNELL C AT MTH NR SILER CITY	10.2	20	354334	792414	SILER CITY	037
0210178027	ROCKY R NR SILER CITY	90.4	20	354313	792351	SILER CITY	037

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CHATHAM COUNTY, NORTH CAROLINA
(UNINCORPORATED AREAS)

PANEL 200 OF 225

COMMUNITY–PANEL NUMBER:
370299 0200 B

EFFECTIVE DATE:
JULY 16, 1991

Federal Emergency Management Agency

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100–YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100–year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500–year flood; areas of 100–year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100–year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500–year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zone.

567 — Base Flood Elevation Line; Elevation in Feet*

A — A — Cross Section Line

(EL 19) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM5 × — Elevation Reference Mark

M3.0 • — Mile Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all planimetric features outside Special Flood Hazard Area or all areas subject to flooding, particularly from local drainage sources of small size.

Areas of Special Flood Hazard (100–year flood) include zones, A, AE, A1–A30, AH, AO, A99, V, VE and V1–V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of the shoreline.

This map incorporates approximate boundaries of coastal barriers established under the Coastal Barrier Resources Act (PL 97–348).

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For adjoining panels, see separately printed Map Index.

MAP REPOSITORY
Planning Office, County Health Building, 112 East Street, Pittsboro, North Carolina (Maps available for reference only, not for distribution.)

INITIAL IDENTIFICATION:
MAY 19, 1978

FLOOD HAZARD BOUNDARY MAP REVISION:

FLOOD INSURANCE RATE MAP EFFECTIVE:
JULY 16, 1991

FLOOD INSURANCE RATE MAP REVISIONS:

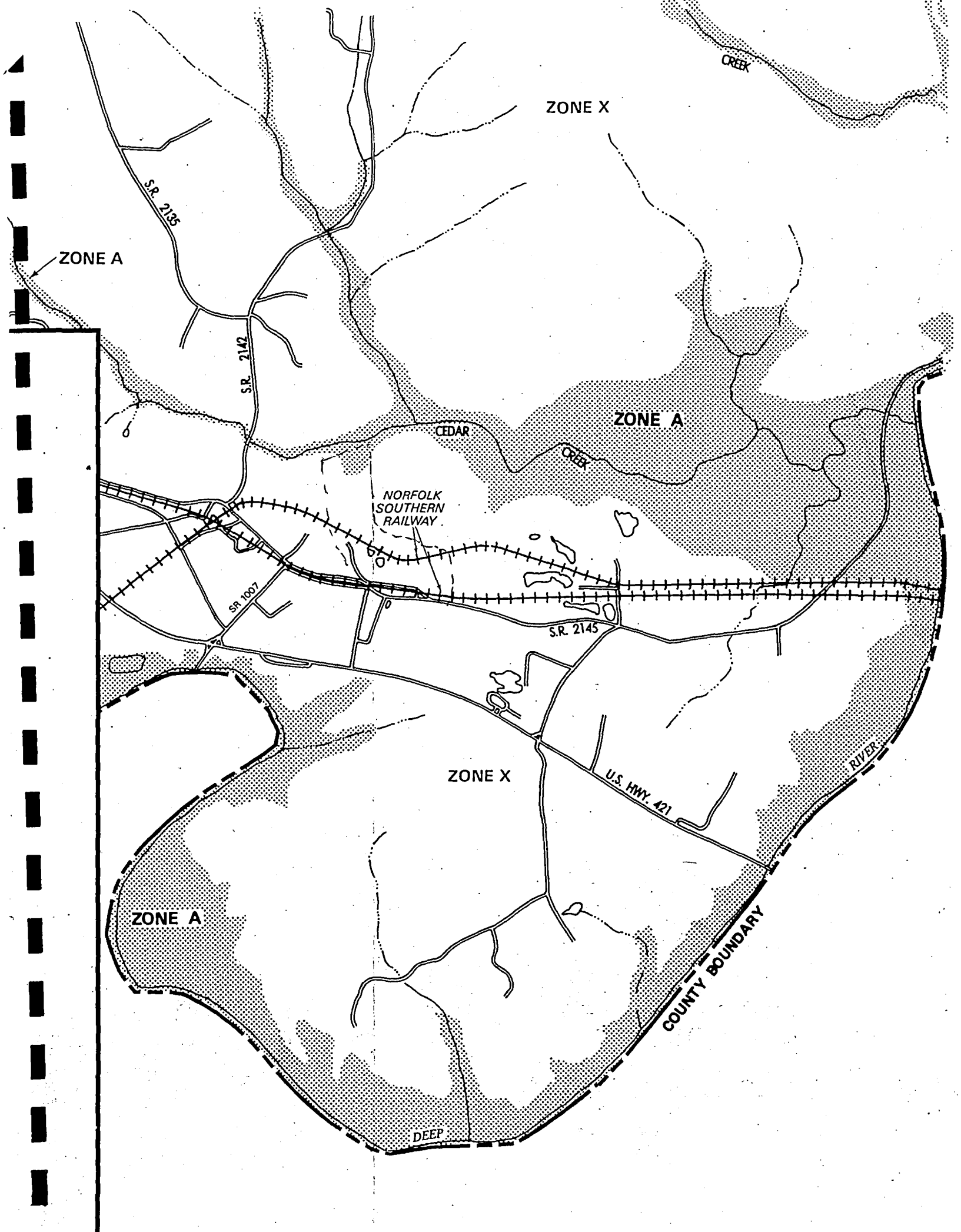
To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638–6620.

N

APPROXIMATE SCALE IN FEET

2000 0 2000

Ref. 10


ZONE X
CREEK
S.R. 2135
ZONE A
S.R. 2142
CEDAR
CREEK
ZONE A
NORFOLK
SOUTHERN
RAILWAY
SR 1007
S.R. 2145
ZONE X
U.S. HWY. 421
RIVER
ZONE A
COUNTY BOUNDARY
DEEP

October 22, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont (NCD 053 488 557)
Teleconference concerning Goldston-Gulf Sanitary District

On the above date I spoke with Mr. Travis Cade, Water Plant Operator at the Goldston-Gulf Water Sanitary District (919/898-2239) concerning water lines. He said that he would mail me a map, that the intake is located at Highway 421, and that they do serve Cumnock.

GOLDSTON-GULF SANITARY DISTRICT

DISTRICT BOUNDARY

WATER MAP

800 400 0 800 1600 2400

CENTRAL CAROLINA ENGINEERING, P.A.
CONSULTING ENGINEERS-PLANNERS
P.O. BOX 1706
SANFORD, N.C. 27330

November 5, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont (NCD 053 488 557)
Teleconference with Mr. Bob Joyce, Lee County

On the above date I spoke with Mr. Bob Joyce, 919/774-8424, Lee County Planning, concerning municipal water supplies in Lee County. Earlier, Mr Randy Clark, Water Plant Operator, had indicated to me that there is a surface water intake on the Deep River that primarily serves a poultry processing plant. He referred me to Mr. Joyce for full information on well water and surface water municipal systems in Lee County.

In our conversation, Mr. Joyce indicated that the small water system Mr. Clark had mentioned was opened in order to attract a poultry processing plant to the county. He reported that the system serves approximately 8 residences in addition to the poultry processing plant. This system is interconnected, but valved off from, a well water system which serves an area of about a 5 mile radius of the town of Lemon Springs. The two systems would be blended only on an emergency basis. This has reportedly never yet been done. The intake is located on the Deep River about 3000 feet downstream (north) of the Highway 421 bridge, between the highway bridge and the Southern Railroad bridge.

Mr. Joyce mentioned that the city of Sanford is served by a surface water intake on the Cape Fear River located about 1 mile downstream of McKay Island. He also indicated that the Lee County well system near Lemon Springs is interconnected with the city of Sanford water lines. He stated that the village of Cumnock has reportedly had problems with elevated trihalomethane levels in the drinking water and that the Lee County system may begin serving Cumnock soon. Cumnock is now served by the Goldston-Gulf Sanitary District.

Mr. Joyce will mail us a map showing the waterlines and intakes we discussed.

Lee County

RECEIVED
NOV 12 1993
SUPERFUND SECTION

RECEIVED
NOV 10 1993
NC DIVISION OF SOLID WASTE MANAGEMENT

Fax Transmission Cover Page

Date: 11-8-93 Time: 3:00

To: Ms. Irene Williams SF Location: Raleigh, NC 27605

From: Bob Joyce Location: Lee County 774-8424
Lee County Economic & Development

Of Pages (Inc. Cover Page) 3

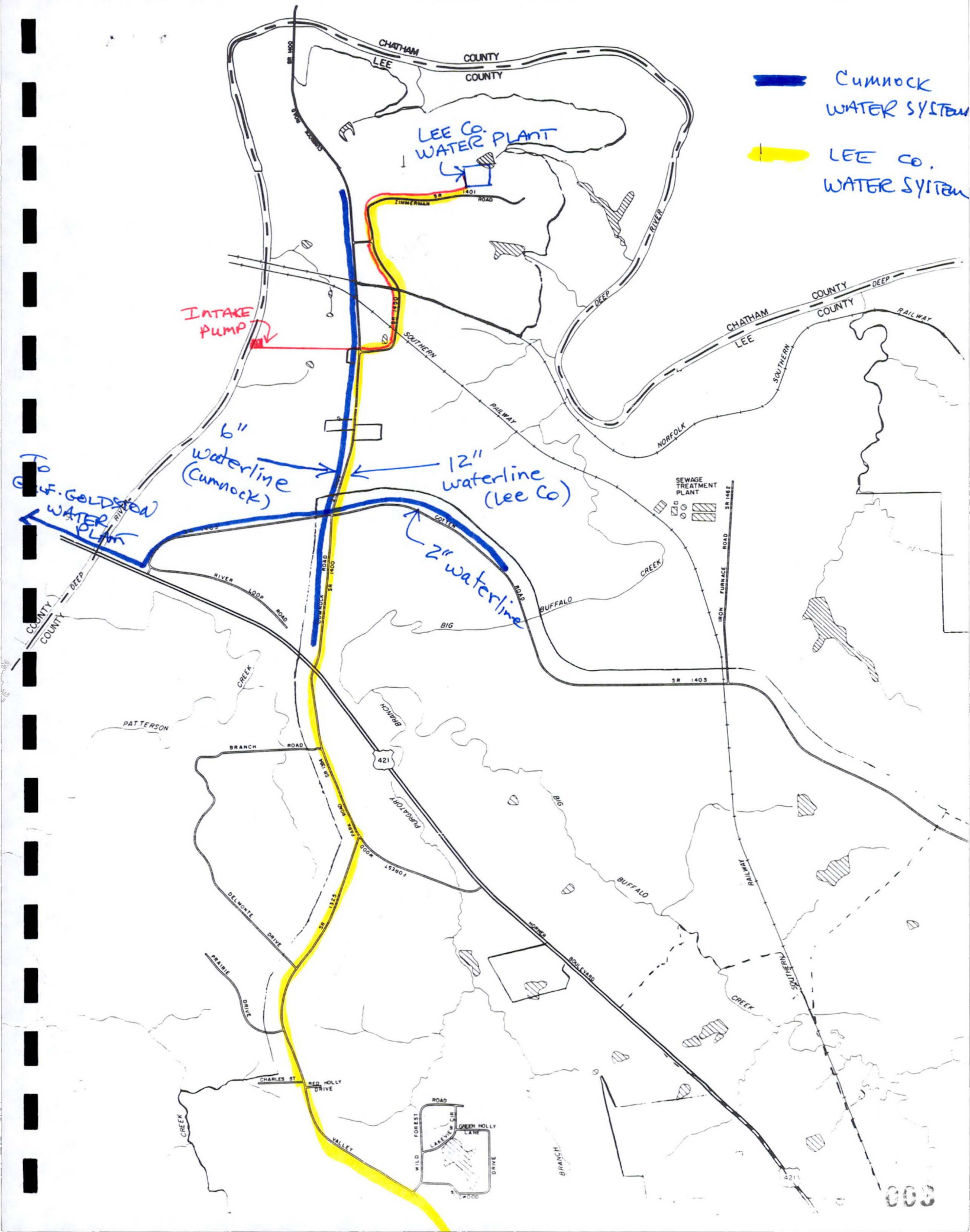
Message

If you did not receive all pages, please call (919) 774-8430

Fax Number (919) 774-8407

Fax 1-919-733-4811
Could not fax, no answer

002


Cumnock WATER SYSTEM
LEE Co. WATER SYSTEM
LEE Co. WATER PLANT
INTAKE PUMP
6" waterline (Cumnock)
12" waterline (Lee Co)
2" waterline
To GULF-GOLDSTON WATER PLANT
CHATHAM COUNTY
LEE COUNTY
DEEP RIVER
SOUTHERN RAILWAY
NORFOLK SOUTHERN RAILWAY
SEWAGE TREATMENT PLANT
SR 1401
SR 1400
SR 1403
SR 1482
SR 1325
421
BUFFALO CREEK
BIG BUFFALO CREEK
PATTERSON CREEK
BRANCH ROAD
RIVER LOOP ROAD
IRON FURNACE ROAD
CUMNOCK ROAD
COLLEGE ROAD
FOREST WOOD PARK ROAD
DELMONTE DRIVE
PRAIRIE DRIVE
CHARLES ST
RED HOLLY DRIVE
GREEN HOLLY LANE
WILD FOREST ROAD
LAKEVIEW CIR
VALLEY DRIVE
HORNER BOULEVARD
SOUTHERN RAILWAY
BRANCH
CREEK

GULF-GOLDSTON INTAKE
CO. OF LEE INTAKE
CITY OF SANFORD INTAKE

November 9, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Identification of sensitive environments

On the above date I reviewed appropriate USGS quad maps at the Natural Heritage Program office to identify critical habitats and sensitive environments within a 4-mile radius of the site and along the 15-mile downstream surface water pathway.

One animal species identified:

Notropis mekistocholas, or Cape Fear Shiner, Endangered at both the U.S. and N.C. levels.

Plant species identified:

(1) Collinsonia tuberosa, or Piedmont Horsebalm, Candidate for Endangered at the N.C. level

(2) Enemion biternatum, or Eastern Isopyrum, Significantly Rare at the N.C. level

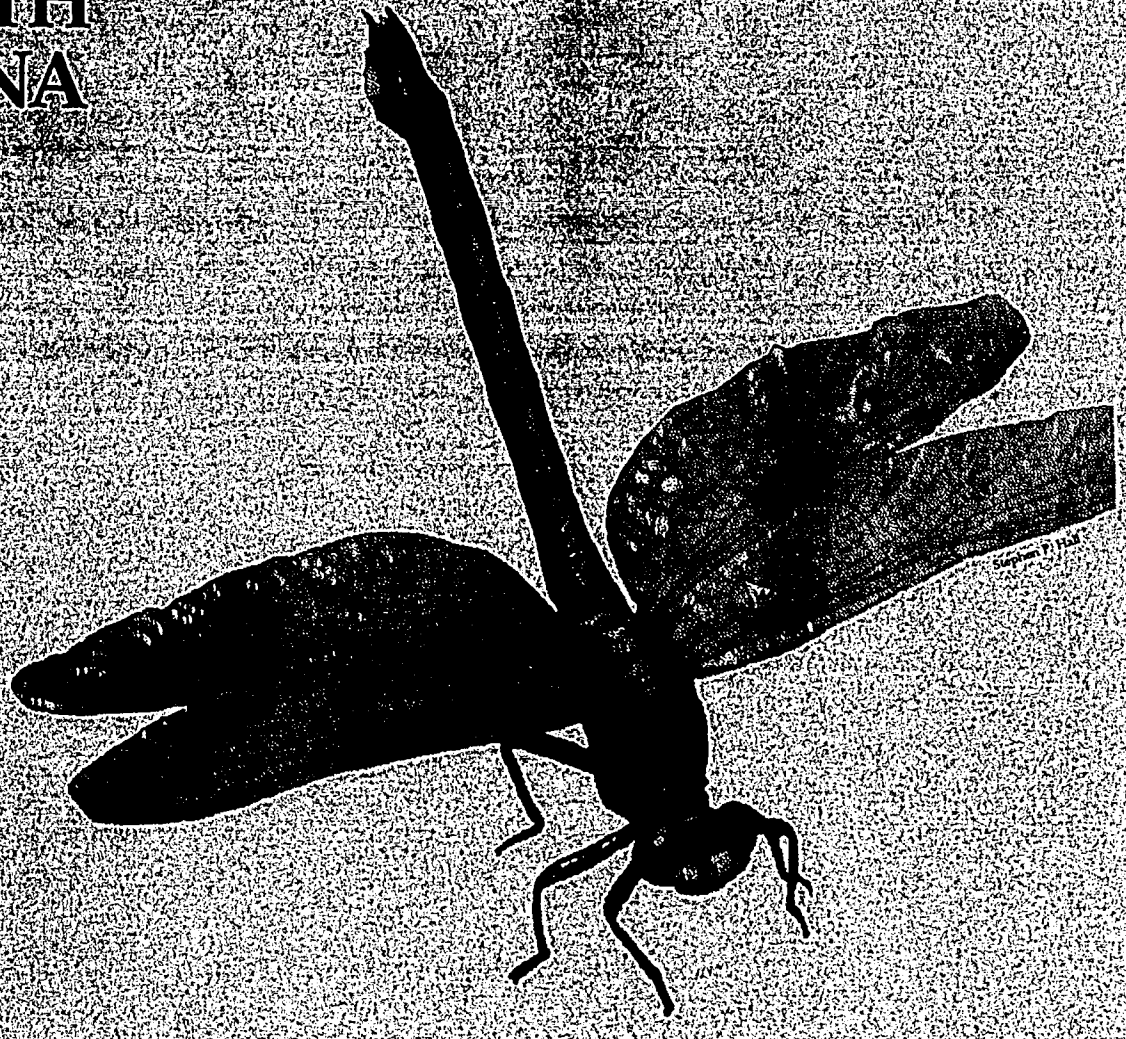
(3) Porteranthus stipulatus, or Indian Physic, Significantly Rare at the N.C. level

(4) Ptilimnium nodosum, or Harperella, Endangered at both the U.S. and N.C. levels

References: (a) LeGrand, Harry E., Jr., Natural Heritage Program List of the Rare Animal Species of North Carolina, 1993

(b) Weakley, Alan S., Natural Heritage Program List of the Rare Plant Species of North Carolina, 1993.

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMAL SPECIES OF NORTH CAROLINA



Compiled By
Harry E. LeGrand, Jr., Zoologist
With Contributions by Stephen P. Hall

North Carolina Natural Heritage Program
Division of Parks and Recreation
N. C. Department of Environment, Health, and Natural Resources 1993

002

Physiographic Province. The provinces in which the animal is known to occur are indicated. This should not be regarded as the only province(s) of the state in which the species could occur; our knowledge of the fauna of North Carolina, especially the invertebrates, is still very imperfect. The provinces are abbreviated as follows:

M	Mountains	All parts of North Carolina west of the foot of the Blue Ridge Escarpment.
P	Piedmont	All parts of North Carolina east of the foot of the Blue Ridge Escarpment and west of the Fall Line, including outlying "foothill" ranges, such as the Brushy, Uwharrie, and Sauratown mountains.
C	Coastal Plain	All parts of North Carolina east of the Fall Line (including the Sandhills), but excluding the portions associated with tidal water (ocean, sounds, barrier islands, and mainland brackish or salt marshes).
T	Tidewater	That part of the state associated with tidal water, such as the ocean and barrier islands, sounds, estuaries, and mainland brackish or salt marshes.

Habitat. The known, or the most typical, habitats are described briefly; as with provinces, these should not be regarded as the only possible habitats of the species in the state.

CRITICAL HABITAT INDEX

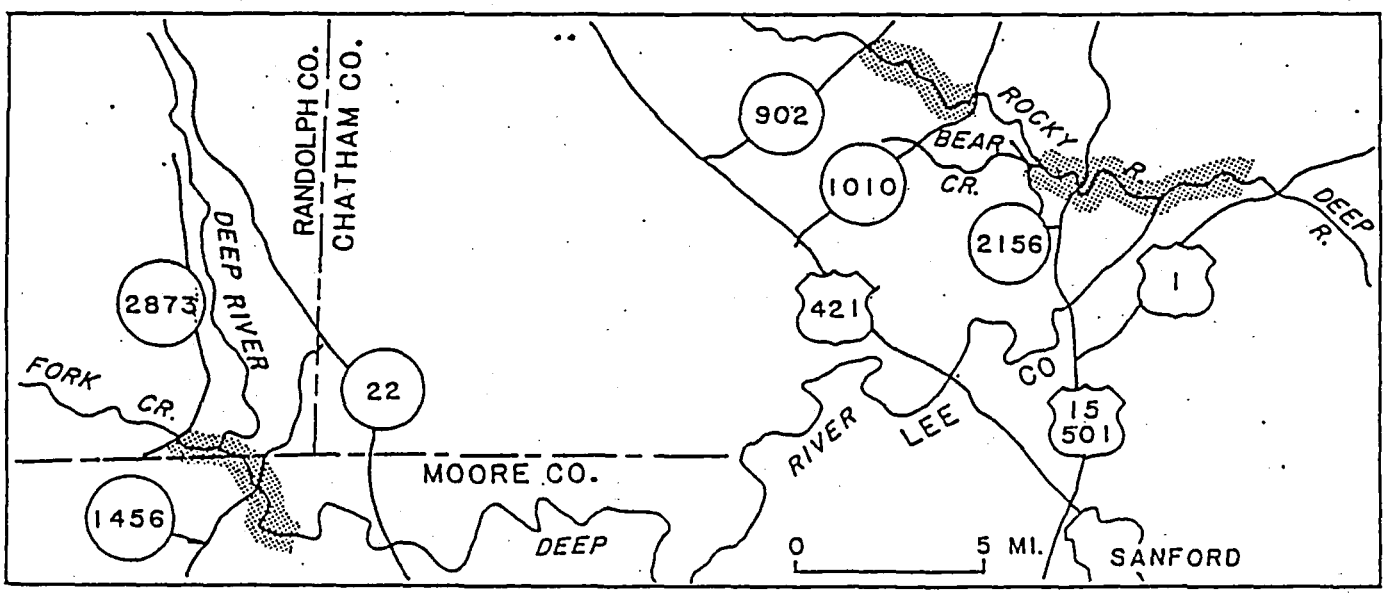
Alabama:	Etheostoma boschungi (slackwater darter)
	Peromyscus polionotus ammobates (Alabama beach mouse)
	Peromyscus polionotus trissyllepsis (Perdido Key beach mouse)
	Speoplatyrhinus poulsoni (Alabama cavefish)
Arkansas:	Percina pantherina (leopard darter)
Florida:	Ammospiza maritima mirabilis (Cape Sable sparrow)
	Crocodylus acutus (American crocodile)
	Peromyscus polionotus allophrys (Choctawhatchee beach mouse)
	Peromyscus polionotus trissyllepsis (Perdido Key beach mouse)
	Rostrhamus sociabilis plumbeus (Everglade kite)
	Trichechus manatus (Florida manatee)
Georgia:	Percina antesella (amber darter)
	Percina jenkinsi (Conasauga logperch)
Kentucky:	Myotis sodalis (Indiana bat)
	Palaemonias ganteri (Kentucky cave shrimp)
Louisiana:	No designations
Mississippi:	Grus canadensis pulla (Mississippi sandhill crane)
North Carolina:	Hudsonia montana (mountain golden heather)
	Hybopsis monacha (spotfin chub)
	Menidia extensa (waccamaw silverside)
	Notropis mekistocholas (Cape Fear shiner)

NORTH CAROLINA - Critical Habitat

Notropis mekistocholas, "Cape Fear shiner"

(1) Chatham County. Approximately 4.1 miles of the Rocky River from North Carolina State Highway 902 Bridge downstream to Chatham County Road 1010 Bridge;
(2) Chatham and Lee Counties. Approximately 0.5 river mile of Bear Creek, from Chatham County Road 2156 Bridge downstream to the Rocky River, then downstream in the Rocky River (approximately 4.2 river miles) to the Deep River, then downstream in the Deep River (approximately 2.6 river miles) to a point 0.3 river mile below the Moncure, North Carolina, U.S. Geological Survey Gaging Station; and
(3) Randolph and Moore Counties. Approximately 1.5 miles of Fork Creek, from a point 0.1 river mile upstream of Randolph County Road 2873 Bridge downstream to the Deep River then downstream approximately 4.1 river miles of the Deep River in Randolph and Moore Counties, North Carolina, to a point 2.5 river miles below Moore County Road 1456 Bridge.

Constituent elements include clean streams with gravel, cobble, and boulder substrates with pools, riffles, shallow runs and slackwater areas with large rock outcrops and side channels and pools with water of good quality with relatively low silt loads.



Scientific Name Province: Habitat	Common Name	Status N.C.	Status U.S.	Rank N.C.	Rank Global
Etheostoma mariae C: streams of Lumber drainage, mainly in the sandhills; perhaps in adjacent Pee Dee drainage	Pinewoods Darter	SC	3C	S3	G3
Etheostoma perlongum C: Lake Waccamaw (endemic to North Carolina)	Waccamaw Darter	T	3B	S1	G1Q
Etheostoma podostemone P: large streams in Dan River system	Riverweed Darter	SC		S2	G3
Etheostoma simoterum M: *streams of French Broad drainage (formerly)*	Tennessee Snubnose Darter	SC		SH	G5
Etheostoma vulneratum M: streams of Little Tennessee system; perhaps extirpated from French Broad system	Wounded Darter	SC		S2	G2
Exoglossum laurae M: New drainage	Tonguetied Minnow	SR		S2	G4
Exoglossum maxillingua P: streams of Dan River system	Cutlips Minnow	E		S1	G5
Fundulus waccamensis C: large natural lakes (Lakes Waccamaw and Phelps) (endemic to North Carolina)	Waccamaw Killifish	SC	C2	S1	G1
Heterandria formosa C: streams and lakes near Wilmington	Least Killifish	SC		S1	G5
Hiodon tergisus M: French Broad River	Mooneye	SC		S1	G5
Hybopsis monacha (see Cyprinella monacha)					
Hybopsis rubrifrons (see Notropis rubescens)					
Hybopsis zanema (see Cyprinella zanema)					
Hybopsis, new species [Cape Fear Chub] *(merged with Cyprinella zanema)*					
Hypentelium roanokense P: Dan drainage	Roanoke Hog Sucker	SR		S3	G3?
Ictiobus bubalus MP: French Broad River; Piedmont reservoirs	Smallmouth Buffalo	SR		S2	G5
Lampetra aepyptera CP: Tar and Neuse drainages	Least Brook Lamprey	SC		S2	G5
Lampetra appendix M: French Broad drainage	American Brook Lamprey	T		S1	G5
Lepomis megalotis M: French Broad drainage	Longear Sunfish	SR*		SH	G5
Lucania goodei C: stream in Wilmington area	Bluefin Killifish	SC		S1	G5
Luxilus chrysocephalus M: Cane River system	Striped Shiner	T		S1	G5
Menidia extensa C: Lake Waccamaw (endemic to North Carolina)	Waccamaw Silverside	T	T	S1	G1
Micropterus coosae M: Savannah drainage	Redeye Bass	SR		S1	G5
Moxostoma ariommum P: Dan drainage	Bigeye Jumprock	SC		S2	G2
Moxostoma carinatum (undescribed form) P: Pee Dee River	River Redhorse	SC		S1	G4T1
Moxostoma hamiltoni P: Dan drainage	Rustyside Sucker	E	3C	S1	G2
Notropis bifrenatus C: stream near lower Neuse River	Bridle Shiner	SC		SH	G5
Notropis chrysocephalus (see Luxilus)					
Notropis lutipinnis MP: Savannah, Little Tennessee, and Broad drainages [only the Savannah and Little Tennessee drainages are listed as SC]	Yellowfin Shiner	SC		S3	G4
Notropis mekistocholas P: Cape Fear drainage (endemic to North Carolina)	Cape Fear Shiner	E	E	S1	G1

LIST FORMAT

Species are grouped by major taxa. The vertebrates are arranged by class, beginning with the most advanced phylogenetically (mammals). Within a given taxa, species are listed alphabetically by scientific name. The following information is presented for each species on the list. "Status" is a word or phrase that indicates the degree of protection (if any), based on rarity, of a species; "rank" is a numerical scale of the rarity of a species, regardless of legal protection.

Scientific Name.

Common Name. For most groups, these names are not standardized.

North Carolina Status. Endangered, Threatened, and Special Concern species of Mammals, Birds, Reptiles, Amphibians, Freshwater Fishes, and Freshwater and Terrestrial Mollusks have legal protection status in North Carolina (Wildlife Resources Commission). In addition to the above categories, the Natural Heritage Program maintains computer and map files on Significantly Rare, Vulnerable, and Undetermined status species, as well as species considered Extirpated. Paper files only are maintained for some of the above species; these species are indicated by the phrase "not tracking."

STATUS CODE	STATUS	DEFINITION
E	Endangered	"Any native or once-native species of wild animal whose continued existence as a viable component of the State's fauna is determined by the Wildlife Resources Commission to be in jeopardy or any species of wild animal determined to be an 'endangered species' pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).
T	Threatened	"Any native or once-native species of wild animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).
SC	Special Concern	"Any species of wild animal native or once-native to North Carolina which is determined by the Wildlife Resources Commission to require monitoring but which may be taken under regulations adopted under the provisions of this Article." (Article 25 of Chapter 113 of the General Statutes; 1987).

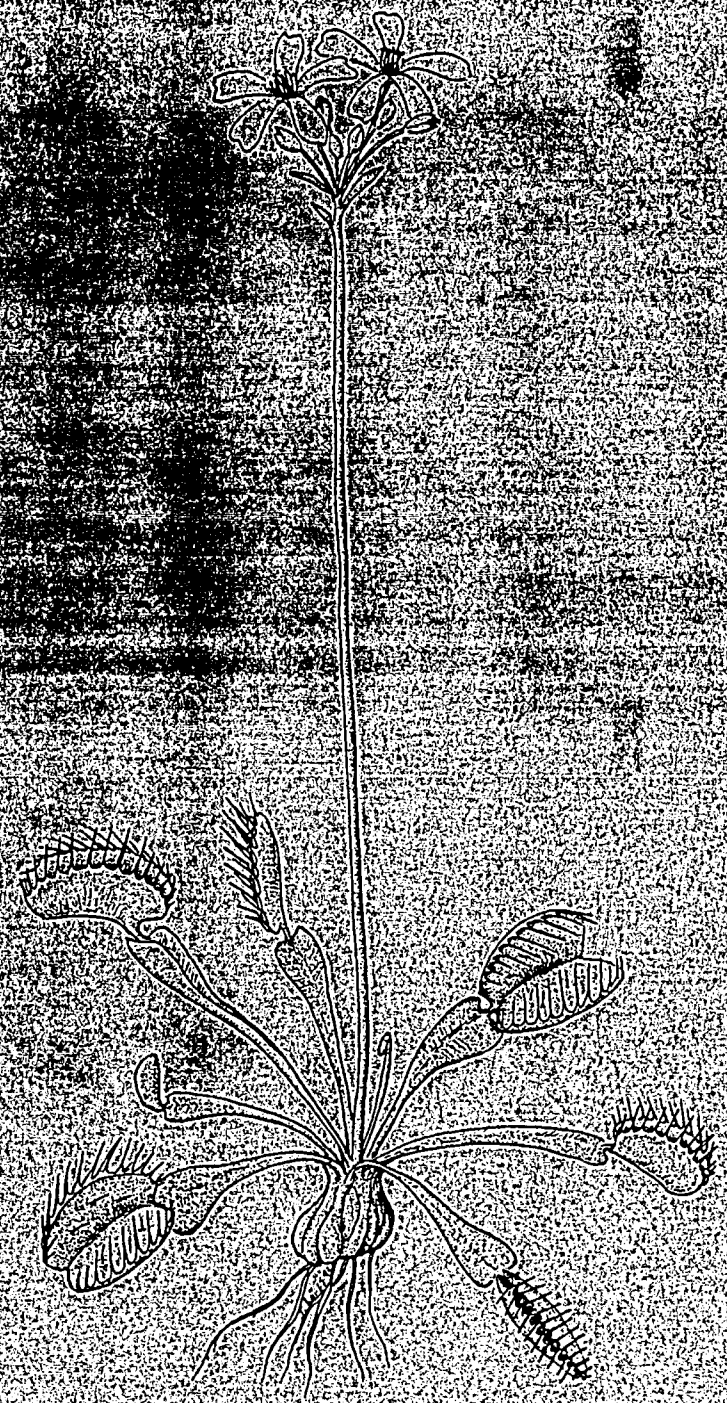
North Carolina Rank. North Carolina ranks are based on the Natural Heritage Program Network of measuring rarity and threat status. This system is widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity at the state level.

RANK	NUMBER OF EXTANT POPULATIONS	DESCRIPTION
S1	1-5	Critically imperiled in North Carolina because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from North Carolina.
S2	6-20	Imperiled in North Carolina because of rarity or because of some factor(s) making it very vulnerable to extirpation from North Carolina.
S3	21-100	Rare or uncommon in North Carolina.
S4	100-1000	Apparently secure in North Carolina, with many occurrences.
S5	1000+	Demonstrably secure in North Carolina and essentially ineradicable under present conditions.
SA	1-?	Accidental or casual; one to several records for North Carolina, but the state is outside the normal range of the species.
SH	0?	Of historical occurrence in North Carolina, perhaps not having been verified in the past 20 years, and suspected to be still extant.
SR	--	Reported from North Carolina, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.
SX	0	Apparently extirpated from North Carolina.
SU	--	Possibly in peril in North Carolina but status uncertain; need more information.
S?	--	Unranked, or rank uncertain.
_B	1-?	Rank of the breeding population in the state. Used for migratory species only.
_N	1-?	Rank of the non-breeding population in the state. Used for migratory species only.
_Z_	1-?	Population is not of significant conservation concern. For example, the status "SZN" indicates that the population in the non-breeding seasons (generally in migration or in winter) is transitory, without any regular locales of occurrence whereby the species can be protected. Where a number is listed with the "B" or "N" modifier, there are definable locales of occurrence that can be identified for protection.

Global Rank. Similar to North Carolina ranks, global ranks are assigned by a consensus of scientific experts, the individual natural heritage programs, and the Natural Heritage Network. Global ranks apply to the status of a species throughout its range, and are based on data on the species' status rangewide. This system is widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity throughout its range.

RANK	NUMBER OF EXTANT POPULATIONS	DESCRIPTION
G1	1-5	Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction.
G2	6-20	Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction throughout its range.
G3	21-100	Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single physiographic region) or because of other factors making it vulnerable to extinction throughout its range.
G4	100-1000	Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5	1000+	Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GH	0?	Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it may be rediscovered.
GX	0	Believed to be extinct throughout its range (e.g., Passenger Pigeon) with virtually no likelihood that it will be rediscovered.
GU	--	Possibly in peril range-wide, but status uncertain; more information is needed.
G?	--	Unranked, or rank uncertain.
G_Q	--	Questionable taxonomic assignment.
T_	--	The rank of a subspecies or variety. As an example, G4T1 would apply to a subspecies of a species with an overall rank of G4, but the subspecies warranting a rank of G1.

NATURAL HERITAGE PROGRAM LIST OF THE RARE PLANT SPECIES OF NORTH CAROLINA



Compiled By
Alan S. Weakley
Botanist

North Carolina Natural Heritage Program
Division of Parks and Recreation
N.C. Department of Environment, Health, and Natural Resources 1993

North Carolina Status. Endangered, Threatened, and Special Concern species have legally protected status in North Carolina through the Plant Conservation Program. The Natural Heritage Program maintains computer and map files on Endangered, Threatened, Candidate, and Significantly Rare species; paper files are maintained on Watch List species.

STATUS CODE	STATUS	DEFINITION
E	Endangered	"Any species or higher taxon of plant whose continued existence as a viable component of the State's flora is determined to be in jeopardy" (GS 19B 106: 202.12). (Endangered species may not be removed from the wild except when a permit is obtained for research, propagation, or rescue which will enhance the survival of the species.)
T	Threatened	"Any resident species of plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (GS 19B 106:202.12). (Regulations are the same as for Endangered species.)
SC	Special Concern	"Any species of plant in North Carolina which requires monitoring but which may be collected and sold under regulations adopted under the provisions of [the Plant Protection and Conservation Act]" (GS 19B 106:202.12). (Special Concern species which are not also listed as Endangered or Threatened may be collected from the wild and sold under specific regulations. Propagated material only of Special Concern species which are also listed as Endangered or Threatened may be traded or sold under specific regulations.)
C	Candidate	Species which are very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are also either rare throughout their ranges (fewer than 100 populations total) or disjunct in North Carolina from a main range in a different part of the country or world. Also included are species which may have 20-50 populations in North Carolina, but fewer than 50 populations rangewide. These are species which have the preponderance of their distribution in North Carolina and whose fate depends largely on their conservation here. Also included are many species known to have once occurred in North Carolina but with no known extant occurrences in the state (historical or extirpated species); if these species are relocated in the state, they are likely to be listed as Endangered or Threatened. If present land use trends continue, candidate species are likely to merit listing as Endangered or Threatened.

SR	Significantly Rare	Species which are very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are generally more common somewhere else in their ranges, occurring in North Carolina peripherally to their main ranges, mostly in habitats which are unusual in North Carolina. Also included are some species with 20-100 populations in North Carolina, if they also have only 50-100 populations rangewide and are declining.
W	Watch List	Any other species believed to be rare and of conservation concern in the state but not warranting active monitoring at this time (see the Watch List section in the Supplement for a more complete discussion).
P_	Proposed	A species which has been formally proposed for listing as Endangered, Threatened, or Special Concern, but has not yet completed the legally mandated listing process.

United States Status is designated by the U.S. Fish and Wildlife Service. Federally listed Endangered and Threatened species are protected under the provisions of the Endangered Species Act of 1973, as amended. Unless otherwise noted, definitions are taken from the *Federal Register*, Vol. 55, No. 35, February 21, 1990 (50 CFR Part 17).

STATUS CODE	STATUS	DEFINITION
E	Endangered	A taxon "which is in danger of extinction throughout all or a significant portion of its range" (Endangered Species Act, Section 3).
T	Threatened	A taxon "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (Endangered Species Act, Section 3).
C1	Candidate 1	"Taxa for which the [Fish and Wildlife] Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened. Development and publication of proposed rules on these taxa are anticipated; however, because of the large number of category 1 taxa, it will take several years to clear the backlog."
C2	Candidate 2	"Taxa for which there is some evidence of vulnerability, but for which there are not enough data to support listing proposals at this time....Further biological research and field study usually will be necessary to ascertain the status of [these taxa]....It is likely that some category 2 candidates will not warrent listing, while others will be found to be in greater danger of extinction than some taxa in category 1."

3A	Candidate 3A	"Taxa for which the Fish and Wildlife Service has persuasive evidence of extinction. If rediscovered, such taxa might acquire high priority for listing."
3B	Candidate 3B	"Names that, on the basis of current taxonomic understanding..., do not represent distinct taxa...."
3C	Candidate 3C	"Taxa that have proven to be more abundant or widespread than previously believed and/or those that are not subject to any identifiable threat. If further research or changes in habitat indicate a significant decline in any of these taxa, they may be reevaluated for possible inclusion in categories 1 or 2."
P_	Proposed	"Taxa already proposed to be listed as" endangered or threatened. Taxa formally proposed as endangered or threatened receive some legal protection. Species listed as proposed candidates are species which are in the process of being added to the federal candidate list.
_*	Possibly Extinct	Taxa with no known extant occurrences.

North Carolina Rank. North Carolina ranks are based on The Nature Conservancy's system of measuring rarity and threat status. This system is now widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity at the state level.

RANK	NUMBER OF EXTANT POPULATIONS	DESCRIPTION
S1	1-5	Critically imperiled in North Carolina because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation (local extinction) from the state.
S2	6-20	Imperiled in North Carolina because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state.
S3	21-100	Rare or uncommon in North Carolina.
S4	100-1000	Apparently secure in North Carolina, with many occurrences.
S5	1000+	Demonstrably secure in North Carolina.
SA	--	Accidental in state.
SH	0?	Of historical occurrence in North Carolina, perhaps not having been verified in the past 20 years, and suspected to be still extant.
SR	--	Reported from North Carolina, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.
SX	0	Apparently extirpated from North Carolina.
SU	--	Possibly in peril in North Carolina but status uncertain; need more information.

S?	--	Unranked, or rank uncertain.

A rank involving two numbers indicates uncertainty of rank. For instance, a S2S3 rank indicates that the species may be a S2 or a S3, but that existing data do not allow that determination to be made.

Global Rank. Similar to North Carolina ranks, global ranks are assigned by a consensus of scientific experts, the various natural heritage programs, and The Nature Conservancy. They apply to the status of a species throughout its range, and are based on data on the species' status rangewide. This system is now widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity throughout its range.

RANK	NUMBER OF EXTANT POPULATIONS	DESCRIPTION
G1	1-5	Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction.
G2	6-20	Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction throughout its range.
G3	21-100	Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single physiographic region) or because of other factors making it vulnerable to extinction throughout its range.
G4	100-1000	Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5	1000+	Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GH	0?	Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it might be rediscovered.
GX	0	Believed to be extinct throughout its range (e.g., passenger pigeon) with virtually no likelihood that it will be rediscovered.
GU	--	Possibly in peril range-wide, but status uncertain; need more information.
G?	--	Unranked, or rank uncertain.
G_Q	--	Questionable taxonomic assignment.
T_	--	The rank of a subspecies or variety. As an example, G4T1 would apply to a subspecies of a species with an overall rank of G4, but the subspecies warranting a rank of G1.

A rank involving two numbers indicates uncertainty of rank. For instance, a G2G3 rank indicates that the species may be a G2 or a G3, but that existing data do not allow that determination to be made.

Physiographic Province. The provinces in which the species is known to occur are indicated. This should not be regarded as the only province(s) of the state in which the species could occur; our knowledge of the flora of North Carolina is still very imperfect. The provinces are abbreviated as follows:

M	Mountains (Blue Ridge)	All parts of North Carolina west of the foot of the Blue Ridge Escarpment.
P	Piedmont	All parts of North Carolina east of the foot of the Blue Ridge Escarpment and west of the Fall Line, including outlying "foothill" ranges, such as the Brushy, Uwharrie, and Sauratown Mountains. This province is shallowly underlain by crystalline metamorphic, igneous, or (rarely) consolidated sedimentary rocks.
S	Sandhills	Portions of Cumberland, Harnett, Hoke, Lee, Moore, Richmond, Scotland, and Montgomery counties consisting mostly of deep aeolian sands of the Middendorf and Pinehurst formations (Cretaceous to Tertiary age). The Sandhills are really part of the coastal plain but are here distinguished because of their distinctive geomorphology and vegetation. Areas somewhat resembling the Sandhills region but occurring in other parts of the state (such as Carolina bay rims and aeolian or beach ridge deposits in the outer Coastal Plain) are considered part of the Coastal Plain Province.
C	Coastal Plain	All parts of North Carolina east of the fall line, excluding the Sandhills, generally consisting of unconsolidated sands, silts, clays, and peats, though rarely shallowly underlain by consolidated coquina limestone ("marl").

Habitat. The known habitats are described; as with provinces, these should not be regarded as the only possible habitats of the species in the state.

Counties of known occurrence. Following the description of habitats is a listing of the known counties of occurrence. Counties with populations documented as extant in the last ten years (1983-1993) are marked with an asterisk (*). If there is some question as to the validity of the county report, it is marked with a question mark (?). The botanical exploration of North Carolina is far from complete, and many additional county records will be found, generally (but not always) in proximity to counties listed.

Scientific Name Province: Habitat (Counties of Occurrence)	Common Name	Status NC	Status US	Rank NC	Rank Global
Carex woodii MPC: forested slopes, cove forests, and northern hardwoods (Alleghany, Ashe, Avery*, Clay, Henderson*, Jackson*, Jones, Macon*, Mitchell, Orange, Transylvania, Watauga)	Wood's Sedge	SR	-	S2	G4Q
Carya laciniosa C: brownwater river levees (Halifax*, Northampton?; non-native occurrences in other counties)	Big Shellbark Hickory	C	-	S1	G5
Carya myristiciformis (not in NC in RAB; = *C. myristicaef.*) C: wet marl forests (Pender*)	Nutmeg Hickory	T	-	S1	G5
Caulophyllum giganteum (not in RAB) M: cove forests (Alleghany)	Northern Blue Cohosh	SR	-	S1	G3G5Q
Chamaesyce cordifolia (= *Euphorbia cordifolia*) C: sandhills (Richmond, Wayne)	Heartleaf Sandmat	C	-	SH	G5
Chasmanthium nitidum (= *Uniola nitida*) C: blackwater bottomlands (Pender)	A Spanglegrass	C	-	S1	G3?
Cheilanthes alabamensis M: calcareous outcrops (Madison*)	Alabama Lip-fern	C	-	S1	G5
Chelone cuthbertii MPC: bogs (Alexander, Alleghany*, Ashe*, Avery*, Burke*, Forsyth, Henderson*, Jackson*, Macon, McDowell*, Stokes, Transylvania, Wilkes, Yancey*)	Cuthbert's Turtlehead	SR	-	S3?	G3
Chenopodium simplex (not in RAB) M: shaded soil at bases of cliffs (Ashe*, Jackson)	Giant-seed Goosefoot	SR	-	S1	G5
Chloris (see *Eustachys*)					
Chrysoma pauciflosculosa (= *Solidago pauciflosculosa*) C: sandhills (Columbus*, Robeson*)	Woody Goldenrod	E	-	S1	G4G5
Cirsium carolinianum (= *Carduus carolinianus*) P: forests and disturbed areas, mostly on basic soils (Burke*, Cabarrus, Granville*, Montgomery*, Rowan, Wake, Wilkes)	Carolina Thistle	C	-	S1	G5
Cladium mariscoides CSM: bogs, fens, brackish marshes, sandhill seepage bogs (Alleghany, Ashe*, Camden*, Carteret*, Craven, Cumberland*, Currituck*, Dare, Harnett*, Hoke*, Moore*, Onslow*, Watauga*, Yancey*)	Twig-Rush	SR	-	S2	G5
Clematis glaucophylla MP: habitat not known (Buncombe, Burke?, Stokes, Surry)	White-leaved Leatherflower	C	-	SH	G3?
Clematis occidentalis (= *C. verticillaris*) M: rocky forests (Ashe*, Buncombe?)	Mountain Clematis	SR	-	S1	G5
Coeloglossum viride var. *virescens* (= *Habenaria viridis*) MP: seeps in cove forests (Avery, Buncombe, Forsyth, Haywood, Jackson)	Long-bracted Frog Orchid	C	-	SH	G5T5
Coelorachis cylindrica (= *Manisuris cylindrica*) P: open woodlands and roadsides (Anson, Montgomery, Union)	Carolina Jointgrass	C	-	SH	G4G5
Collinsonia tuberosa PM: rich hardwood forests (Alamance, Chatham*, Guilford, Henderson, Richmond)	Piedmont Horsebalm	C	-	S1	G3G4
Collinsonia verticillata PM: cove forests (Polk*)	Stoneroot	C	-	S1	G2G3
Conioselinum chinense M: high elevation seepage slopes (Avery*)	Hemlock-parsley	E	-	S1	G5
Coreopsis latifolia M: cove forests and other rich woods (Avery*, Buncombe*, Henderson*, McDowell*, Polk*, Rutherford*, Yancey*)	Broadleaf Coreopsis	C	3C	S3	G3
Cornus asperifolia C: wet marl forests (Brunswick*, New Hanover, Onslow*, Pender*)	Roughleaf Dogwood	C	-	S1	G3G4

Scientific Name Province: Habitat (Counties of Occurrence)	Common Name	Status NC	Status US	Rank NC	Rank Global
Enemion biternatum (= *Isopyrum biternatum*)	Eastern Isopyrum	SR	-	S2	G5
PC: rich bottomlands, levees, and lower slopes (Cumberland*, Durham*, Franklin*, Granville*, Halifax*, Harnett*, Lee*, Northampton*, Orange, Person, Vance*)					
Epidendrum conopseum	Green Fly Orchid	SR	-	S2	G3G4
C: epiphytic on trees in blackwater river swamps (Brunswick*, Columbus*, Pender*)					
Epilobium angustifolium	Purple Willowherb	SR	-	S1	G5
M: meadows and disturbed sites at high elevations (Avery, Watauga, Yancey)					
Epilobium ciliatum	Purpleleaf Willowherb	SR	-	S2	G5
M: seeps and bogs (Alleghany*, Avery*, Buncombe*, Henderson*, Jackson, Macon, Mitchell, Watauga*, Yancey)					
Epilobium leptophyllum (see Watch List)					
Eriocaulon aquaticum (= *E. pellucidum, E. septangulare*)	Seven-angled Pipewort	SR	-	S2	G5
CS: blackwater creeks, natural lakes, tidal freshwater marshes (Bladen, Brunswick, Columbus, Craven, Cumberland*, Hoke*, Moore*, Perquimans, Tyrrell, Washington)					
Eriocaulon lineare	Narrow Pipewort	E	-	SX	G4
M: bogs (Henderson)					
Eriocaulon parkeri (not in RAB)	Estuary Pipewort	C	3C	S1	G3
C: natural lakes (Hyde*, Tyrrell)					
Eriocaulon texense (not in RAB)	Texas Hatpins	C	-	S1	G3G4
S: sphagnous bog (Cumberland*)					
Eriogonum tomentosum (not in NC in RAB)	Southern Wild-buckwheat	C	-	SH	G4G5
C: sandhills (Bladen)					
Erythrina herbacea	Coralbean	SR	-	S1	G5
C: maritime forests (Brunswick*, Carteret, New Hanover*)					
Eulophia (see *Pteroglossaspis*)					
Eupatorium godfreyanum (not in RAB)	Godfrey's Thoroughwort	SR	-	S1	G4
PM: woodlands, especially over mafic rocks (Caswell, Durham*, Granville, McDowell, Orange, Swain, Vance)					
Eupatorium incarnatum	Pink Thoroughwort	SR	-	S1	G5
PMC: rich woods and thin woodlands over diabase, calcareous rocks, other basic rocks, or rich alluvium (Alexander*, Durham, Madison*, Martin, Polk, Warren, Wilkes*)					
Eupatorium leptophyllum (= *E. capillifolium* var. *l.*)	Limesink Dog-fennel	C	-	S1	G4G5
C: limesink ponds and clay-based Carolina bays (Brunswick*, New Hanover*, Scotland*)					
Eupatorium resinosum	Resinous Boneset	C	C2/P3C	S3	G3
SC: seepage bogs, beaver ponds, pondshores, shrub swamps (Bladen*, Cumberland*, Harnett*, Hoke*, Moore*, Scotland*)					
Euphorbia commutata (not in NC in RAB)	Cliff Spurge	SR	-	S1	G5
MP: thin soil around mafic or calcareous outcrops (Buncombe*, Caswell, Haywood*)					
Euphorbia mercurialina (not in RAB)	Cumberland Spurge	C	-	S1	G4
P: rich slopes over gabbro (Richmond*)					
Euphorbia purpurea	Glade Spurge	C	C2	S2	G3
M: forests, especially over mafic rock (Ashe, Buncombe*, Clay*, Graham*, Haywood*, Jackson*, Macon, Madison*, Mitchell*, Swain*, Watauga, Yancey*)					
Euphorbia (also see *Chamaesyce*)					
Eustachys glauca (= *Chloris glauca*)	Saltmarsh Fingergrass	SR	-	SH	G4
C: salt marshes (New Hanover)					
Filipendula rubra	Queen-of-the-Prairie	E	-	S1	G4G5
M: bogs, wet meadows (Buncombe, Haywood*, Macon, Watauga, Yancey*)					

Scientific Name Province: Habitat (Counties of Occurrence)	Common Name	Status NC	Status US	Rank NC	Rank Global
Plantago cordata	Heart-leaf Plantain	E	3C	S1	G3
P: beds of small, slate-bottomed, perennial streams (Davidson*)					
Plantago sparsiflora	Pineland Plantain	E	C2	S1	G2
C: wet savannas (Bladen, Brunswick*, Columbus*, Pender*)					
Platanthera flava var. *herbiola* (not in RAB)	Northern Green Orchid	SR	3C	S2?	G4T4
M: bogs and moist forests (Buncombe, Clay, Forsyth?, Graham, Haywood*, Jackson, Macon, Yancey)					
Platanthera grandiflora (= *Habenaria psycodes* var. *g.*)	Large Purple-fringed Orchid	SR	-	S2	G5
M: bogs, seeps, grassy balds, high elevation moist forests and banks (Avery*, Buncombe, Clay, Haywood*, McDowell, Watauga, Yancey)					
Platanthera integra (= *Habenaria integra*)	Yellow Fringeless Orchid	T	3C	S1	G5
CMP: savannas (Brunswick*, Carteret*, Cherokee?, Columbus*, Craven, Forsyth?, Henderson?, Onslow, Pamlico, Pender, Robeson, Rowan?)					
Platanthera integrilabia (= *Habenaria bleph.* var. *i.*)	White Fringeless Orchid	E	C2	SX	G2
M: bogs (Cherokee, Henderson)					
Platanthera nivea (= *Habenaria nivea*)	Snowy Orchid	T	-	S1	G5
C: wet savannas (Beaufort, Bladen, Brunswick*, Columbus, Craven*, Dare, Hoke, New Hanover*, Pender*, Robeson)					
Platanthera peramoena (= *Habenaria peramoena*)	Purple Fringeless Orchid	C	3C	S1	G5
MP: bogs, forests (Buncombe, Burke, Caldwell, Clay, Durham*, Forsyth, Guilford*, Haywood, Henderson, Jackson*, Macon, Mitchell, Orange*, Swain, Transylvania*, Warren, Watauga, Yancey)					
Poa paludigena (not in RAB)	Bog Bluegrass	E	C2	S1	G2
M: bogs (Avery*)					
Poa palustris	Swamp Bluegrass	SR	-	S1	G5
M: spruce-fir forests, grassy balds (Avery, Haywood, Henderson, Macon, Mitchell, Polk, Swain, Watauga, Yancey)					
Poa saltuensis (= *Poa languida*)	A Bluegrass	C	-	S1	G5?
M: olivine barrens (Clay*)					
Polygala grandiflora	Showy Milkwort	SR	-	S1	G5?
SC: sandhills (Richmond*, Robeson, Scotland*)					
Polygala hookeri	Hooker's Milkwort	C	-	S2	G3
C: savannas (Bladen, Brunswick*, Carteret*, Columbus, Craven, New Hanover, Onslow, Pender*, Sampson)					
Polygonella articulata	Coast Jointweed	C	-	SH	G5
C: sandhills (Gates)					
Polygonum glaucum	Seabeach Buckwheat	C	-	S1	G3
C: ocean and sound beaches (Beaufort, Brunswick*, Carteret*, Dare, Hyde, New Hanover, Onslow)					
Polygonum hirsutum	Hairy Smartweed	SR	-	S1	G4G5
CS: limesink ponds, clay-based Carolina bays, drawdown zones of blackwater riverbanks (Brunswick*, Carteret, Onslow, Richmond*, Scotland*)					
Ponthieva racemosa	Shadow-witch	SR	-	S2	G4G5
C: blackwater forests and swamps, especially over marl (Beaufort, Brunswick, Craven, Jones*, Onslow*, Pender*)					
Porteranthus stipulatus (= *Gillenia stipulata*)	Indian Physic	SR	-	S2	G5
P: forests and open woods, mainly over mafic rocks (Cabarrus, Chatham, Davidson, Durham, Granville*, Lee, Montgomery, Moore, Orange, Person*, Union, Wake*)					
Portulaca smallii	Small's Portulaca	T	3C	S2	G3
P: granite flatrocks and diabase glades (Cabarrus*, Forsyth, Franklin*, Granville*, Rowan*, Wake*)					
Potamogeton confervoides	Conferva Pondweed	C	C2	S1	G5
SC: beaverponds and old millponds on blackwater creeks (Cumberland*, Gates, Moore, Richmond, Scotland)					

Scientific Name Province: Habitat (Counties of Occurrence)	Common Name	Status NC	Status US	Rank NC	Rank Global
Prenanthes roanensis M: grassy balds, high elevation forests and outcrops (Alleghany*, Ashe*, Avery*, Buncombe*, Graham*, Haywood*, Jackson*, McDowell, Mitchell*, Surry, Swain, Transylvania*, Yancey*)	Roan Rattlesnakeroot	SR	3C	S3	G3
Prunus pumila var. *susquehanae* MP: rocky forests (Durham, Henderson)	Susquehanna Cherry	C	-	SH	G5T4
Psilocarya (see *Rhynchospora*)					
Psilotum nudum (not in NC in RAB) C: acid swamp (Chowan*)	Whiskfern	C	-	S1	G5
Psoralea (see *Orbexilum, Pediomelum*)					
Pteroglossaspis ecristata (= *Eulophia ecristata*) C: pinelands (Bladen, Cumberland, Hoke*, New Hanover)	Spiked Medusa	E	C2	S1	G3G4
Ptilimnium costatum C: tidal swamps or marshes (New Hanover*)	Ribbed Bishopweed	C	-	S1	G3G4
Ptilimnium nodosum (including *Ptilimnium fluviatile*) P: rocky riverbeds (Chatham*, Granville*, Lee)	Harperella	E	E	S1	G2
Ptilimnium sp. 1 (not in RAB) C: tidal freshwater marshes (Brunswick*, New Hanover*, Pender)	Carolina Bishopweed	C	-	S1	G2
Pycnanthemum torreyi (not in RAB) PM: dry upland forests and woodlands, over mafic rocks (Alexander, Ashe, Granville, Orange, Wilkes)	Torrey's Mountain-mint	C	-	S1	G2
Pyrola elliptica (not in RAB) M: moist forests (Ashe)	A Shinleaf	C	-	SH	G5
Pyxidanthera barbulata var. *brevifolia* S: sandhills (Cumberland*, Harnett*, Hoke*, Moore*)	Sandhills Pyxie-moss	E	3B/PC2	S2	G4T2
Quercus austrina CP: bluff and bottomland forests (Bladen, Harnett, Johnston, Montgomery*, Sampson, Union, Wayne)	Bluff Oak	SR	-	S1	G5
Quercus ilicifolia P: dry summits and rocky woods on Piedmont monadnocks (Burke*, Gaston*, Stokes*, Surry*)	Bear Oak	SR	-	S1	G5
Quercus prinoides PM: dry, rocky slopes (Buncombe, Caldwell, Cleveland, Gaston, Guilford, Iredell, Jackson, Person, Polk, Rutherford, Stanly)	Dwarf Chinquapin Oak	C	-	SH	G5
Ranunculus ambigens CP: open wet areas (Bertie, Orange, Perquimans)	Water-plantain Spearwort	C	-	SH	G4G5
Ranunculus flabellaris C: pools in blackwater swamps (Edgecombe, Gates*)	Yellow Water-crowfoot	C	-	S1	G5
Ranunculus hederaceus C: marshes (Currituck)	Ivy Buttercup	C	-	SH	G5
Ranunculus micranthus P: rich woods (Durham, Forsyth)	Rock Buttercup	SR	-	SH	G5?
Rhexia aristosa C: clay-based Carolina bays and limesink ponds (Bladen, Brunswick, Cumberland, Hoke*, Onslow*, Robeson*, Scotland*)	Awned Meadow-beauty	T	C2	S3	G3
Rhexia cubensis C: limesink ponds (Brunswick*, Carteret*, New Hanover*, Onslow*)	West Indies Meadow-beauty	SR	-	S1	G5
Rhododendron cumberlandense (not in RAB) M: grassy or shrub balds (Graham, Macon*, Transylvania)	Cumberland Azalea	SR	3C	S1	G2Q
Rhododendron prinophyllum (= *Rhododendron roseum*) M: high elevation forests (Ashe*)	Early Azalea, Election Pink	SR	-	S1	G5
Rhododendron vaseyi M: wet swampy places, high elevation rocky areas, openings, or forests (Avery*, Caldwell*, Haywood*, Jackson*, Macon*, McDowell, Mitchell, Transylvania*, Watauga*, Yancey)	Pink-shell Azalea	SR	3C	S3	G3

January 24, 1994

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Wetlands identification

Wetlands occur at the probable point of entry to surface water (PPE) and continue for approximately 0.3 mile downstream. More wetlands occur intermittently for the remainder of the 15 mile surface water pathway. Total wetland frontage within the 15 mile surface water target distance limit is approximately 7 miles.

These figures were determined by measuring the wetland frontages on the following quadrangle maps prepared by the National Wetlands Inventory, U.S. Department of the Interior, Fish and Wildlife Service.

1. Goldston, NC 2/16/93
2. Colon, NC 2/17/93
3. Merry Oaks, NC 2/12/93
4. Moncure, NC 2/16/93

Acreage of wetlands within a 0.5 mile radius of the site were estimated to be approximately 0.4 acre. (Note that when only a linear marking occurred on the wetland map, a minimum of 5 feet of wetland on each side of the stream was assumed in estimating the acreage of a wetland. When an area was shown, a digital planimeter was used).

Small areas of wetlands are scattered throughout a 4-mile radius of the site, including approximately 30 acres in the 0.5-mile to 1-mile radius, 170 acres in the 1-mile to 2-mile radius, and 75 acres in the 3-mile to 4-mile radius. The total area of wetlands in a 4-mile radius of the site is approximately 275 acres.

January 24, 1994

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Fishing conditions in surface water pathway

On the above date I spoke with Mr. Raebon King, owner of the J.R. Moore and Sons Store in Gulf, NC, 919/898-9901. Mr. King had volunteered to make some contacts on my behalf regarding whether local people had knowledge of any fishing at Cedar Creek from the 1980's forward. He reported that all he had been able to learn from his enquiries was that eels were all that had been caught in Cedar Creek and that occurred a "few years back."

Note that I had spoken to others about the fishing conditions in the entire surface water pathway earlier. See attached memoranda dated December 22, 1993, and January 19, 1994.

Attachments

January 19, 1994

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Fishing conditions in surface water pathway

On the above date I spoke with Julian Alman (Siler City, 919/663-3048) and he referred to Bryan Scruggs (Sanford, 919/776-1028), Wildlife Resources enforcement personnel, concerning fishing conditions in Cedar Creek. I had left messages for each of them and Mr. Alman called back while in Bryan Scruggs' presence. Mr. Alman indicated that it was quite likely that Cedar Creek is fished by local residents of the area. He suggested that I contact the J.R. Moore and Sons Store in Gulf for more information.

Regarding other industries in the area, he mentioned Boren Clay Products, Sanford Grading, Carolina Power and Light, and the poultry plant (at Cumnock upstream of the probable point of entry of surface runoff to surface water).

Note that I had spoken to others about the fishing conditions in the entire surface water pathway at and earlier date. See attached memorandum dated December 22, 1993.

December 22, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Fishing conditions in surface water pathway

On 12/20/93 I spoke with Franklin McBride, Wildlife Resources Commission, Boating and Inland Fisheries, 733-3633, concerning fishing conditions in Cedar Creek and the Deep River. He indicated that the Deep River is fished but provided no harvest data. He could find no record of Cedar Creek as a fishery, but referred me to Ms. Sherry Bryant, District Biologist (910/449-7625).

Ms. Bryant and I talked on 12/21/93. She suggested I contact an enforcement person and gave me the following names and numbers:

Julian Alman, Siler City, 919/663-3048
Bryan Scruggs, Sanford, 919/776-1028.

Since I was unable to reach either of these persons, I contacted Frederick Harris of Wildlife Resources on 12/22/93, 733-3633. Mr. Harris and I discussed the location, flow rate, length and classification ("C, aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture", Classifications and Water Quality Standards Assigned to the Waters of the Cape Fear River Basin, N.C. Department of Environment, Health, and Natural Resources, February 1, 1993) of Cedar Creek.

According to Mr. Harris, any stream in the Piedmont that is capable of supporting fishing and is accessible, especially from bridges, such as those over State Roads 2142 and 2145 in the case of Cedar Creek, will be fished. From this discussion, I decided it is valid to consider Cedar Creek a fishery, with light fishing pressure, for purposes of evaluating the 15-mile surface water pathway for the site.

We also discussed the fact that the Deep River is heavily fished. No harvest data is available for either stream.

December 20, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Estimation of ground water users

The number of persons using ground water within a 4-mile radius of the site was determined by counting the houses on the topographic map (Fig. 1) that were outside the service areas of either the Goldston-Gulf (Ref. 11) or Lee County (Ref. 12) municipal water systems. The number of houses were then multiplied by the appropriate number of persons per household factor from 1990 Census Data (Ref. 18) for Chatham County (2.51) and Lee County (2.59) as shown in the table below.

From the N.C. Public Water Supply Database information (Ref.17), it was determined that there were no community wells located within a 4-mile radius of the site.

(MILE) RADIUS	LEE HOUSES	LEE PERSONS	CHATHAM HOUSES	CHATHAM PERSONS	TOTAL PERSONS
0-0.25	0	0	0	0	0
0.25-0.5	0	0	3	8	8
0.5-1.0	0	0	20	50	50
1.0-2.0	5	13	21	53	66
2.0-3.0	32	83	16	40	123
3.0-4.0	89	231	149	374	605
				TOTAL:	844

PMMGRID STATE N.C. PUBLIC WATER SUPPLY SYSTEM 10/12/93

ACTIVE SYSTEMS

GRID LATITUDE: 353000 / 353730, LONGITUDE: 0791200 / 0792130

PWS ID	SYSTEM NAME	TYPE	POPULATION	RES.PERSON WORK PHONE	SOURCE NAME	SOURCE TYPE	SOURCE AVAIL.	LATITUDE	LONGITUDE
319025	GOLDSTON-GULF SANITARY DIST	C	1334	9198982239	DEEP RIVER	S	P	353331	791722
319040	ST LUKES WATER CORPORATION	C	200	9198984663	GOLDSTON-GULF SAN DIST	P	P	353331	791722
319407	BREWERS RESTAURANT	N	950	9198375511	WELL	G	P	353400	792000
353025	CUMNOCK COMMUNITY WATER SYSTEM	C	158	9197761424	GOLDSTON-GULF SAN DIST	P	P	353331	791722
353130	LEE COUNTY WTR TRTMT PLT	C	2418	9197751839	DEEP RIVER	S	P	353319	791436

Ref. 17

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

1990 CPH-1-35 Ref. 18

CENSUS '90

1990 Census of Population and Housing

Summary Population and Housing Characteristics

North Carolina

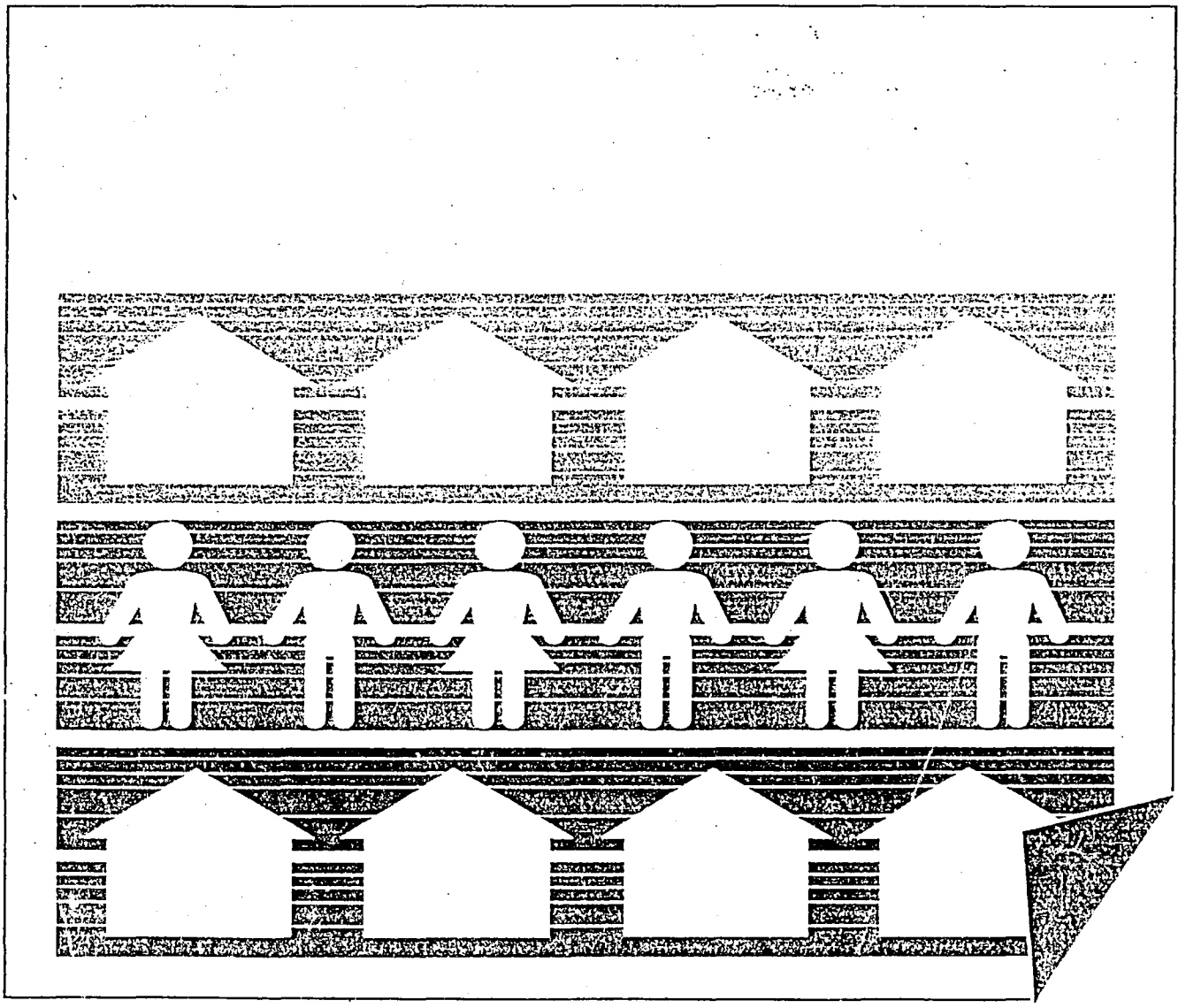


Table 5. Household, Family, and Group Quarters Characteristics: 1990—Con.

[For definitions of terms and meanings of symbols, see text]

State / County / County Subdivision / Place	Persons in households	All households	Family households: Total	Family households: Married-couple family	Family households: Female householder, no husband present	Nonfamily households: Total	Nonfamily households: Householder living alone: Total	Nonfamily households: Householder living alone: 65 years and over: Total	Nonfamily households: Householder living alone: 65 years and over: Female	Persons per—: Household	Persons per—: Family	Persons in group quarters: Total	Persons in group quarters: Institutionalized persons	Persons in group quarters: Other persons in group quarters
Catawba County—Con.														
Newton township	25 301	9 949	7 402	5 916	1 161	2 547	2 271	1 020	830	2.54	2.99	518	499	19
Claremont city (pt.)	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Conover city (pt.)	4 281	1 749	1 266	1 035	181	483	438	177	147	2.45	2.92	50	47	3
Hickory city (pt.)	49	17	15	14	1	2	–	–	–	2.88	2.87	–	–	–
Maiden town (pt.)	2 017	786	590	447	114	196	181	100	77	2.57	3.03	–	–	–
Newton city	9 065	3 783	2 580	1 873	575	1 203	1 076	518	433	2.40	2.94	239	223	16
Chatham County	38 315	15 293	11 227	9 115	1 605	4 066	3 445	1 412	1 141	2.51	2.95	444	377	67
Albright township	2 124	794	637	558	52	157	140	56	50	2.68	3.02	25	25	–
Baldwin township	4 498	1 946	1 259	1 058	155	687	487	92	65	2.31	2.82	20	20	–
Bear Creek township	3 221	1 230	971	826	95	259	239	117	92	2.62	3.00	–	–	–
Cape Fear township	1 048	396	302	241	43	94	75	39	35	2.65	3.03	–	–	–
Center township	4 716	1 885	1 373	1 021	293	512	450	200	163	2.50	2.96	138	138	–
Pittsboro town	1 352	594	394	284	93	200	180	95	82	2.28	2.82	84	84	–
Gulf township	3 043	1 154	904	735	122	250	232	130	103	2.64	3.04	40	–	40
Goldston town	299	125	92	76	14	33	31	20	18	2.39	2.87	–	–	–
Hadley township	1 046	407	304	270	21	103	89	39	29	2.57	2.99	13	13	–
Haw River township	1 016	382	281	219	42	101	92	40	29	2.66	3.15	2	–	2
Hickory Mountain township	1 474	554	431	347	60	123	115	47	35	2.66	3.07	–	–	–
Matthews township	9 225	3 564	2 669	2 023	504	895	800	360	303	2.59	3.01	181	181	–
Siler City town	4 627	1 896	1 329	943	319	567	506	230	191	2.44	2.92	181	181	–
New Hope township	1 707	695	516	452	44	179	147	59	47	2.46	2.88	25	–	25
Oakland township	948	352	278	233	36	74	69	24	18	2.69	3.09	–	–	–
Williams township	4 249	1 934	1 302	1 132	138	632	510	209	172	2.20	2.65	–	–	–
Fearrington CDP	1 101	544	420	404	13	124	103	45	37	2.02	2.27	–	–	–
Cherokee County	19 899	7 966	6 069	5 065	765	1 897	1 764	975	759	2.50	2.91	271	196	75
Beaverdam township	635	251	192	155	25	59	57	32	21	2.53	2.96	–	–	–
Hot House township	908	363	294	250	31	69	69	35	27	2.50	2.83	–	–	–
Murphy township	7 997	3 218	2 437	2 009	343	781	728	375	304	2.49	2.91	218	143	75
Murphy town	1 547	711	441	304	118	270	259	145	127	2.18	2.84	28	24	4
Notla township	2 649	1 051	828	708	87	223	195	112	81	2.52	2.85	–	–	–
Shoal Creek township	1 571	599	475	416	44	124	122	70	50	2.62	3.03	–	–	–
Valley Town township	6 139	2 484	1 843	1 527	235	641	593	351	276	2.47	2.91	53	53	–
Andrews town	2 520	1 065	738	566	139	327	302	191	153	2.37	2.88	31	31	–
Chowan County	13 233	5 113	3 775	2 842	767	1 338	1 238	641	499	2.59	3.07	273	273	–
Township 1, Edenton	7 174	2 779	1 984	1 357	540	795	734	396	309	2.58	3.13	273	273	–
Edenton town (pt.)	4 928	2 006	1 350	846	450	656	608	345	268	2.46	3.07	273	273	–
Township 2, Middle	3 017	1 176	903	748	117	273	259	136	107	2.57	2.97	–	–	–
Township 3, Upper	1 336	502	394	320	51	108	102	57	47	2.66	3.04	–	–	–
Township 4, Yeopim	1 706	656	494	417	59	162	143	52	36	2.60	3.04	–	–	–
Edenton town (pt.)	67	25	22	17	3	3	2	–	–	2.68	2.73	–	–	–
Clay County	7 150	2 928	2 177	1 894	203	751	699	418	314	2.44	2.90	5	4	1
Brasstown township	1 296	493	382	332	40	111	103	63	46	2.63	3.05	–	–	–
Hayesville township	2 727	1 164	821	694	95	343	319	183	146	2.34	2.86	5	4	1
Hayesville town	275	158	74	58	11	84	80	51	44	1.74	2.49	4	4	–
Hiwassee township	954	418	313	275	27	105	97	65	50	2.28	2.66	–	–	–
Shooting Creek township	1 078	444	334	300	20	110	105	60	44	2.43	2.87	–	–	–
Sweetwater township	646	229	184	159	15	45	42	23	17	2.82	3.22	–	–	–
Tusquittee township	449	180	143	134	6	37	33	24	11	2.49	2.85	–	–	–
Cleveland County	83 012	32 037	24 282	19 011	4 168	7 755	7 011	3 202	2 624	2.59	3.02	1 702	915	787
Township 1, River	680	255	206	173	20	49	48	24	18	2.67	2.99	11	11	–
Township 2, Boiling Springs	5 264	2 012	1 572	1 337	180	440	384	178	155	2.62	2.99	796	70	726
Boiling Springs town	1 675	668	493	380	89	175	148	59	55	2.51	2.94	770	44	726
Shelby city (pt.)	7	2	1	1	–	1	1	–	–	3.50	6.00	–	–	–
Township 3, Rippys	7 686	2 837	2 235	1 755	365	602	528	189	144	2.71	3.09	24	–	24
Earl town	230	91	68	51	12	23	21	14	13	2.53	3.00	–	–	–
Patterson Springs town	690	266	204	165	29	62	51	24	21	2.59	2.96	–	–	–
Shelby city (pt.)	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Township 4, Kings Mountain	17 475	6 727	5 094	3 994	857	1 633	1 468	721	573	2.60	3.03	136	136	–
Grover town	516	215	157	120	28	58	53	33	29	2.40	2.84	–	–	–
Kings Mountain city (pt.)	7 883	3 234	2 310	1 679	518	924	852	475	381	2.44	2.94	124	124	–
Township 5, Warlick	6 546	2 342	1 907	1 596	228	435	381	110	85	2.80	3.11	22	22	–
Waco town	320	118	96	83	8	22	21	9	6	2.71	3.04	–	–	–
Township 6, Shelby	29 132	11 730	8 457	6 171	1 920	3 273	3 001	1 374	1 149	2.48	2.98	570	539	31
Light Oak CDP	1 213	384	315	190	102	69	65	31	25	3.16	3.58	126	126	–
Shelby city (pt.)	14 259	6 079	3 994	2 487	1 315	2 085	1 936	949	811	2.35	2.96	403	372	31
Township 7, Sandy Run	5 013	1 854	1 447	1 187	194	407	356	167	141	2.70	3.12	–	–	–
Kingstown town (pt.)	868	244	212	140	57	32	27	14	8	3.56	3.89	–	–	–
Lattimore town	183	72	53	40	9	19	17	12	11	2.54	2.96	–	–	–
Mooresboro city	294	126	81	58	21	45	40	26	19	2.33	3.01	–	–	–
Township 8, Polkville	2 838	1 098	840	717	90	258	246	139	118	2.58	3.02	7	6	1
Kingstown town (pt.)	88	26	23	15	7	3	2	–	–	3.38	3.61	–	–	–
Polkville city	1 514	596	449	392	41	147	140	76	66	2.54	3.00	–	–	–
Township 9, Double Shoals	4 825	1 840	1 429	1 172	196	411	375	196	157	2.62	3.02	131	131	–
Belwood town (pt.)	307	121	94	83	7	27	24	13	11	2.54	2.94	–	–	–
Fallston town	498	203	149	128	16	54	50	27	22	2.45	2.95	–	–	–
Lawndale town	573	239	172	140	26	67	63	45	41	2.40	2.87	–	–	–
Township 10, Knob Creek	1 908	731	590	469	78	141	126	59	44	2.61	2.93	5	–	5
Belwood town (pt.)	324	138	99	81	12	39	35	16	10	2.35	2.80	–	–	–
Township 11, Casar	1 645	611	505	440	40	106	98	45	40	2.69	3.00	–	–	–
Casar town	328	127	101	83	11	26	25	10	9	2.58	2.93	–	–	–
Columbus County	48 953	18 459	13 754	10 381	2 757	4 705	4 351	2 152	1 695	2.65	3.15	634	624	10
Bogue township	2 974	1 117	848	685	135	269	245	124	87	2.66	3.13	1	–	1
Lake Waccamaw town (pt.)	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bolton township	1 599	562	447	328	89	115	107	51	36	2.85	3.28	–	–	–
Bolton town	531	206	148	96	43	58	56	34	22	2.58	3.16	–	–	–
Bug Hill township	2 357	839	656	532	96	183	173	85	65	2.81	3.24	–	–	–
Cerro Gordo township	1 918	696	554	452	86	142	140	69	59	2.76	3.17	–	–	–
Cerro Gordo town	227	88	68	56	11	20	20	7	6	2.58	3.04	–	–	–
Chadbourn township	5 693	2 171	1 576	1 123	371	595	554	265	205	2.62	3.16	–	–	–
Chadbourn town	2 005	796	541	351	168	255	241	123	98	2.52	3.16	–	–	–
Fair Bluff township	1 925	746	508	362	128	238	221	128	94	2.58	3.25	6	6	–
Fair Bluff town	1 062	429	277	180	87	152	143	86	62	2.48	3.20	6	6	–
Lees township	2 784	1 062	813	682	91	249	222	109	86	2.62	3.05	–	–	–
Ransom township	3 739	1 307	1 047	832	161	260	241	121	102	2.86	3.26	–	–	–
South Williams township	4 909	1 854	1 356	982	309	498	469	251	200	2.65	3.19	63	54	9
Tabor City town	2 267	938	635	449	156	303	286	169	132	2.42	3.03	63	54	9

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Table 5. **Household, Family, and Group Quarters Characteristics: 1990**—Con.

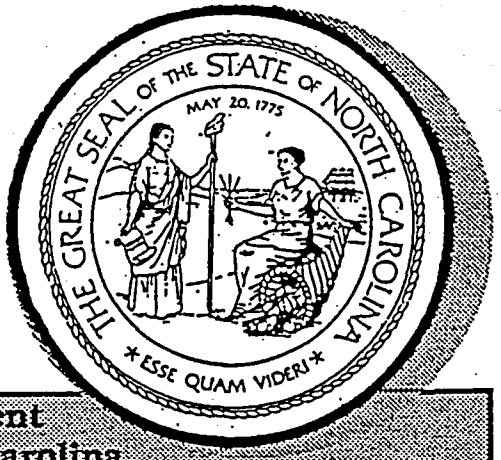
[For definitions of terms and meanings of symbols, see text]

State County County Subdivision Place	Persons in households	All households	Family households: Total	Family households: Married-couple family	Family households: Female householder, no husband present	Nonfamily households: Total	Nonfamily households: Householder living alone: Total	Nonfamily households: Householder living alone: 65 years and over: Total	Nonfamily households: Householder living alone: 65 years and over: Female	Persons per—: Household	Persons per—: Family	Persons in group quarters: Total	Persons in group quarters: Institutionalized persons	Persons in group quarters: Other persons in group quarters
Jones County—Con.														
Township 4, Cypress Creek	895	348	262	211	35	86	80	43	33	2.57	3.03	–	–	–
Township 5, Tuckahoe	861	321	245	194	43	76	63	28	18	2.68	3.13	–	–	–
Township 6, Chinquapin	664	259	191	157	23	68	61	37	30	2.56	3.04	2	2	–
Township 7, Beaver Creek	739	267	207	165	34	60	48	22	16	2.77	3.16	–	–	–
Lee County	40 651	15 689	11 739	9 087	2 135	3 950	3 482	1 369	1 107	2.59	3.03	723	672	51
Township 1, Greenwood	5 097	1 895	1 502	1 240	186	393	332	112	92	2.69	3.03	18	–	18
Township 2, Jonesboro	9 944	3 926	2 924	2 244	559	1 002	871	312	247	2.53	2.94	28	23	5
Sanford city (pt.)	2 638	1 077	733	507	191	344	301	126	107	2.45	3.00	9	4	5
Township 3, Cape Fear	2 913	1 100	853	710	108	247	222	112	90	2.65	3.04	9	–	9
Broadway town (pt.)	973	362	286	247	32	76	71	37	28	2.69	3.08	–	–	–
Township 4, Deep River	1 756	640	500	399	75	140	125	45	33	2.74	3.14	127	127	–
Township 5, East Sanford	5 786	2 175	1 592	940	559	583	523	220	174	2.66	3.15	245	244	1
Sanford city (pt.)	4 080	1 527	1 073	554	452	454	412	186	149	2.67	3.24	245	244	1
Township 6, West Sanford	11 665	4 666	3 378	2 732	521	1 288	1 143	457	377	2.50	2.98	288	278	10
Sanford city (pt.)	7 371	3 131	2 104	1 613	411	1 027	922	370	306	2.35	2.92	132	122	10
Township 7, Pocket	3 490	1 287	990	822	127	297	266	111	94	2.71	3.15	8	–	8
Lenoir County	55 652	21 938	15 611	11 131	3 798	6 327	5 706	2 580	2 073	2.54	3.06	1 622	1 559	63
Contentnea Neck township	2 841	1 049	812	619	160	237	213	100	81	2.71	3.12	16	16	–
Grifton town (pt.)	253	97	67	35	29	30	28	17	14	2.61	3.28	–	–	–
Falling Creek township	5 209	1 957	1 520	1 306	168	437	380	111	86	2.66	3.06	56	56	–
Kinston city (pt.)	738	286	226	196	26	60	57	20	18	2.58	2.97	–	–	–
Institute township	1 350	493	371	312	43	122	101	44	37	2.74	3.19	–	–	–
Kinston township	24 371	10 082	6 630	4 000	2 330	3 452	3 182	1 538	1 264	2.42	3.05	1 248	1 199	49
Kinston city (pt.)	22 926	9 544	6 220	3 712	2 230	3 324	3 072	1 503	1 235	2.40	3.05	1 140	1 091	49
Moseley Hall township	4 803	1 843	1 351	930	337	492	451	226	178	2.61	3.11	125	125	–
La Grange town	2 805	1 123	796	495	259	327	308	159	129	2.50	3.06	–	–	–
Neuse township	5 552	2 162	1 598	1 218	319	564	486	170	131	2.57	3.01	–	–	–
Kinston city (pt.)	54	22	13	8	5	9	7	2	1	2.45	3.15	–	–	–
Pink Hill township	2 182	819	605	504	73	214	188	93	70	2.66	3.11	19	5	14
Pink Hill town	547	214	147	109	33	67	58	24	19	2.56	3.13	–	–	–
Sand Hill township	941	367	273	229	26	94	85	39	29	2.56	3.03	–	–	–
Southwest township	1 527	580	442	346	73	138	118	35	21	2.63	3.03	7	7	–
Kinston city (pt.)	18	7	7	4	3	–	–	–	–	2.57	2.57	–	–	–
Trent township	2 029	816	608	524	64	208	186	100	83	2.49	2.93	–	–	–
Vance township	3 376	1 227	959	754	166	268	226	84	63	2.75	3.14	151	151	–
Kinston city (pt.)	419	128	110	78	29	18	17	5	4	3.27	3.58	–	–	–
Woodington township	1 471	543	442	389	39	101	90	40	30	2.71	3.04	–	–	–
Lincoln County	49 802	18 764	14 661	12 207	1 827	4 103	3 580	1 467	1 173	2.65	3.03	517	517	–
Catawba Springs township	10 059	3 742	2 984	2 592	272	758	617	187	140	2.69	3.01	35	35	–
Lowesville CDP	1 092	385	312	271	33	73	61	26	21	2.84	3.20	–	–	–
Westport CDP	1 280	500	430	405	16	70	59	18	15	2.56	2.77	–	–	–
Howards Creek township	5 429	2 020	1 602	1 334	176	418	364	141	113	2.69	3.03	–	–	–
Ironton township	13 979	5 111	4 151	3 528	463	960	843	325	260	2.74	3.07	28	28	–
Boger City CDP (pt.)	1 278	530	385	317	56	145	135	52	39	2.41	2.90	–	–	–
Maiden town (pt.)	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lincolnton township	16 166	6 346	4 674	3 673	802	1 672	1 487	697	571	2.55	3.01	434	434	–
Boger City CDP (pt.)	95	39	29	24	4	10	8	4	3	2.44	2.72	–	–	–
Lincolnton city	6 582	2 713	1 861	1 344	434	852	778	415	353	2.43	2.99	265	265	–
Maiden town (pt.)	–	–	–	–	–	–	–	–	–	–	–	–	–	–
North Brook township	4 169	1 545	1 250	1 080	114	295	269	117	89	2.70	3.04	20	20	–
McDowell County	35 064	13 680	10 366	8 576	1 363	3 314	2 996	1 399	1 135	2.56	2.99	617	416	201
Brackett township	290	111	91	75	11	20	18	8	6	2.61	2.92	–	–	–
Crooked Creek township	2 301	840	696	594	72	144	122	56	42	2.74	3.05	–	–	–
Dysartsville township	2 146	773	628	536	63	145	121	51	39	2.78	3.10	254	149	105
Glenwood township	1 406	510	414	364	35	96	91	46	37	2.76	3.11	–	–	–
Higgins township	1 545	576	467	389	64	109	94	33	29	2.68	2.98	144	92	52
Marion township	13 525	5 643	3 960	3 157	636	1 683	1 555	769	641	2.40	2.92	202	175	27
Marion city	4 718	2 091	1 334	982	287	757	712	408	355	2.26	2.90	47	22	25
West Marion CDP (pt.)	1 234	520	381	299	63	139	123	54	42	2.37	2.78	–	–	–
Montford Cove township	3 064	1 113	934	782	115	179	158	61	46	2.75	3.02	5	–	5
West Marion CDP (pt.)	57	20	16	6	7	4	3	–	–	2.85	2.69	–	–	–
Nebo township	4 008	1 473	1 170	987	129	303	274	117	95	2.72	3.11	12	–	12
North Cove township	1 843	726	557	479	55	169	151	74	59	2.54	2.94	–	–	–
Old Fort township	4 936	1 915	1 449	1 213	183	466	412	184	141	2.58	3.01	–	–	–
Old Fort town	720	305	204	139	51	101	92	46	34	2.36	2.97	–	–	–
Macon County	22 992	9 834	7 235	6 236	773	2 599	2 388	1 307	1 021	2.34	2.76	507	233	274
Burningtown township	606	243	193	173	14	50	44	32	22	2.49	2.84	–	–	–
Cartoogechaye township	1 666	679	529	471	42	150	134	58	41	2.45	2.83	234	–	234
Cowee township	1 241	522	394	342	38	128	119	67	47	2.38	2.77	–	–	–
Ellijay township	1 707	729	566	497	53	163	156	100	75	2.34	2.70	6	–	6
Flats township	376	151	123	112	9	28	24	5	5	2.49	2.77	29	–	29
Franklin township	9 580	4 201	2 977	2 518	368	1 224	1 118	609	503	2.28	2.74	219	219	–
Franklin town	2 808	1 357	830	659	145	527	483	269	237	2.07	2.66	65	65	–
Highlands township	2 079	910	638	559	58	272	258	146	120	2.28	2.78	14	14	–
Highlands town (pt.)	930	430	278	241	27	152	148	85	72	2.16	2.74	14	14	–
Millshoal township	2 082	857	652	555	78	205	187	93	70	2.43	2.81	–	–	–
Nantahala township	766	319	244	211	25	75	72	38	30	2.40	2.82	5	–	5
Smiths Bridge township	2 297	960	738	641	70	222	202	111	76	2.39	2.77	–	–	–
Sugar Fork township	592	263	181	157	18	82	74	48	32	2.25	2.76	–	–	–
Madison County	16 104	6 488	4 806	4 058	516	1 682	1 510	789	581	2.48	2.92	849	104	745
Township 1, Marshall	3 705	1 430	1 094	899	129	336	309	177	129	2.59	2.99	7	7	–
Marshall town	802	343	232	168	53	111	108	71	55	2.34	2.87	7	7	–
Township 2, Laurel	1 271	506	385	332	35	121	106	45	32	2.51	2.90	–	–	–
Township 3, Mars Hill	2 894	1 213	848	692	123	365	321	158	131	2.39	2.90	825	97	728
Mars Hill town	911	416	253	203	43	163	138	74	67	2.19	2.83	700	2	698
Township 4, Beech Glenn	2 222	886	675	581	59	211	176	88	63	2.51	2.87	–	–	–
Township 5, Walnut	1 198	478	351	307	29	127	119	64	39	2.51	3.01	–	–	–
Township 6, Hot Springs	992	418	282	234	41	136	125	74	58	2.37	2.96	–	–	–
Hot Springs town	478	199	137	114	21	62	57	33	28	2.40	2.96	–	–	–
Township 7, Ebbs Chapel	1 091	448	344	304	26	104	96	44	31	2.44	2.82	–	–	–
Township 8, Spring Creek	788	328	237	207	18	91	84	48	37	2.40	2.87	17	–	17
Township 9, Sandy Mush	439	176	132	111	11	44	39	23	16	2.49	2.89	–	–	–
Township 10, Grapevine	1 043	421	319	274	32	102	91	44	31	2.48	2.90	–	–	–
Township 11, Revere Rice Cove	461	184	139	117	13	45	44	24	14	2.51	2.98	–	–	–

003

STATE OF
NORTH CAROLINA
DEPARTMENT OF
ENVIRONMENT, HEALTH,
AND NATURAL RESOURCES

Classifications and Water Quality Standards Assigned to The Waters of the Cape Fear River Basin



Division of Environmental Management
Raleigh, North Carolina

Reprint from North Carolina Administrative Code: 15A NCAC 2B .0311
Current through: February 1, 1993

SECTION .0300 - ASSIGNMENT OF STREAM CLASSIFICATIONS

.0301 CLASSIFICATIONS: GENERAL

(a) Schedule of Classifications. The classifications assigned to the waters of the State of North Carolina are set forth in the schedules of classifications and water quality standards assigned to the waters of the river basins of North Carolina, 15A NCAC 2B .0302 to .0317. These classifications are based upon the existing or contemplated best usage of the various streams and segments of streams in the basin, as determined through studies and evaluations and the holding of public hearings for consideration of the classifications proposed.

(b) Stream Names. The names of the streams listed in the schedules of assigned classifications were taken as far as possible from United States Geological Survey topographic maps. Where topographic maps were unavailable, U.S. Corps of Engineers maps, U.S. Department of Agriculture soil maps, and North Carolina highway maps were used for the selection of stream names.

(c) Classifications. The classifications assigned to the waters of North Carolina are denoted by the letters WS-I, WS-II, WS-III, WS-IV, WS-V, B, C, SA, SB, and SC in the column headed "class." A brief explanation of the "best usage" for which the waters in each class must be protected is given as follows:

Fresh Waters

Class WS-I:	waters protected as water supplies which are in natural and undeveloped watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-II:	waters protected as water supplies which are generally in predominantly undeveloped watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-III:	waters protected as water supplies which are generally in low to moderately developed watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-IV:	waters protected as water supplies which are generally in moderately to highly developed watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-V:	waters protected as water supplies which are generally upstream and draining to Class WS-IV waters; no categorical restrictions on watershed development or treated wastewater discharges are required, however, the Commission or its designee may apply appropriate management requirements as deemed necessary for the protection of downstream receiving waters (15A NCAC 2B .0203); suitable for all Class C uses;
Class B:	primary recreation and any other usage specified by the "C" classification;
Class C:	aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture.

Tidal Salt Waters

Class SA:	shellfishing for market purposes and any other usage specified by the "SB" and "SC" classification;
Class SB:	primary recreation and any other usage specified by the "SC" classification;
Class SC:	aquatic life propagation and survival, fishing, wildlife, and secondary recreation.

Supplemental Classifications

Trout Waters:	Suitable for natural trout propagation and maintenance of stocked trout;
Swamp Waters:	Waters which have low velocities and other natural characteristics which are different from adjacent streams;
NSW:	Nutrient Sensitive Waters which require limitations on nutrient inputs;
HQW:	High Quality Waters which are waters that are rated as excellent based on biological and physical/chemical characteristics through division monitoring or special studies, native and special native trout waters (and their tributaries) designated by the Wildlife Resources Commission, primary nursery areas (PNA) designated by the Marine Fisheries Commission and other functional nursery areas designated by the Wildlife Resources Commission, critical habitat areas designated by the Wildlife Resources Commission or the Department of Agriculture, all water supply watersheds which are either classified as WS-I or WS-II or those for which a formal petition for reclassification as WS-I or WS-II has been received from the appropriate local government and accepted by the Division of Environmental Management and all Class SA waters.
ORW:	Outstanding Resource Waters which are unique and special waters of exceptional state or national recreational or ecological significance which require special protection to maintain existing uses.

(d) Water Quality Standards. The water quality standards applicable to each classification assigned are those established in 15A NCAC 2B .0200, Classifications and Water Quality Standards Applicable to the Surface Waters of North Carolina, as adopted by the North Carolina Environmental Management Commission.

(e) Index Number.

(1) Reading the Index Number. The index number appearing in the column so designated is an identification number assigned to each stream or segment of a stream, indicating the specific tributary progression between the main stem stream and the tributary stream.

(2) Cross-Referencing the Index Number. The inclusion of the index number in the schedule is to provide an adequate cross reference between the classification schedules and an alphabetic list of streams.

(f) Classification Date. The classification date indicates the date on which enforcement of the provisions of Section 143-215.1 of the General Statutes of North Carolina became effective with reference to the classification assigned to the various streams in North Carolina.

(g) Reference. Copies of the schedules of classifications adopted and assigned to the waters of the various river basins may be obtained at no charge by writing to:

Director
Division of Environmental Management
Department of Environment, Health, and Natural Resources
Post Office Box 29535
Raleigh, North Carolina 27626-0535

(h) Places where the schedules may be inspected:

Division of State Library
Archives -- State Library Building
109 E. Jones Street
Raleigh, North Carolina.

(i) Unnamed Streams.

(1) Any stream which is not named in the schedule of stream classifications carries the same classification as that assigned to the stream segment to which it is tributary except:

(A) unnamed streams specifically described in the schedule of classifications; or

(B) unnamed freshwaters tributary to tidal saltwaters will be classified "C"; or

(C) after November 1, 1986, any newly created areas of tidal saltwater which are connected to Class SA waters by approved dredging projects will be classified "SC" unless case-by-case reclassification proceedings are conducted.

(2) The following river basins have different policies for unnamed streams entering other states or for specific areas of the basin:

Hiwassee River Basin (Rule .0302); Little Tennessee River Basin and Savannah River Drainage Area (Rule .0303); French Broad River Basin (Rule .0304); Watauga River Basin (Rule .0305); Broad River Basin (Rule .0306); New River Basin (Rule .0307); Catawba River Basin (Rule .0308); Yadkin-Pee Dee River Basin (Rule .0309); Lumber River Basin (Rule .0310); Roanoke River Basin (Rule .0313); Tar-Pamlico River Basin (Rule .0316); Pasquotank River Basin (Rule .0317).

History Note: Statutory Authority G.S. 143-214.1; 143-215.1; 143-215.3(a)(1);
Eff. February 1, 1976;
Amended Eff. August 3, 1992; August 1, 1990; October 1, 1989; November 1, 1986.

.0311 CAPE FEAR RIVER BASIN

(a) Places where the schedules may be inspected:

(1) Clerk of Court:
Alamance County
Bladen County
Brunswick County
Caswell County
Chatham County
Columbus County
Cumberland County
Duplin County
Durham County
Forsyth County
Guilford County
Harnett County
Hoke County
Lee County
Montgomery County
Moore County
New Hanover County
Onslow County
Orange County
Pender County
Randolph County
Rockingham County
Sampson County
Wake County
Wayne County

(2) North Carolina Department of Environment, Health, and Natural Resources:

(A) Winston-Salem Regional Office
8025 North Point Boulevard, Suite 100
Winston-Salem, North Carolina

(B) Fayetteville Regional Office
Wachovia Building
Suite 714
Fayetteville, North Carolina

(C) Raleigh Regional Office
3800 Barrett Drive
Raleigh, North Carolina

(D) Washington Regional Office
1424 Carolina Avenue
Washington, North Carolina

(E) Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, North Carolina

.0311 CAPE FEAR RIVER BASIN

Name of Stream	Description	Class	Classification Date	Classification Index No.
Little Creek	From source to McLendons Creek	C	9/1/74	17-30-4
Richland Creek	From source to Moore County SR 1264	B	3/1/66	17-30-5-(1)
Richland Creek	From Moore County SR 1264 to McLendons Creek	C	9/1/74	17-30-5-(2)
Unnamed Tributary northwest of Mount Carmel Church	From source to Moore County SR 1264	B	3/1/66	17-30-5-3-(1)
Unnamed Tributary northwest of Mount Carmel Church	From Moore County Road SR 1264 to Richland Creek	C	9/1/74	17-30-5-3-(2)
McLendons Creek	From a point 0.4 mile downstream of Moore County SR 1628 to Deep River	WS-IV	8/3/92	17-30-(6)
Big Governors Creek	From source to Moore County SR 1651	C	7/1/73	17-32-(0.3)
Big Governors Creek	From Moore County SR 1651 to Deep River	WS-IV	8/3/92	17-32-(0.7)
McIntosh Creek	From source to Big Governors Creek	C	9/1/74	17-32-1
Crawley Creek	From source to a point 3.4 miles upstream of mouth	C	9/1/74	17-32-2-(1)
Crawley Creek	From a point 3.4 miles upstream of mouth to Big Governors Creek	WS-IV	8/3/92	17-32-2-(2)
Little Governors Creek	From source to Big Governors Creek	WS-IV	8/3/92	17-32-3
Line Creek	From source to Deep River	WS-IV	8/3/92	17-33
DEEP RIVER	From N. C. Hwy. 42 to a point 0.8 mile upstream of Lee County SR 1007	WS-IV	8/3/92	17-(33.5)
Smiths Creek	From source to Deep River	WS-IV	8/3/92	17-34
Indian Creek	From source to Deep River	WS-IV	8/3/92	17-35
Little Indian Creek	From source to Indian Creek	WS-IV	8/3/92	17-35-1
DEEP RIVER	From a point 0.8 mile upstream of Lee County SR 1007 to Town of Gulf-Goldston water supply intake (located 0.3 mile upstream of Lee County SR 1007)	WS-IV CA	8/3/92	17-(36)
DEEP RIVER	From Town of Gulf-Goldston water supply intake to Georges Creek	C	8/3/92	17-(36.5)
Pocket Creek	From source to Deep River	C	7/1/73	17-37
Sugar Creek	From source to Pocket Creek	C	9/1/74	17-37-1
Dry Fork Creek	From source to Pocket Creek	C	9/1/74	17-37-2
Raccoon Creek	From source to Pocket Creek	C	9/1/74	17-37-3
Little Pocket Creek	From source to Pocket Creek	C	9/1/74	17-37-4
Patterson Creek	From source to Deep River	C	9/1/74	17-38
Cedar Creek	From source to Deep River	C	3/1/77	17-39
Big Buffalo Creek	From source to Deep River	C	9/1/74	17-40
Skunk Creek	From source to Big Buffalo Creek	C	3/1/77	17-40-1
Persimmon Creek	From source to Big Buffalo Creek	C	9/1/74	17-40-2
Purgatory Branch	From source to Big Buffalo Creek	C	9/1/74	17-40-3
Georges Creek	From source to Deep River	C	3/1/77	17-41
Rocky Branch	From source to Georges Creek	C	3/1/77	17-41-1
DEEP RIVER	From Georges Creek to Cape Fear River (junction with Haw River)	WS-IV	8/3/92	17-(41.5)
Little Buffalo Creek	From source to Deep River	WS-IV	8/3/92	17-42

Ronald H. Levine, M.D., M.P.H.
STATE HEALTH DIRECTOR

DIVISION OF HEALTH SERVICES
P.O. Box 2091
Raleigh, N.C. 27602-2091

July 14, 1983

MEMORANDUM

TO: Tom Meacham

FROM: Glenn Dunn

SUBJECT: Notice of Intent to Sue from Charles Oldham

I am transmitting to you a copy of the above reference notice. I believe, based on my previous discussions with Charles Case, that Oldham wants the site cleaned up and monitored.

EPA and this Branch have already done some investigation of the site and have run tests on some soil samples. It is my understanding that EPA is now willing to further investigate and consider remedial action under "Superfund". I will try to get EPA to move as quickly as possible and perhaps filing of the suit can be forestalled if some progress is being made along those lines.

I'll be out of town the week of the 17th, and will talk to you more about this when I return.

GD:lc

NOTICE OF INTENT TO SUE

TO: Administrator
Environmental Protection Agency
Washington, D.C. 20460

RECEIVED
JUL 13 1983
SOLID & HAZARDOUS WASTE MANAGEMENT BRANCH

Regional Administrator-Southeast Region
Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Mr. O. W. Strickland, Director
Solid and Hazardous Waste Management Branch
Division of Health Services
North Carolina Department of Human Resources
Post Office Box 2091
Raleigh, North Carolina 27602

Chief Operating Officer
Southern Wood Piedmont Company
Post Office Box 5447
Spartanburg, South Carolina 29304

Director, Environmental Affairs
ITT Rayonier, Incorporated
Post Office Box 45165
Atlanta, Georgia 30320

Chief Executive Operating Officer
ITT Rayonier, Incorporated
1177 Summer Street
Stamford, Connecticut 06904

Chief Executive Officer
International Telephone and Telegraph Corporation
World Headquarters
320 Park Avenue
New York, New York 10022

C. T. Corporation Systems, Registered Agent in North Carolina for I.T.T. and Southern Wood Products Company
Wachovia Building
100 South Corcoran Street
Durham, North Carolina 27702

THIS NOTICE OF INTENT TO SUE is given pursuant to 42 U.S.C. § 6972(a)(1) and 40 C.F.R. § 254. Charles Oldham owns property situated in

Gulf, Chatham County, North Carolina. Mr. Oldham's property is adjacent to property in Gulf, Chatham County, North Carolina, that was formerly used as a wood treatment facility by Southern Wood Piedmont Company, which is a subsidiary of ITT Rayonier, Incorporated, which in turn is controlled by International Telephone and Telegraph Corporation. Southern Wood Piedmont Company, which operated its wood treatment plant during the years 1946 to 1980, disposed of certain waste generated by its production processes on the land where the plant was situated. In 1980, the plant was closed and remaining wastes were partly disposed of on the property pursuant to Permit No. 3931-R, issued by the Division of Environmental Management of the Department of Natural Resources & Community Development of the State of North Carolina. Wastes believed to be disposed of at this site include, but are not limited to, creosote, pentachlorophenol and copper chromic arsenic sludges, all listed as hazardous constituents in 40 C.F.R. § 261, Appendix VIII. Upon the conclusion of operations at the Southern Wood Piedmont Company site in 1980, the plant was dismantled and the area was landscaped.

A black liquid has and now continues to bubble to the surface at the site of the former Southern Wood Piedmont Company plant and this black liquid now continues to leak into a free flowing stream that then runs through the property of Mr. Oldham. It is asserted that Southern Wood Piedmont Company and those corporations in control of that company are in violation of various sections of federal and state statutes and regulations relating to solid waste and hazardous waste disposal. It is specifically asserted that the leakage of waste products from the Southern Wood Piedmont Company site is in violation of 42 U.S. Code § 6924 and the implementing regulations in 40 C.F.R. § 264. The failure of Southern Wood Piedmont Company and those corporations in control of

that company properly to dispose of the hazardous waste at the Chatham County site and to monitor and prevent the leakage of the waste material now coming from the disposal site present a continuing, imminent and substantial endangerment to the health and environment and to Charles Oldham's use and enjoyment of his property, which is contiguous to the property on which the hazardous wastes were disposed.

The address of the complainant in this notice is: Mr. Charles Oldham, Route 12, Box 128, Sanford, North Carolina 27330.

Legal counsel for Mr. Oldham in this matter is: Charles D. Case, Moore, Van Allen and Allen, Post Office Box 2058, Raleigh, North Carolina 27602 (telephone 919/828-4481); and Ms. Rhonda Ennis, 600 West Front Street, Post Office Box 1102, Lillington, North Carolina 27546 (telephone 919/893-4765).

This Notice of Intent to Sue is given to provide the above-mentioned parties notice in accordance with the provisions of 42 U.S. Code § 6972 and 40 C.F.R. § 254 only, and does not circumscribe, limit, forfeit, or waive any of Mr. Oldham's rights, causes of action, or interests whatsoever.

This the 12th day of July, 1983.

MOORE, VAN ALLEN AND ALLEN

By Charles D. Case
Charles D. Case

By Donald S. Ingraham
Donald S. Ingraham

Post Office Box 2058
Raleigh, North Carolina 27602
Telephone: 919/828-4481

2075sch

Ref. 21

RECEIVED
MAR 22 1983
SOLID & HAZARDOUS WASTE MANAGEMENT BRANCH

Dear Bill,

Enclosed are the samples from the Southern Wood Piedmont landfill at Gulf, N.C. Lars Lochuin at NRCD has the originals. Please let me know how I can help.

Sincerely,

Charles Oldham

Date: January 26, 1982

County: Chatham

Notifier's name and address: C. A. Counsil

P.O. Box 5447, Spartanburg, S.C. 29304

Contact's name: Mr. Charles Burdell *803) 576-7660

Site name and address: Southern Wood Piedmont

State Road 2139, Gulf, N.C. 27256

Site location:

Type of waste: Possible creosote, pentachlorophenol, copper chromic arsenic sludges

What process generated the waste? Wood Preservation Treatment

Volume of waste:

Method of storage or disposal: on-site burial

Dates of waste activity: 1946 - 1980

Site history: C. A. Counsil notified that Southern Wood Piedmont Company buried creosote, pentachlorophenol, and copper chromic arsenic sludges on plant property between 1946 and 1980. The plant, located in Gulf, N.C., ceased operations in 1980.

EPA, DEM

*The preceding information is based on preliminary data supplied by the Environmental Protection Agency, and not on detailed site investigations.

Ronald H. Levine, M.D., M.P.H.
STATE HEALTH DIRECTOR

DIVISION OF HEALTH SERVICES
P.O. Box 2091
Raleigh, N.C. 27602-2091

January 19, 1982

MEMORANDUM

TO: O. W. Strickland, Head
Solid & Hazardous Waste Management Branch

FROM: Larry D. Perry, District Representative LDP
Solid & Hazardous Waste Management Branch

SUBJECT: Interim Status Inspection - Generator, TSD, and Transporter
Southern Wood Peidmont Co.
2139 State Road
Gulf, NC 27256
EPA I.D. #NCD053488557
Contact: Mr. C.A. Burdell - Director, Technical Services
Southern Wood Peidmont Co.
P.O. Box 5447
Spartanburg, SC 29304

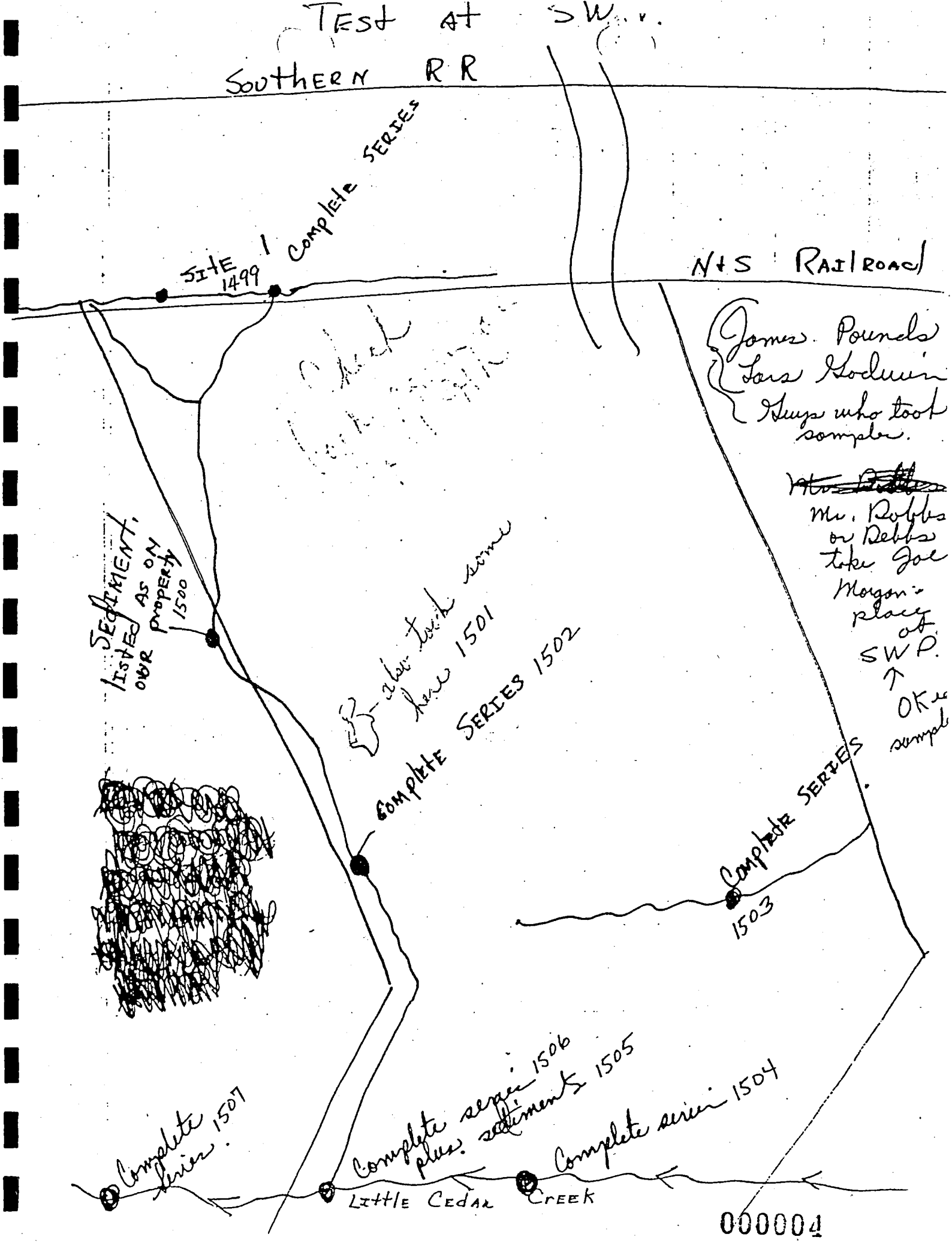
On September 16, 1981 an inspection was to be made on this site. Upon arrival at the site, there was nothing there. The facility had been closed down, completely disassembled and moved to a new location (explained in attached information). Upon walking over the facility site I found a sign stating that the area was posted due to a chemical dump or burial area located at the site. I talked with a man at a garage across the street from the site and he stated that there had once been a wastewater chemical holding pond on the site. From my observation the site had been completely re-landscaped and there was no evidence of any holding pond - everything was level and smooth.

I phoned several people with other Southern Wood locations and finally was able to get some information from this Mr. Burdell. He informed me that he thought that he had properly closed out the site with his meeting and correspondence with Stan Taylor in the summer and fall of 1980 - see attached letters. He also listed the site on Superfund.

The reason for the delay in this report is due to the difficulty in obtaining the enclosed paper work from Mr. Burdell. He finally sent the material after several requests - each time he promised faithfully to send the information but I had to keep reminding him.

Since obtaining the information, no further contact has been made with Mr. Burdell by this inspector concerning proper close-out, etc.

LDP:ns


TEST AT SW
SOUTHERN RR
SITE 1 COMPLETE SERIES
1499
N+S RAILROAD
James Pounds
Sara Godwin
Guys who took sampler.
Mr. Robbs or Rebbs take Joe Morgan's place at SWP.
OK re sampl
SEDIMENT, LISTED AS ON OUR PROPERTY
1500
1501
COMPLETE SERIES 1502
COMPLETE SERIES
1503
Complete series 1506 plus sediments 1505
Complete series 1504
Complete series 1507
LITTLE CEDAR CREEK

N.C. DEPT. OF NATURAL RESOURCES & COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

WATER QUALITY FIELD-LAB FORM (DM1)

(1)

COUNTY: Chatham

RIVER BASIN: [illegible]

REPORT TO (Circle One): ARO, FRO, MRO, (RRO), WaRO, WIRO, WSRO, BM, TS,

OTHER:

COLLECTOR(S): Powell & Godwin

BOD RANGE: SEED:

CHLORINATED:

SAMPLE TYPE: [ ] AMBIENT [ ] CORE [ ] COMPLIANCE [✓] INTENSIVE S. [ ] SPLIT [ ] EMERGENCY

STATION LOCATION: So the [illegible] Pittsboro Dist. on R. [illegible]

REMARKS: Lo. [illegible]

LAB NUMBER 00008: 1499

DATE RECIEVED: 82/03/26

RECIEVED BY: [illegible]

DATA ENTRY BY: CK:

DATE REPORTED:

Station Number	Date Begin (yy/mm/dd)	Time Begin	Date End	Time End	Depth DM DB DBM	Value Type A H L	Sample Type C G GNXX	Composite T S P
Sample 1	82/03/26	10:30						

1	BOD5 310	mg/l	Chloride 940	mg/l	NH3 as N 610	mg/l	Mo – Molybdenum 1062	
2	COD High 340	mg/l	Arsenic: Inorganic 1002	24 ug/l	TKN as N 625	mg/l	Na – Sodium 929	mg/l
3	COD: Low 335	mg/l	Chl a: Tri 32217	ug/l	NO2+NO3 as N 630	mg/l	Ni – Nickel 1067	<100 ug/l
4	Coliform: MF Fecal 31616	/100ml	Chl a: Corr 32209	ug/l	PO4 as P 70507	mg/l	Pb – Lead 1051	100 ug/l
5	Coliform: MF Total 31504	/100ml	Pheophytin a 32213	ug/l	P: Total as P 665	mg/l	Sb – Antimony 1097	ug/l
6	Coliform: Tube Fecal 31615	/100ml	Color: True 80	Pt-Co	P: Dissolved as P 666	mg/l	Sn – Tin 1102	ug/l
7	Coliform: Tube Total 31505	/100ml	Chromium: Hex 1032	ug/l	Ag – Silver 1077	ug/l	V – Vanadium 1087	ug/l
8	Residue: Total 500	mg/l	Cyanide 720	mg/l	Al – Aluminum 1105	ug/l	Zn – Zinc 1092	70 ug/l
9	Volatile 505	mg/l	Fluoride 951	mg/l	Ba – Barium 1007	ug/l	Pesticides (Specify)	
10	Fixed 510	mg/l	Formaldehyde 71880	mg/l	Be – Beryllium 1012	ug/l		
11	Residue: Suspended 530	mg/l	Grease and Oils 556	mg/l	Ca – Calcium 916	mg/l		
12	Volatile 535	mg/l	Hardness: Total 900	mg/l	Cd – Cadmium 1027	<50 ug/l		
13	Fixed 540	mg/l	MBAS 38260	mg/l	Co – Cobalt 1037	<100 ug/l	Organics (Specify)	
14	pH 403	units	Phenols 32730	ug/l	Chromium: Total 1034	<80 ug/l	[illegible]	
15	Acidity to pH 4.5 436	mg/l	Sulfate 945	mg/l	Cu – Copper 1042	80 ug/l	[illegible]	
16	Acidity to pH 8.3 435	mg/l	Sulfide 745	mg/l	Fe – Iron 1045	10,000 ug/l	[illegible]	
17	Alkalinity to pH 8.3 415	mg/l	Specific Cond. 95	uMhos/cm	Hg – Mercury 71900	omit ug/l	[illegible]	
18	Alkalinity to pH 4.5 410	mg/l	Biomass: Dry Wt. 573	g/M²	Li – Lithium 1132	ug/l		
19	TOC 680	mg/l	Biomass: Peri Ash Free 572	g/M²	Mg – Magnesium 927	18 mg/l		
20	Turbidity 76	NTU	Chl a: Peri Fluro 82547	mg/M²	Mn – Manganese 1055	2200 ug/l		

A	Sampling Point PT 63	Water Temperature (°C) 10	D.O. 300	pH 400	Conductance at 25°C 94	Alkalinity pH 8.3 82244	Alkalinity pH 4.5 431	Acidity pH 4.5 82243	Acidity pH 8.3 82242
B	Secchi (Meters) 78	Air Temperature (°C) 20	D.O. % Saturation 301	Salinity % 480	Algae: Floating Mats Severity 1325	Precipitation (In/Day) 45	Cloud Cover: % 32	Wind Direction (Deg.) 36	Wind Force Beaufort 37
C	1 Hr Settleable Matter (ml/l/Hr) 50086	Dead Fish Severity 1340	Turbidity Severity 1350	Odor: Atmosphere Severity 1330	Stream Flow Severity 1351	Detergent Suds Severity 1305	Oil-Grease Severity 1300	Floating Debris Severity 1345	Sludge Severity 1315

DM1/Revised 1/81LA

000003

Checked by FTC

Supervisor RCK

ORGANIC ANALYSIS

Entered by

Checked by

Lab No.	Water Analytical Results
1499	The following compounds were identified by matching to library mass spectra. They were not matched to standards:
	Dihydro Acenaphthylene
	Fluorene HW
	Phenanthrene
	Fluoranthrene
	Phenol
	Methyl phenol
	Dimethyl phenol
	Ethyl, Methyl phenol
	Propyl phenol
	Methyl Benzofuranone
	Methyl Benzoic acid
	Tetrachlor phenol
	Pentachlor phenol
	Naphthalenecarboxylic Acid
	Quinolinol
	Benzene Carcinogen HS HW PTP on shat.
	Toluene HS HW PTP
	3 unidentified peaks detected by GC/MS.

✓ GC/MS/DS used

COUNTY: [illegible]

RIVER BASIN: [illegible]

REPORT TO: (Circle One)

ARO; WSRO, MRO; FRO, WaRO, WIRO; RRO; TS, BM,

AM; OTHER:

COLLECTOR: [illegible]

N.C. DEPT. OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

FIELD/LAB FORM

SEDIMENT/TISSUE

LAB NUMBER: [illegible]

DATE RECIEVED: [illegible]

RECIEVED BY: [illegible]

DATA ENTRY BY: [illegible] CK: [illegible]

DATE REPORTED: [illegible]

✓ SEDIMENT	AMBIENT	CORE
	COMPLIANCE	SPLIT
TISSUE	✓ INTENSIVE S.	EMERGENCY

STATION LOCATION: [illegible]

REMARKS: [illegible]

Station Number	Date Begin	Time Begin	Date End	Time End	Depth DM DB DMB	Value Type	T, S, or B	Sample Type
[illegible]	82-03-26	1100				A H L		C G GNXX

	Tissue	Units	Sediment	Units	Tissue	Units	Sediment	Units	Tissue	Units	Sediment	Uni
1	01004 As	mg/Kg	01003 As 5.6	mg/Kg			00611 NH3	mg/Kg	39482 Methoxychlr	ug/Kg	39481 Methoxychlr	ug/K
2	81666 Al	mg/Kg	01108 Al 68	mg/Kg			00627 TKN as N	mg/Kg	34688 Hxchlbenzene	mg/Kg	39701 Hxchlbenzene	ug/Kg
3	71940 Cd	mg/Kg	01028 Cd <.50	mg/Kg			00633 NO2 & NO3	mg/Kg	39060 PCP	ug/g	39061 PCP	ug/Kg
4	71938 Cr, tot.	mg/Kg	01029 Cr, tot. 18	mg/Kg			00668 P, tot, as P	mg/Kg	39074 alpha-BHC	ug/g	39076 alpha-BHC	ug/Kg
5	71937 Cu	mg/Kg	01043 Cu 25	mg/Kg			70511 PO4 as P	mg/Kg	39075 gamma-BHC	ug/g	3981 gamma-BHC	ug/Kg
6	81660 Fe	mg/Kg	01170 Fe 18000	mg/Kg	34690 Aldrin	mg/Kg	39333 Aldrin	mg/Kg	34685 Endrin	mg/Kg	39393 Endrin	ug/Kg
7	71930 Hg	mg/Kg	71921 Hg .09	mg/Kg	34684 Dieldrin	mg/Kg	39383 Dieldrin	mg/Kg	39515 PCB	mg/Kg	39519 PCB	ug/Kg
8	81656 Mg	mg/Kg	00924 Mg 6.8	mg/Kg	39325 o,p DDD	ug/g	39316 o,p DDD	ug/Kg	✓ Others:		Others:	
9	01069 Ni	mg/Kg	01068 Ni 15	mg/Kg	39312 p,p DDD	ug/g	39311 p,p DDD	ug/Kg	Organic			
10	71936 Pb	mg/Kg	01052 Pb 22	mg/Kg	39329 o,p DDE	ug/g	39328 o,p DDE	ug/Kg	Scan			
11	71938 Zn	mg/Kg	01093 Zn 43	mg/Kg	39322 p,p DDE	ug/g	39321 p,p DDE	ug/Kg	Creosote			
12	Other Metals:	mg/Kg	Other Metals:	mg/Kg	39290 Total DDT	ug/g	39373 Total DDT	ug/Kg				
13		mg/Kg		mg/Kg	39318 o,p DDT	ug/g	39306 o,p DDT	ug/Kg				
14		mg/Kg		mg/Kg	39302 p,p DDT	ug/g	39301 p,p DDT	ug/Kg				
15		mg/Kg		mg/Kg	39063 cis-Chlrdane	ug/g	39064 cis-Chlrdane	ug/Kg				
16		mg/Kg		mg/Kg	39066 trans-Chlrdane	ug/g	39067 trans-Chlrdane	ug/Kg				
17		mg/Kg		mg/Kg	39069 cis-N chlor	ug/g	39070 cis-N chlor	ug/Kg				
18		mg/Kg		mg/Kg	39072 trans-N chlor	ug/g	39073 trans-N chlor	ug/Kg				
19		mg/Kg		mg/Kg								

	Sampling Point	Temperature °C	Dissolved Oxygen	pH Units	Conductivity	Salinity ‰	Turbidity FTU	Stream Color	Secchi (M)
A	PI 63 ‰ 2	10	300	400	95	70305	78		78
	R P	Stream Stage ft.	Flow MGD	Floating Debris Sever.	Sludge Severity	Detergent Suds Sever.	Atmos. Odor Severity	Cloud Cover ‰	Wind Dir. from North
B	B 647	65	50051	1345	1315	1305	1330	32	36

000002

Supervisor RSK

Entered by

Checked by

Lab No.	Sediment Analytical Results
1500	The following compounds were identified by Matching to library mass spectra. They were not matched to standards:
	Chlorophenol
	Trichlorophenol
	Dichlorophenol
	Pentachlorophenol
	Naphthalene HS HW PTP
	Methyl naphthalene
	Dibenzofuran
	Fluorene
	Phenanthrene
	Fluoranthene
	Pyrene

✓ GC/MS/DS used

COUNTY:

RIVER BASIN: Cape Fear

REPORT TO: (Circle One)

ARO, FRO, MRO, RRO, WaRO WIRO, WSRO, BM, TS,

OTHER:

COLLECTOR(S): Lars Erikson & TK Pa[illegible]

BOD RANGE: SEED:

CHLORINATED:

DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT
WATER QUALITY FIELD-LAB FORM (DM1)

3

SAMPLE TYPE

- [ ] AMBIENT
- [ ] CORE
- [ ] COMPLIANCE
- [x] INTENSIVE S.
- [ ] SPLIT
- [ ] EMERGENCY

STATION LOCATION: Southern [illegible]

REMARKS: [illegible]

LAB NUMBER 00008: [illegible]

DATE RECIEVED: [illegible]

RECIEVED BY: [illegible]

DATA ENTRY BY: CK:

DATE REPORTED: [illegible]

Station Number	Date Begin (yy/mm/dd)	Time Begin	Date End	Time End	Depth DM DB DBM	Value Type A H L	Sample Type C G GNXX	Composite T S B
SAMPLE 3		1010						

1	BOD5 310	mg/l	Chloride 940	mg/l	NH3 as N 610	mg/l	Mo – Molybdenum 1062	ug/l
2	COD-High 340	mg/l	Arsenic: Inorganic 997	ug/l	TKN as N 625	mg/l	Na – Sodium 929	mg/l
3	COD: Low 335	mg/l	Chl a: Trl 32210	ug/l	NO2+NO3 as N 630	mg/l	Ni – Nickel 1067	ug/l
4	Coliform: MF Fecal 31616	/100ml	Chl a: Corr 32211	ug/l	PO4 as P 70507	mg/l	Pb – Lead 1051	ug/l
5	Coliform: MF Total 31504	/100ml	Pheophytin a 32218	ug/l	P: Total as P 665	mg/l	Sb – Antimony 1097	ug/l
6	Coliform: Tube Fecal 31615	/100ml	Color: True 80	Pt-Co	P: Dissolved as P 666	mg/l	Sn – Tin 1102	ug/l
7	Coliform: Tube Total 31505	/100ml	Chromium: Hex. 1032	ug/l	Ag – Silver 1077	ug/l	V – Vanadium 1087	ug/l
8	Residue: Total 500	mg/l	Cyanide 720	mg/l	Al – Aluminum 1105	ug/l	Zn – Zinc 1092	ug/l
9	Volatile 505	mg/l	Fluoride 951	mg/l	Ba – Barium 1007	ug/l	Pesticides (Specify)	
10	Fixed 510	mg/l	Formaldehyde 71880	mg/l	Be – Beryllium 1012	ug/l		
11	Residue: Suspended 530	mg/l	Grease and Oils 556	mg/l	Ca – Calcium 916	mg/l		
12	Volatile 535	mg/l	Hardness: Total 900	mg/l	Cd – Cadmium 1027	ug/l		
13	Fixed 540	mg/l	MBAS 38260	mg/l	Co – Cobalt 1037	ug/l	Organics (Specify)	
14	pH 403	units	Phenols 32730	ug/l	Chromium: Total 1034	ug/l	[illegible]	
15	Acidity to pH 4.5 436	mg/l	Sulfate 945	mg/l	Cu – Copper 1042	ug/l	[illegible]	
16	Acidity to pH 8.3 435	mg/l	Sulfide 745	mg/l	Fe – Iron 1045	ug/l	[illegible]	
17	Alkalinity to pH 8.3 415	mg/l	Specific Cond. 95	uMhos/cm	Hg – Mercury 71900	ug/l		
18	Alkalinity to pH 4.5 410	mg/l	Biomass: Dry Wt. 573	g/M2	Li – Lithium 1132	ug/l		
19	TOC 680	mg/l	Biomass: Peri Ash Free 572	g/M2	Mg – Magnesium 927	mg/l		
20	Turbidity 76	NTU	Chl a: Peri Spectro 32228	mg/M2	Mn – Manganese 1055	ug/l		

A	Sampling Point PT / T 63 / 2	Water Temperature (°C) 10	D.O. 300	pH 400	Conductance at 25°C 94	Alkalinity pH 8.3 82244	Alkalinity pH 4.5 431	Acidity pH 4.5 82243	Acidity pH 8.3 82242
B	Secchi (Meters) 78	Air Temperature (°C) 20	D.O. % Saturation 301	Salinity ‰ 480	Algae: Floating Mats Severity 1325	Precipitation (In/Day) 45	Cloud Cover: % 32	Wind Direction (Deg.) 36	Wind Force Beaufort 37
C	1 Hr. Settleable Matter (ml/l/Hr.) 50086	Dead Fish Severity 1340	Turbidity Severity 1350	Odor: Atmosphere Severity 1330	Stream Flow Severity 1351	Detergent Suds Severity 1305	Oil-Grease Severity 1300	Floating Debris Severity 1345	Sludge Severity 1315

DM1/Revised 1/81 LA

by PTD

rvisor R.E.K

ORGANIC ANALYSIS

Entered by [illegible]

Checked by _____

No.	WATER Analytical Results
501	The following cpds were identified by matching to library mass spectra. They were not matched to standards:
	Phenol
	methyl phenol
	Benzoic acid
	Hydroxy-methoxy-Benzaldehyde
	Benzene propanoic acid
	Dichloro phenol
	Pentachlorophenol
	Fluoranthene
	Pyrene
	2 unidentified peaks detected by GC/MS
	No volatiles detected by GC/MS

✓ GC/MS/DS used

N.C. DEPT. OF NATURAL RESOURCES & COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

WATER QUALITY FIELD-LAB FORM (DM1)

4

COUNTY: Chatham

RIVER BASIN: Cape Fear

REPORT TO: (Circle One)

ARO, FRO, MRO, (RRO) WaRO WIRO, WSRO, BM, TS,

OTHER:

COLLECTOR(S): Foard & Gadwa

BOD RANGE SEED:

CHLORINATED

LAB NUMBER 00008: 1502

DATE RECIEVED: 82 03 26

RECIEVED BY: H. Little

DATA ENTRY BY: CK:

DATE REPORTED: 1-25-82

SAMPLE TYPE

- [ ] AMBIENT
- [ ] CORE
- [ ] COMPLIANCE
- [x] INTENSIVE S.
- [ ] SPLIT
- [ ] EMERGENCY

STATION LOCATION: Drainage Ditch

REMARKS: Southern Wood Treating Landfill

Station Number	Date Begin (yy/mm/dd)	Time Begin	Date End	Time End	Depth DM DB DBM	Value Type A H L	Sample Type C G GNXX	Composite T S B
Sample 4	82 03 26	11:30						

1	BOD5 310	mg/l	Chloride 940	mg/l	NH3 as N 610	mg/l	Mo – Molybdenum 1062	ug
2	COD: High 340	mg/l	✓ Arsenic: Inorganic 1002	10 ug/l	TKN as N 625	mg/l	Na – Sodium 929	mg/l
3	COD: Low 335	mg/l	Chl a: Tri 32217	ug/l	NO2+NO3 as N 630	mg/l	✓ Ni – Nickel 1067	<100 ug/l
4	Coliform: MF Fecal 31616	/100ml	Chl a: Corr 32209	ug/l	PO4 as P 70507	mg/l	✓ Pb – Lead 1051	100 ug/l
5	Coliform: MF Total 31504	/100ml	Pheophytin a 32213	ug/l	P: Total as P 665	mg/l	Sb – Antimony 1097	ug/l
6	Coliform: Tube Fecal 31615	/100ml	Color: True 80	Pt-Co	P: Dissolved as P 666	mg/l	Sn – Tin 1102	ug/l
7	Coliform: Tube Total 31505	/100ml	Chromium: Hex. 1032	ug/l	Ag – Silver 1077	ug/l	V – Vanadium 1087	ug/l
8	Residue: Total 500	mg/l	Cyanide 720	mg/l	Al – Aluminum 1105	ug/l	✓ Zn – Zinc 1092	50 ug/l
9	Volatile 505	mg/l	Fluoride 951	mg/l	Ba – Barium 1007	ug/l	Pesticides (Specify)	
10	Fixed 510	mg/l	Formaldehyde 71880	mg/l	Be – Beryllium 1012	ug/l		
11	Residue: Suspended 530	mg/l	Grease and Oils 556	mg/l	Ca – Calcium 916	mg/l		
12	Volatile 535	mg/l	Hardness: Total 900	mg/l	✓ Cd – Cadmium 1027	<50 ug/l		
13	Fixed 540	mg/l	MBAS 38260	mg/l	✓ Co – Cobalt 1037	<100 ug/l	✓ Organics (Specify)	Scan
14	pH 403	units	Phenols 32730	ug/l	✓ Chromium: Total 1034	<50 ug/l		Phenols
15	Acidity to pH 4.5 436	mg/l	Sulfate 945	mg/l	✓ Cu – Copper 1042	40 ug/l		~~[illegible]~~
16	Acidity to pH 8.3 435	mg/l	Sulfide 745	mg/l	✓ Fe – Iron 1045	14000 ug/l		Volatile
17	Alkalinity to pH 8.3 415	mg/l	Specific Cond. 95	uMhos/cm	✓ ~~Hg – Mercury 71900~~	Omit ug/l		Cresols
18	Alkalinity to pH 4.5 410	mg/l	Biomass: Dry Wt. 573	g/M²	Li – Lithium 1132	ug/l		
19	TOC 680	mg/l	Biomass. Peri Ash Free 572	g/M²	✓ Mg – Magnesium 927	2.1 mg/l		
20	Turbidity 76	NTU	Chl a: Peri Fluro 82547	mg/M²	✓ Mn – Manganese 1055	1600 ug/l		

A	Sampling Point PT / %	Water Temperature (°C)	D.O.	pH	Conductance at 25°C	Alkalinity pH 8.3	Alkalinity pH 4.5	Acidity pH 4.5	Acidity pH 8.3
	63 / 7	10	300	400	94	82244	431	82243	82242
B	Secchi (Meters)	Air Temperature (°C)	D.O. % Saturation	Salinity ‰	Algae: Floating Mats Severity	Precipitation (In/Day)	Cloud Cover: %	Wind Direction (Deg.)	Wind Force Beaufort
	78	20	301	480	1325	45	32	36	37
C	1 Hr. Settleable Matter (ml/l/Hr)	Dead Fish Severity	Turbidity Severity	Odor: Atmosphere Severity	Stream Flow Severity	Detergent Suds Severity	Oil-Grease Severity	Floating Debris Severity	Sludge Severity
	50086	1340	1350	1330	1351	1305	1300	1345	1315

-y FTD

rvisor REK

ORGANIC ANALYSIS

Entered by Pam

Checked by_____

b No.	Water Analytical Results
1502	The following compounds were identified by matching to library mass spectra - They were not matched to standards
	Napthalene
	Methyl napthalene
	dimethyl napthalene + undecane
	dihydro acenapthylene
	dibenzofuran
	Trimethyl napthalene
	octadecane
	fluorene
	phenanthrene
	methyl phenanthrene
	fluoranthene
	pyrene
	benzofluorene
	Chrysene
	benz \A\ anthracene
	tetra chloro phenol
	pentachloro phenol
	4H - Cyclopenta \DEF\ Phenanthrene
	Napthalene carboxylic acid
	Acetic Acid ethyl ester
	Methyl pentane
	Dimethyl Butane
	Methyl Benzene (Toluene)
	Trimethyl Bicyclo Heptene
	Dihydro Indene

_____ GC/MS/DS used

RIVER BASIN: [illegible]

REPORT TO: (Circle One)

ARO, FRO, MRO, RRO, WaRO WIRO, WSRO, BM, TS,

OTHER:

COLLECTOR(S): [illegible]

BOD RANGE: SEED:

CHLORINATED

DIVISION OF ENVIRONMENTAL MANAGEMENT
WATER QUALITY FIELD-LAB FORM (DM1)

SAMPLE TYPE

- [ ] AMBIENT
- [ ] CORE
- [ ] COMPLIANCE
- [x] INTENSIVE S.
- [ ] SPLIT
- [ ] EMERGENCY

DATE RECIEVED: [illegible]

RECIEVED BY: [illegible]

DATA ENTRY BY: CK:

DATE REPORTED:

STATION LOCATION: [illegible]

REMARKS: [illegible]

	Station Number	Date Begin (yy/mm/dd)	Time Begin	Date End	Time End	Depth DM DB DBM	Value Type A H L	Sample Type C G GNXX	Composite T S B
	[illegible]	[illegible]	1145						

1	BOD5 310	mg/l		Chloride 940	mg/l		NH3 as N 610	mg/l		Mo – Molybdenum 1062	ug/l
2	COD High 340	mg/l		Arsenic Inorganic 997	<10 ug/l		TKN as N 625	mg/l		Na – Sodium 929	mg/l
3	COD Low 335	mg/l		Chl a: Tri 32210	ug/l		NO2+NO3 as N 630	mg/l		Ni – Nickel 1067	<100 ug/l
4	Coliform: MF Fecal 31616	/100ml		Chl a: Corr 32211	ug/l		PO4 as P 70507	mg/l		Pb – Lead 1051	100 ug/l
5	Coliform: MF Total 31504	/100ml		Pheophytin a 32218	ug/l		P: Total as P 665	mg/l		Sb – Antimony 1097	ug/l
6	Coliform: Tube Fecal 31615	/100ml		Color: True 80	Pt-Co		P: Dissolved as P 666	mg/l		Sn – Tin 1102	ug/l
7	Coliform: Tube Total 31505	/100ml		Chromium: Hex. 1032	ug/l		Ag – Silver 1077	ug/l		V – Vanadium 1087	ug/l
8	Residue: Total 500	mg/l		Cyanide 720	mg/l		Al – Aluminum 1105	ug/l		Zn – Zinc 1092	ug/l
9	Volatile 505	mg/l		Fluoride 951	mg/l		Ba – Barium 1007	ug/l		Pesticides (Specify)	
10	Fixed 510	mg/l		Formaldehyde 71880	mg/l		Be – Beryllium 1012	ug/l			
11	Residue: Suspended 530	mg/l		Grease and Oils 556	mg/l		Ca – Calcium 916	mg/l			
12	Volatile 535	mg/l		Hardness: Total 900	mg/l		Cd – Cadmium 1027	<50 ug/l			
13	Fixed 540	mg/l		MBAS 38260	mg/l		Co – Cobalt 1037	<100 ug/l		Organics (Specify)	
14	pH 403	units		Phenols 32730	ug/l		Chromium: Total 1034	<50 ug/l			
15	Acidity to pH 4.5 436	mg/l		Sulfate 945	mg/l		Cu – Copper 1042	<40 ug/l			
16	Acidity to pH 8.3 435	mg/l		Sulfide 745	mg/l		Fe – Iron 1045	18000 ug/l			
17	Alkalinity to pH 8.3 415	mg/l		Specific Cond. 95	uMhos/cm²		Hg – Mercury 71900	ug/l			
	Alkalinity to pH 4.5 410	mg/l		Biomass: Dry Wt. 573	g/M²		Li – Lithium 1132	ug/l			
	TOC 680	mg/l		Biomass: Peri Ash Free 577	g/M²		Mg – Magnesium 927	[illegible] mg/l			
	Turbidity 76	NTU		Chl a: Peri Spectro 32228	mg/M²		Mn – Manganese 1055	[illegible] ug/l			

Sampling Point	Water Temperature (°C)	D.O.	pH	Conductance at 25°C	Alkalinity pH 8.3	Alkalinity pH 4.5	Acidity pH 4.5	Acidity pH 8.3
PT 63 / % 2	10	300	400	94	82244	431	82243	82242
Secchi (Meters)	**Air Temperature (°C)**	**D.O. % Saturation**	**Salinity %**	**Algae; Floating Mats Severity**	**Precipitation (In/Day)**	**Cloud Cover: %**	**Wind Direction (Deg.)**	**Wind Force Beaufort**
78	20	301	480	1325	45	32	36	37
1 Hr. Settleable Matter (ml/l/Hr)	**Dead Fish Severity**	**Turbidity Severity**	**Odor, Atmosphere Severity**	**Stream Flow Severity**	**Detergent Suds Severity**	**Oil-Grease Severity**	**Floating Debris Severity**	**Sludge Severity**
50086	1340	1350	1330	1351	1305	1300	1345	1315

DM1/Revised 1/81 LA

Supervisor R.K.

Entered by

Checked by

Lab No.	Water Analytical Results
1503	The following compounds were identified by matching to library mass spectra. They were not matched to stds
	trichlorophenol pentachlorophenol anthracene
	3 unidentified peaks detected by GC/MS
1504	The following compound was identified by matching to library mass spectra. It was not matched to stds
	Trichloro, Trifluoro, ethane
	one unidentified peak detected by GC/MS.
	Sediment
1505	The following compounds were identified by matching to library mass spectra. They were not matched to standards
	Phenanthrene Fluoranthene Pyrene Benz [A] anthracene Chrysene Benzo [K] Fluoranthene Pentachlorophenol

✓ GC/MS/DS used

N.C. DEPT. OF NATURAL RESOURCES & COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

WATER QUALITY FIELD-LAB FORM (DM1)

COUNTY: Chatham

RIVER BASIN: Cape Fear

REPORT TO: (Circle One)

ARO, FRO MRO, RRO, WaRO WiRO, WSRO, BM, TS,

OTHER:

COLLECTOR(S): Fowler & Godwin

BOD RANGE: SEED:

CHLORINATED:

SAMPLE TYPE

- [ ] AMBIENT
- [ ] CORE
- [ ] COMPLIANCE
- [x] INTENSIVE S
- [ ] SPLIT
- [ ] EMERGENCY

STATION LOCATION: Little Color Creek

REMARKS: 100 yds upstream of confluence with Little

LAB NUMBER 00008: 1504

DATE RECIEVED: 82.03.26

RECIEVED BY:

DATA ENTRY BY: CK.

DATE REPORTED:

Station Number	Date Begin (yy/mm/dd)	Time Begin	Date End	Time End	Depth DM DB DBM	Value Type A H L	Sample Type C G GNXX	Composite T S
Sample Site	82 03 26	12:45						

1	BOD5 310	mg/l	Chloride 940	mg/l	NH3 as N 610	mg/l	Mo – Molybdenum 1062				
2	COD: High 340	mg/l	Arsenic: Inorganic ~~1002~~	<10 ug/l	TKN as N 625	mg/l	Na – Sodium 929				mg/l
3	COD: Low 335	mg/l	Chl a: Tri 32217	ug/l	NO2+NO3 as N 630	mg/l	Ni – Nickel 1067	<100			ug/l
4	Coliform: MF Fecal 31616	/100ml	Chl a: Corr 32209	ug/l	PO4 as P 70507	mg/l	Pb – Lead 1051	10.0			ug/l
5	Coliform: MF Total 31504	/100ml	Pheophytin a 32213	ug/l	P: Total as P 665	mg/l	Sb – Antimony 1097				ug/l
6	Coliform: Tube Fecal 31615	/100ml	Color: True 80	Pt-Co	P: Dissolved as P 666	mg/l	Sn – Tin 1102				ug/l
7	Coliform Tube Total 31505	/100ml	Chromium: Hex. 1032	ug/l	Ag – Silver 1077	ug/l	V – Vanadium 1087				ug/l
8	Residue: Total 500	mg/l	Cyanide 720	mg/l	Al – Aluminum 1105	ug/l	Zn – Zinc 1092	<50			ug/l
9	Volatile 505	mg/l	Fluoride 951	mg/l	Ba – Barium 1007	ug/l	Pesticides (Specify)				
10	Fixed 510	mg/l	Formaldehyde 71880	0.1	Be – Beryllium 1012	ug/l					
11	Residue: Suspended 530	mg/l	Grease and Oils 556	mg/l	Ca – Calcium 916	mg/l					
12	Volatile 535	mg/l	Hardness: Total 900	mg/l	Cd – Cadmium 1027	<50					
13	Fixed 540	mg/l	MBAS 38260	mg/l	Co – Cobalt 1037	<100	Organics (Specify)				
14	pH 403	units	Phenols 32730	ug/l	Chromium: Total 1034	<50	[illegible]				
15	Acidity to pH 4.5 436	mg/l	Sulfate 945	mg/l	Cu – Copper 1042	<40	[illegible]				
16	Acidity to pH 8.3 435	mg/l	Sulfide 745	mg/l	Fe – Iron 1045	700	[illegible]				
17	Alkalinity to pH 8.3 415	mg/l	Specific Cond. 95	uMhos/cm	Hg – Mercury 71900	<.2	Creosote				
18	Alkalinity to pH 4.5 410	mg/l	Biomass: Dry Wt. 573	g/M²	Li – Lithium 1132	ug/l					
19	TOC 680	mg/l	Biomass: Peri Ash Free 572	g/M²	Mg – Magnesium 927	5.6					
20	Turbidity 76	NTU	Chl a: Peri Fluro 82547	mg/M²	Mn – Manganese 1055	900					

A	Sampling Point, PT 63	Water Temperature (°C) 10	D.O. 300	pH 400	Conductance at 25°C 94	Alkalinity pH 8.3 82244	Alkalinity pH 4.5 431	Acidity pH 4.5 82243	Acidity pH 8.3 82242
B	Secchi (Meters) 78	Air Temperature (°C) 20	D.O. % Saturation 301	Salinity ‰ 480	Algae: Floating Mats Severity 1325	Precipitation (In/Day) 45	Cloud Cover: % 32	Wind Direction (Deg.) 36	Wind Force Beaufort 37
C	1 Hr. Settleable Matter (ml/l/Hr) 50086	Dead Fish Severity 1340	Turbidity Severity 1350	Odor: Atmosphere Severity 1330	Stream Flow Severity 1351	Detergent Suds Severity 1305	Oil-Grease Severity 1300	Floating Debris Severity 1345	Sludge Severity 1315

DM1/Revised 1/81 LA

000015

Supervisor K.K.

Entered by

Checked by

Lab No.	Water Analytical Results
1503	The following compounds were identified by matching to library mass spectra. They were not matched to stds
	trichlorophenol pentachlorophenol anthracene
	3 unidentified peaks detected by GC/MS
1504	The following compound was identified by matching to library mass spectra. It was not matched to stds
	Trichloro, Trifluoro, ethane
	one unidentified peak detected by GC/MS.
	Sediment
1505	The following compounds were identified by matching to library mass spectra. They were not matched to standards
	Phenanthrene Fluoranthene Pyrene Benz [A] anthracene Chrysene Benzo [K] Fluoranthene Pentachlorophenol

✓ GC/MS/DS used

000016

N.C. DEPT. OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

FIELD/LAB FORM

SEDIMENT/TISSUE

7

BASIN: Cape Fear

REPORT TO: (Circle One)

ARO, WSRO, MRO, FRO, WaRO, WIRO, RRO, FS, BM,

AM, OTHER:

COLLECTOR: Lais Gokwin + J Edwards

☑ SEDIMENT ☐ TISSUE

☐ AMBIENT ☐ COMPLIANCE ☑ INTENSIVE S.

☐ CORE ☐ SPLIT ☐ EMERGENCY

LAB NUMBER: 1905

DATE RECIEVED: 11 3 2103 28

RECIEVED BY: [illegible]

DATA ENTRY BY: CK:

DATE REPORTED:

STATION LOCATION:

REMARKS:

Station Number	Date Begin	Time Begin	Date End	Time End	Depth DM DB DMB	Value Type	T, S, or B	Sample Type
SAMPLE	3 MAR 88	1215				A H L		C G GNXX

	Tissue	Units	Sediment	Units	Tissue	Units	Sediment	Units	Tissue	Units	Sediment	Units
1	01004 As	mg/Kg	01003 As 3.2	mg/Kg			00611 NH3	mg/Kg	39482 Methoxychlr	ug/Kg	39481 Methoxychlr	ug/Kg
2	81666 Al	mg/Kg	01106 Al. 130	mg/Kg			00627 TKN as N	mg/Kg	34688 Hxchlbenzene	mg/Kg	39701 Hxchlbenzene	ug/Kg
3	71940 Cd	mg/Kg	01028 Cd <.50	mg/Kg			00633 NO2 & NO3	mg/Kg	39060 PCP	ug/g	39061 PCP	ug/Kg
4	71939 Cr,tot.	mg/Kg	01029 Cr,tot. 47	mg/Kg			00668 P,tot as P	mg/Kg	39074 alpha-BHC	ug/g	39076 alpha-BHC	ug/Kg
5	71937 Cu	mg/Kg	01043 Cu 4.5	mg/Kg			70511 PO4 as P	mg/Kg	39075 gamma-BHC	ug/g	3981 gamma-BHC	ug/Kg
6	81660 Fe	mg/Kg	01170 Fe 33,000	mg/Kg	34680 Aldrin	mg/Kg	39333 Aldrin	mg/Kg	34685 Endrin	mg/Kg	39393 Endrin	ug/Kg
7	71930 Hg	mg/Kg	71921 Hg .04	mg/Kg	34684 Dieldrin	mg/Kg	39383 Dieldrin	mg/Kg	39515 PCB	mg/Kg	39519 PCB	ug/Kg
8	81656 Mg	mg/Kg	00924 Mg 6,800	mg/Kg	39325 o,p DDD	ug/g	39316 o,p DDD	ug/Kg	Others:		Others:	
9	01069 Ni	mg/Kg	01066 Ni 78	mg/Kg	39312 p,p DDD	ug/g	39311 p,p DDD	ug/Kg	[illegible]			
10	71936 Pb	mg/Kg	01052 Pb 16	mg/Kg	39329 o,p DDE	ug/g	39328 o,p DDE	ug/Kg	[illegible]			
11	71938 Zn	mg/Kg	01093 Zn 48	mg/Kg	39322 p,p DDE	ug/g	39321 p,p DDE	ug/Kg				
12	Other Metals:	mg/Kg	Other Metals:	mg/Kg	39290 Total DDT	ug/g	39373 Total DDT	ug/Kg				
13		mg/Kg		mg/Kg	39318 o,p DDT	ug/g	39306 o,p DDT	ug/Kg				
14		mg/Kg		mg/Kg	39302 p,p DDT	ug/g	39301 p,p DDT	ug/Kg				
15		mg/Kg		mg/Kg	39063 cis-Chlrdane	ug/g	39064 cis-Chlrdane	ug/Kg				
16		mg/Kg		mg/Kg	39066 trans-Chlrdane	ug/g	39067 trans-Chlrdane	ug/Kg				
17		mg/Kg		mg/Kg	39069 cis-N'chlor	ug/g	39070 cis-N'chlor	ug/Kg				
18		mg/Kg		mg/Kg	39072 trans-N'chlor	ug/g	39073 trans-N'chlor	ug/Kg				
19		mg/Kg		mg/Kg								

	Sampling Point	Temperature °C	Dissolved Oxygen	pH Units	Conductivity	Salinity ‰	Turbidity FTU	Stream Color	Secchi (M)
A	Pt 63 / % 2	10	300	400	95	70305	76		78
	R P	Stream Stage ft.	Flow MGD	Floating Debris Sever.	Sludge Severity	Detergent Suds Sever.	Atmos. Odor Severity	Cloud Cover %	Wind Dir. from North
B	647	65	50051	1345	1315	1305	1330	32	36

000017

Supervisor R.E.K

Entered by

Checked by

Lab No.	Water Analytical Results
1503	The following compounds were identified by matching to library mass spectra. They were not matched to stds
	trichlorophenol
	pentachlorophenol
	anthracene
	3 unidentified peaks detected by GC/MS
1504	The following compound was identified by matching to library mass spectra. It was not matched to stds
	Trichloro, Trifluoro, ethane
	one unidentified peak detected by GC/MS.
1505	Sediment The following compounds were identified by matching to library mass spectra. They were not matched to standards
	Phenanthrene
	Fluoranthene
	Pyrene
	Benz (A) anthracene
	Chrysene
	Benzo (K) Fluoranthene
	Pentachlorophenol

✓ GC/MS/DS used

N.C. DEPT. OF NATURAL RESOURCES & COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

WATER QUALITY FIELD-LAB FORM (DM1)

7

COUNTY:

RIVER BASIN:

REPORT TO: (Circle One)

ARO, FRO, MRO, RRO, WaRO WIRO, WSRO, BM, TS,

OTHER:

COLLECTOR(S):

BOD RANGE: SEED:

CHLORINATED:

SAMPLE TYPE

☐ AMBIENT ☐ CORE ☐ COMPLIANCE

☑ INTENSIVE S. ☐ SPLIT ☐ EMERGENCY

STATION LOCATION:

REMARKS:

LAB NUMBER 00008: 1506

DATE RECIEVED:

RECIEVED BY:

DATA ENTRY BY: CK:

DATE REPORTED:

	Station Number	Date Begin (yy/mm/dd)	Time Begin	Date End	Time End	Depth DM DB DBM	Value Type A H L	Sample Type C G GNXX	Composite T
			1215						

1	BOD5 310	mg/l		Chloride 940	mg/l		NH3 as N 610	mg/l		Mo – Molybdenum 1062	ug/l
2	COD-High 340	mg/l	✓	Arsenic: Inorganic 997	<10 ug/l		TKN as N 625	mg/l		Na – Sodium 929	mg/l
3	COD: Low 335	mg/l		Chl a: Tri 32210	ug/l		NO2+NO3 as N 630	mg/l		Ni – Nickel 1067	<100 ug/l
4	Coliform: MF Fecal 31616	/100ml		Chl a: Corr 32211	ug/l		PO4 as P 70507	mg/l		Pb – Lead 1051	100 ug/l
5	Coliform: MF Total 31504	/100ml		Pheophytin a 32218	ug/l		P: Total as P 665	mg/l		Sb – Antimony 1097	ug/l
6	Coliform: Tube Fecal 31615	/100ml		Color: True 80	Pt–Co		P: Dissolved as P 666	mg/l		Sn – Tin 1102	ug/l
7	Coliform: Tube Total 31505	/100ml		Chromium: Hex. 1032	ug/l		Ag – Silver 1077	ug/l		V – Vanadium 1087	ug/l
8	Residue: Total 500	mg/l		Cyanide 720	mg/l		Al – Aluminum 1105	ug/l		Zn – Zinc 1092	<50 ug/l
9	Volatile 505	mg/l		Fluoride 951	mg/l		Ba – Barium 1007	ug/l		Pesticides (Specify)	
10	Fixed 510	mg/l		Formaldehyde 71880	<0.1 mg/l		Be – Beryllium 1012	ug/l			
11	Residue: Suspended 530	mg/l		Grease and Oils 556	mg/l		Ca – Calcium 916	mg/l			
12	Volatile 535	mg/l		Hardness: Total 900	mg/l		Cd – Cadmium 1027	<50 ug/l			
13	Fixed 540	mg/l		MBAS 38260	mg/l		Co – Cobalt 1037	<100 ug/l	✓	Organics (Specify)	
14	pH 403	units		Phenols 32730	ug/l		Chromium: Total 1034	<50 ug/l		[illegible]	
15	Acidity to pH 4.5 436	mg/l		Sulfate 945	mg/l		Cu – Copper 1042	<40 ug/l		Creosote	
16	Acidity to pH 8.3 435	mg/l		Sulfide 745	mg/l		Fe – Iron 1045	6000 ug/l			
17	Alkalinity to pH 8.3 415	mg/l		Specific Cond. 95	uMhos/cm²		Hg – Mercury 71900	0.4 ug/l			
18	Alkalinity to pH 4.5 410	mg/l		Biomass: Dry Wt. 573	g/M²		Li – Lithium 1132	ug/l			
19	TOC 680	mg/l		Biomass: Peri Ash Free 572	g/M²		Mg – Magnesium 927	66 mg/l			
20	Turbidity 76	NTU		Chl a: Peri Spectro 32228	mg/M²		Mn – Manganese 1055	700 ug/l			

A	Sampling Point PT % 63 2	Water Temperature (°C) 10	D.O. 300	pH 400	Conductance at 25°C 94	Alkalinity pH 8.3 82244	Alkalinity pH 4.5 431	Acidity pH 4.5 82243	Acidity pH 8.3 82242
B	Secchi (Meters) 78	Air Temperature (°C) 20	D.O. % Saturation 301	Salinity ‰ 480	Algae; Floating Mats Severity 1325	Precipitation (In/Day) 45	Cloud Cover: % 32	Wind Direction (Deg.) 36	Wind Force Beaufort 37
C	1 Hr. Settleable Matter (ml/l/Hr) 50086	Dead Fish Severity 1340	Turbidity Severity 1350	Odor: Atmosphere Severity 1330	Stream Flow Severity 1351	Detergent Suds Severity 1305	Oil-Grease Severity 1300	Floating Debris Severity 1345	Sludge Severity 1315

DM1/Revised 1/81 LA

000019

ed by PTD

upervisor RSK

ORGANIC ANALYSIS

Entered by [illegible]

Checked by _____

Lab No.	Water Analytical Results
1506	The following compounds were identified by matching to library mass spectra. They were not matched to standards.
	Fluoranthene HW + PTP PAHs not exceeding .2 ug/l
	Pyrene
	Chrysene
	Hydroxy, methyl, Pentanone
	Tetra Chlorophenol
	Penta Chloro, phenol
	three unidentified peaks detected by GC/MS
1507	[redacted]
	No Acid or Base Neutral organics detected by GC/FID

✓ GC/MS/DS used

N.C. DEPT. OF NATURAL RESOURCES & COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

WATER QUALITY FIELD-LAB FORM (DM1)

8

COUNTY: [illegible]

RIVER BASIN: [illegible]

REPORT TO: (Circle One)

ARO, FRO, MRO, (RRO) WaRO WiRO, WSRO, BM, TS

OTHER:

COLLECTOR(S): [illegible]

BOD RANGE: SEED:

CHLORINATED

LAB NUMBER 00008: [illegible]

DATE RECIEVED: 82 03 [illegible]

RECIEVED BY: [illegible]

DATA ENTRY BY: CK

DATE REPORTED:

SAMPLE TYPE

- [ ] AMBIENT
- [ ] CORE
- [ ] COMPLIANCE
- [x] INTENSIVE S
- [ ] SPLIT
- [ ] EMERGENCY

STATION LOCATION: [illegible]

REMARKS: [illegible]

Station Number	Date Begin (yy/mm/dd)	Time Begin	Date End	Time End	Depth DM DB DBM	Value Type A H L	Sample Type C G GNXX	Composite T S
[illegible] C	82/03/20	12:30	/ /					

1	BOD5 310	mg/l		Chloride 940	mg/l		NH3 as N 610	mg/l		Mo – Molybdenum 1062	/l
2	COD High 340	mg/l	✓	Arsenic: Inorganic 1002	<10 ug/l		TKN as N 625	mg/l		Na – Sodium 929	mg/l
3	COD Low 335	mg/l		Chl a: Tri 32217	ug/l		NO2+NO3 as N 630	mg/l	✓	Ni – Nickel 1067 <100	ug/l
4	Coliform: MF Fecal 31616	/100ml		Chl a: Corr 32209	ug/l		PO4 as P 70507	mg/l	✓	Pb – Lead 1051 <100	ug/l
5	Coliform: MF Total 31504	/100ml		Pheophytin a 32213	ug/l		P: Total as P 665	mg/l		Sb – Antimony 1097	ug/l
6	Coliform, Tube Fecal 31615	/100ml		Color: True 80	Pt–Co		P: Dissolved as P 666	mg/l		Sn – Tin 1102	ug/l
7	Coliform: Tube Total 31505	/100ml		Chromium: Hex. 1032	ug/l		Ag – Silver 1077	ug/l		V – Vanadium 1087	ug/l
8	Residue: Total 500	mg/l		Cyanide 720	mg/l		Al – Aluminum 1105	ug/l	✓	Zn – Zinc 1092 <50	ug/l
9	Volatile 505	mg/l		Fluoride 951	mg/l		Ba – Barium 1007	ug/l		Pesticides (Specify)	
10	Fixed 510	mg/l	X	Formaldehyde 71880 <1	mg/l		Be – Beryllium 1012	ug/l			
11	Residue: Suspended 530	mg/l		Grease and Oils 556	mg/l		Ca – Calcium 916	mg/l			
12	Volatile 535	mg/l		Hardness: Total 900	mg/l	✓	Cd – Cadmium 1027 <50	ug/l			
13	Fixed 540	mg/l		MBAS 38260	mg/l	✓	Co – Cobalt 1037 <100	ug/l	✓	Organics (Specify) Sea-	
14	pH 403	units		Phenols 32730	ug/l	✓	Chromium: Total 1034 <50	ug/l		[redacted]	
15	Acidity to pH 4.5 436	mg/l		Sulfate 945	mg/l	✓	Cu – Copper 1042 <40	ug/l		Pb [illegible]	
16	Acidity to pH 8.3 435	mg/l		Sulfide 745	mg/l	✓	Fe – Iron 1045 800	ug/l		Fu[illegible]	
17	Alkalinity to pH 8.3 415	mg/l		Specific Cond. 95	uMhos/cm	✓	Hg – Mercury 71900 <0.2	ug/l		Creosote	
18	Alkalinity to pH 4.5 410	mg/l		Biomass: Dry Wt. 573	g/M²		Li – Lithium 1132	ug/l		[illegible]	
19	TOC 680	mg/l		Biomass: Peri Ash Free 572	g/M²	✓	Mg – Magnesium 927 4.9	mg/l		[illegible]	
20	Turbidity 76	NTU		Chl a: Peri Fluro 82547	mg/M²	✓	Mn – Manganese 1055 90	ug/l	✓	[illegible] FLD	

A	Sampling Point PT / T 63 / 2	Water Temperature (°C) 10	D.O. 300	pH 400	Conductance at 25°C 94	Alkalinity pH 8.3 82244	Alkalinity pH 4.5 431	Acidity pH 4.5 82243	Acidity pH 8.3 82242
B	Secchi (Meters) 78	Air Temperature (°C) 20	D.O. % Saturation 301	Salinity ‰ 480	Algae: Floating Mats Severity 1325	Precipitation (In/Day) 45	Cloud Cover: % 32	Wind Direction (Deg.) 36	Wind Force Beaufort 37
C	1 Hr. Settleable Matter (ml/l/Hr) 50086	Dead Fish Severity 1340	Turbidity Severity 1350	Odor: Atmosphere Severity 1330	Stream Flow Severity 1351	Detergent Suds Severity 1305	Oil-Grease Severity 1300	Floating Debris Severity 1345	Sludge Severity 1315

DM1/Revised 1/81LA

000021

ed by PTD

pervisor RSK

ORGANIC ANALYSIS

Entered by [illegible]

Checked by _____

Lab No.	Water Analytical Results
506	The following compounds were identified by matching to library mass spectra. They were not matched to standards.
	Fluoranthene HW + PTP PAHs not exceeding 2ug/l
	Pyrene
	Chrysene
	Hydroxy, methyl, Pentanone
	Tetrachlorophenol
	Pentachloro, phenol
	three unidentified peaks detected by GC/MS
1507	~~[illegible]~~
	~~[illegible]~~
	No Acid or Base Neutral organics detected by GC/FID

✓ GC/MS/DS used

Submitted by Charles Odom 6/2/88

RECEIVED
OCT 20 1987
RALEIGH REGIONAL OFFICE

Ref. 22

P. O. Box 5447
Spartanburg, S. C. 29304
Phone 803/576-7660

Southern Wood Piedmont Company

THE "NO PROBLEM" SUPPLIER

October 16, 1987

North Carolina Division of Env. Management
Attn: Jay Zimmerman
3800 Barett Drive
Raleigh, N. C. 27611

Dear Mr. Zimmerman:

Attached are the boring logs and maps prepared by Patterson Exploration Services on our Gulf property.

If, after receiving these you have any questions, please call at 803-576-7660.

Sincerely,

M D Pruett

Michael D. Pruett, Manager
Environmental & Capital Projects

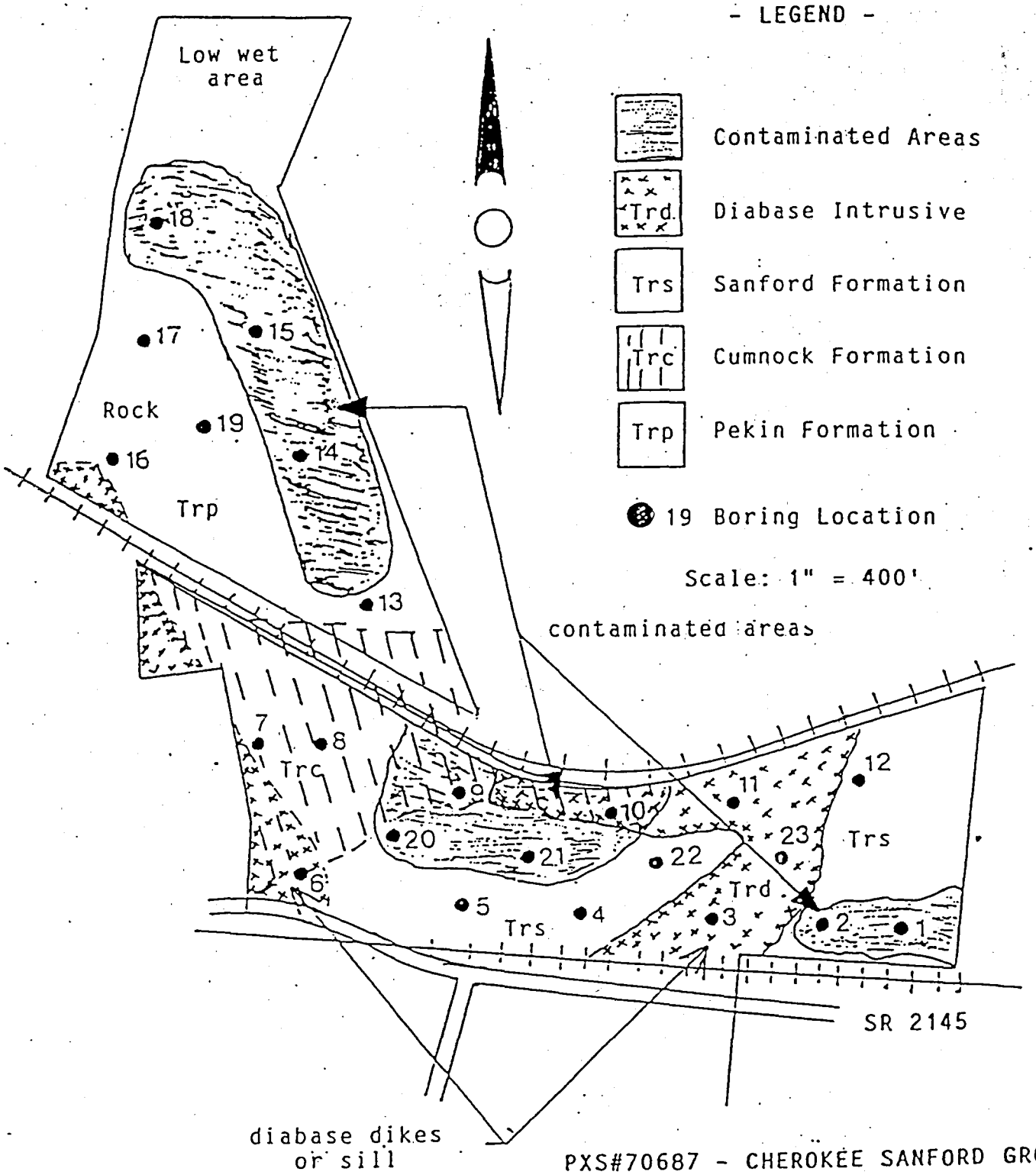
CC: R. H. Watts w/attachments
E. F. Button w/attachments
E. L. Gibbs w/attachments

224bw

6-2-88

Charles Oldham
919-775-5031
2205 Southern Rd.
Sanford, N.C. 27330

Russ Patterson's Report



PXS#70687 - CHEROKEE SANFORD GROUP

Southern Wood Piedmont
Gulf, NC Property
August 1987

PATTERSON
EXPLORATION SERVICES

P. O. BOX 1473 · SANFORD, N. C. 27330 · (919) 776-8111

BORING LOGS - PXS# 70687

Hole # B-1

0 - 1'	Gravel
1 - 6'	Fill - Light creosote odor
6 - 18'	Firm tan sandy siltstone, rotten
18 - 22'	Red "greasy" shale
22 - 24'	Rock - hard siltstone
	Bag 6-24'

#B-2

0 - 6'	0-1 Gravel, 1-6 wood shavings, dark brown silty clay, fill - strong creosote odor
6 - 16'	Red siltstone, firm to hard
16 - 20'	Brown siltstone, sandy - Rock
	Bag 16-20'

#B-3

0 - 1'	Crusher run
1 - 8'	Diabase dike
	NST

#B-4

0 - 1'	Gravel, sandy
1 - 8'	Mottled brown, yellow, orange clay silt Bag 1-8'
8 - 30'	Red rotten siltstone "crunchy", O.K. Fair Bag 8-30'
26-30'	Shale - "Greasy"

#B-5

0 - 1'	Crusher run
1 - 4'	Damp plastic silty clay - yellow orange
4 - 14'	Light reddish brown shale "Greasy" - Good
14 - 21'	Red shale - silty Good - "Greasy"
21 - 24'	Firm "Greasy" silty shale
24 - 30'	Soft to firm purple shale - Wet
	Bag 4-30'

#B-6

0 - 5'	Brown silty clay
6 - 10'	Brown very moist clayey silt
10 - 17'	Brown wet clayey silt
17 - 19'	Diabase rock

#B-7

0 - 3'	Brown clayey silt
3 - 4'	Black silty clay
4 - 5'	Black rotten shale
5 - 6'	Tan silty clay
6 - 11'	Light gray clay
11 - 16'	Brown silt
16 - 29'	Wet gray clayey silt

#B-8

0 - 1"	
1" - 3'	Brown clayey silt
3 - 7'	Brown clay
7 - 9'	Brown clayey silt
9 - 12'	Brown clayey silt
12 - 14'	Siltstone
14 - 26'	Brown clayey silt, wet at 21'
26 - 29'	Black shale

#B-9

0 - 10'	Fill, old pond - strong creosote
10 - 17'	Fill - silts and clays
17 - 26'	Siltstone - red brown strong to moderate creosote odor

#B-10 Edge of ponds

0 - 3'	Dark brown clay , slight "greasy", creosote odor
3 - 14'	Brown silt, creosote (moderate) odor
14 - 17'	Diabase

#B-11

0 - 6"	Gravel
6" - 10'	Brown silt
10 - 12'	Diabase - Refusal

#B-12

0 - 2"	Gravel
2" - 10'	Reddish brown "greasy" clay
10 - 20'	Reddish brown "greasy" clay
20 - 29'	Reddish brown silty slightly greasy clay

#B-13

0 - 8'	Fill - Red silty greasy clay and large rock fragments
8 - 12'	Dark brown silty clay - Moderate creosote odor
12 - 19'	Brown silty (clayey) and siltstone Faint to moderate creosote odor
19'	EOB

#B-14

	No gravel
0 - 6'	Red silty clay, greasy - Creosote odor
6 - 11'	Multicolored silty clays, Fill & creosote
11 - 17½'	Red greasy clay, slight creosote odor

#B-15

0 - 1"	Gravel
1" - 12'	Fill - silts and clays - creosote - strong Water at 10' Strong creosote floating on water
	No sample

#B-16

0 - 5'	Reddish brown silty clay
5 - 6'	Siltstone - refusal
Moved B-19	between ridges
0 - 9'	Reddish brown clayey silt
9'	Rock

#B-17

0 - 5'	Reddish brown silty clay
5 - 5.8'	Siltstone
5.8 - 11'	Reddish brown clay
11 - 15'	Reddish brown clayey silt
15 - 17'	Reddish brown clay, some silt

#B-18

0 - 9'	Fill, silts & clays, strong creosote, Wet at 8.5'

#B-20

0 - 3'	Tan silt
3 - 5'	Tan - brown silty clay
5 - 8'	Tan - brown silt, creosote odor
8 - 16'	Siltstone - tan
16 - 17½'	Light gray silty clay
17½ - 19'	Siltstone - tan

#B-21

0 - 3"	Gravel
3" - 6'	Black silty clay, creosote odor
6 - 11'	Brown clay
11 - 22'	Brown silty clay, water at 21'
22 - 29'	Dark brown clayey silt

#B-22

0 - 6"	Gravel
6" - 9'	Bake zone silt
	8½' - 9' siltstone baked
	No sample

#B-23

0 - 6"	Gravel
6" - 9'	Black-brown silty clay
	Diabase (rotten)
	No sample

Ref. 23

MEMO

TO: Superfund Section Staff

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

Jeanette Stanley 1/11/93

DATE: January 10, 1994

SUBJECT: Update on Status of Well Head Protection Programs in N.C.

I spoke with Carl Bailey, Groundwater Planning Branch Section Chief at (919) 733-3221. I asked him about Well Head Protection Areas (WHPAs) in North Carolina. Mr. Bailey said that Wally Venrick, Public Water Supply Section Chief, would be the most knowledgeable person on this subject.

I called Mr. Venrick at (919) 715-3232. He said that North Carolina has extended an invitation to communities to establish WHPAs, but none have been established. The cost to the community of establishing a WHPA exceeds the savings realized from waivers for certain analytical requirements. He does not anticipate that any WHPAs will be established prior to 1996.

Mr. Venrick said that there are minimum allowable distances between wells and certain structures (e.g. 100 feet between septic tanks and wells), but distances are arbitrary and vary depending on the structure.

Site Name: Southern Wood Piedmont
Site Number: NCD 053 488 557

Site Location: Gulf, N.C.
Chatham County
Latitude: 35 33 37.5
Longitude: 79 16 38.0

Date: July 06, 1992

Calculation Results

Distance from Site Location	Population Per Ring	Population Cumulative	Number of Households Per Ring	Number of Households Cumulative
0 to 1/4 mile	27	27	9	9
>1/4 to 1/2 mile	60	87	24	33
>1/2 to 1 mile	103	190	39	72
>1 to 2 miles	227	417	93	165
>2 to 3 miles	464	881	184	349
>3 to 4 miles	1,052	1,933	399	748

Note: The populations and number of households within specified target distance rings were calculated for the NC Superfund Section by the NC State Center for Geographic Information and Analysis using the 1990 US Census data. These values were calculated by summing the population and the number of households data for each census block located within each target ring. For census blocks lying only partially within the ring, the per cent area of the block within the ring was multiplied by the population and household densities of the block.

October 25, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Conversation with Ms. Laurie Martin, Hazardous Waste Section

On the above date Ms. Laurie Martin, Hazardous Waste Section, Solid Waste Management Division, Department of Environment, Health, and Natural Resources (733-2178) and I discussed the subject site. Ms. Martin had been in the vicinity of the site and had observed that on State Road 2139 the property was posted with warning signs and cordoned off with a cable, but not actually fenced. She also reported having noticed 2 wells that were visible from the road.

U. S. DEPARTMENT OF COMMERCE
Frank C. Honaas, Secretary

WEATHER BUREAU
F. W. Reichelderfer, Chief

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

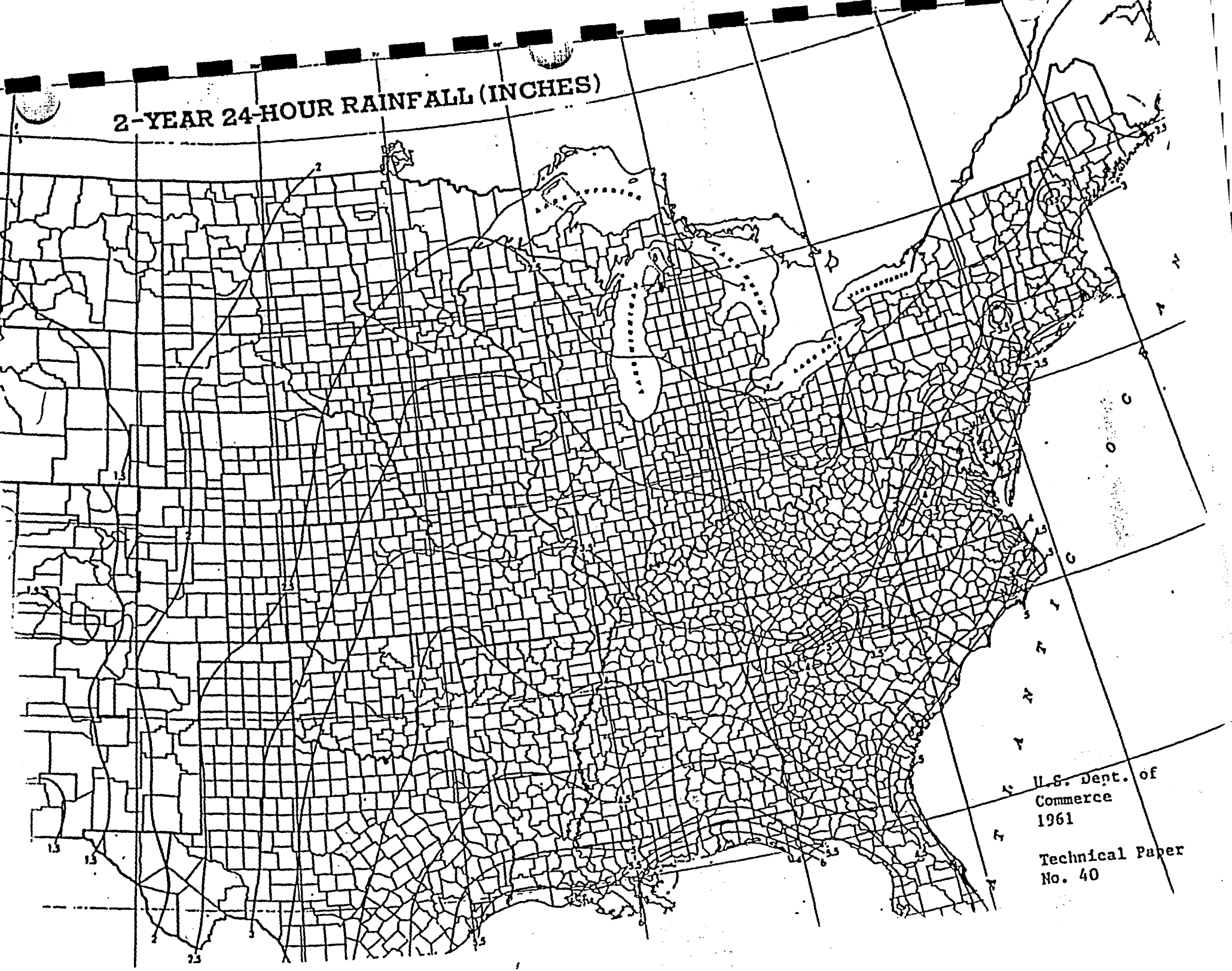
for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

PROPERTY OF EPA
FIT IV

Ref. 26

2-YEAR 24-HOUR RAINFALL (INCHES)



U.S. Dept. of Commerce
1961

Technical Paper No. 40

January 26, 1994

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Day care centers in vicinity of site

Review of the September, 1992, monthly alphabetic listing of facilities from the Division of Facility Services, Child Day Care Section, revealed that the closest day care centers are located in the town of Goldston. Goldston is located between 3 and 4 miles from the site and is served by the Goldston-Gulf municipal water system.

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES Ref. 28
DIVISION OF SOLID WASTE MANAGEMENT

ORIGINAL

4

1990 HAZARDOUS WASTE ANNUAL REPORT
(Generators & On-Site TSD Facilities)

I. FACILITY INFORMATION

Facility Name: Southern Wood Piedmont Co. Facility EPA ID Number: NCD053488557

Location of Facility: State Road 2139
(Street or Route Number)

Gulf	Chatham	NC	27256
(City or Town)	(County)	(State)	(Zip Code)

Facility Contact: William P. Arrants 803-599-1078
(Name) (Area Code) (Phone Number)

List EPA ID Number of each Transporter used during 1990: ALD981023492

II. QUANTITY VERIFICATION

The weights reported for each waste stream were determined from:

- x Actual weight
- ___ Gallons times the weight of water (8.34 lbs per gallon)
- ___ Gallons times the density of the waste
- ___ Other, specify ___

Estimated percentage of error in method used to determine weight: ±3 %

Waste identification was determined from:

- x Knowledge of product/raw materials
- ___ Sampling results
- ___ Other, specify ___

III. CERTIFICATION

I certify a program is in place to reduce the volume and toxicity of hazardous waste generated to the degree to be economically practicable, and the proposed method of treatment, storage or disposal is that practicable method currently available which minimized the present and future threat to human health and the environment.

-AND-

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

[signature]	William P.Arrants	2-22-91
(Signature)	(Print of Type Name)	(Date Signed)

000001

DEHNR 3036/3037 (Revised 1-90)
Hazardous Waste Section
Doc. No. 36-27

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES
DIVISION OF SOLID WASTE MANAGEMENT

000302

1990 HAZARDOUS WASTE ANNUAL REPORT
(Generators & On-Site TSD Facilities)

RECEIVED
FEB 26 1991
HAZARDOUS WASTE SECTION

ORIGINAL

Facility EPA ID Number: NCD053488557

Waste Identification					On-Site Waste Management		Off-Site Waste Management			Waste Minimization	
Line No.	Waste No.	Waste Form Code	Waste Source Code	Quantity Generated On-Site (lbs)	On-Site Handling Code	Quantity Stored** Treated/Recovered or Disposed On-Site (lbs)	Off-Site Handling Code	Quantity Shipped Off-Site (lbs)	Receiving Facility EPA ID Number	Production Index	Activity Code
1	K001	B603	A60	72,963,379	N/A	0	T03	72,963,379	LAD981057706	NA	NA
2											
3											
4											
5											
6											
7											
8											
9											
10											

For additional waste streams complete the "Continuation Sheet"

**As of December 31, 1990

NOTE: Read Instructions before completing form

DEHNR 3036/3037 (Revised 1-90)
Hazardous Waste Section
Doc. No. 36-37

ORIGINAL

P.O. Box 5447
Spartanburg, S.C. 29304
Phone: (803) 599-1070
FAX: (803) 599-1087

Southern Wood Piedmont Company

RECEIVED
FEB 26 1991
HAZARDOUS WASTE SECTION

February 22, 1991

N. C. Hazardous Waste Section
Department of Environment, Health
and Natural Resources
P. O. Box 27687
Raleigh, NC 27611-7687

Dear Sirs:

The 1990 Hazardous Waste Annual Report for Southern Wood Piedmont Company - Gulf (US EPA ID# NCD053488557) is enclosed. Wastes generated were from site remediation activities. No plant operations are on the site.

Please contact me if I can provide any additional information or answer any questions.

Sincerely,

W. P. Arrants
Environmental Compliance &
Safety Manager

3918bw

CC: T. M. Davis
M. D. Pruett

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES
DIVISION OF SOLID WASTE MANAGEMENT

1990 HAZARDOUS WASTE ANNUAL REPORT
(Generators & On-Site TSD Facilities)

COPY

FILE COPY

I. FACILITY INFORMATION

Facility Name: Southern Wood Piedmont Co. Facility EPA ID Number: NCD053488557

Location of Facility: State Road 2139
(Street or Route Number)

Gulf	Chatham	NC	27256
(City or Town)	(County)	(State)	(Zip Code)

Facility Contact: William P. Arrants 803-599-1078
(Name) (Area Code) (Phone Number)

List EPA ID Number of each Transporter used during 1990: ALD981023492

II. QUANTITY VERIFICATION

The weights reported for each waste stream were determined from:

- X Actual weight
- ___ Gallons times the weight of water (8.34 lbs per gallon)
- ___ Gallons times the density of the waste
- ___ Other, specify ___

ENTERED
Date 2-27-91
By
DATA PROCESSING

Estimated percentage of error in method used to determine weight: ±3 %

Waste identification was determined from:

- X Knowledge of product/raw materials
- ___ Sampling results
- ___ Other, specify ___

III. CERTIFICATION

I certify a program is in place to reduce the volume and toxicity of hazardous waste generated to the degree to be economically practicable, and the proposed method of treatment, storage or disposal is that practicable method currently available which minimized the present and future threat to human health and the environment.

-AND-

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(Signature)	William P.Arrants (Print of Type Name)	2-22-91 (Date Signed)

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES
DIVISION OF SOLID WASTE MANAGEMENT

1990 HAZARDOUS WASTE ANNUAL REPORT
(Generators & On-Site TSD Facilities)

RECEIVED
FEB 26 1991
HAZARDOUS WASTE SECTION

Facility EPA ID Number: NCD053488557

2/21/91

Waste Identification					On-Site Waste Management		Off-Site Waste Management			Waste Minimization	
Line No.	Waste No.	Waste Form Code	Waste Source Code	Quantity Generated On-Site (lbs)	On-Site Handling Code	Quantity Stored** Treated/Recovered or Disposed On-Site (lbs)	Off-Site Handling Code	Quantity Shipped Off-Site (lbs)	Receiving Facility EPA ID Number	Production Index	Activity Code
1	K001	B603	A60	72,963,379	~~N/A~~	~~0~~	T03	72,963,379	LAD981057706	NA	NA
2											
3											
4											
5											
6											
7											
8											
9											
10											

ENTERED
DATE: 2-27-91
BY:
DATA PROCESSING

For additional waste streams complete the "Continuation Sheet"

**As of December 31, 1990

NOTE: Read Instructions before completing form

VERIFIED

DEHNR 3036/3037 (Revised 1-90)
Hazardous Waste Section
Doc. No. 36-37

Ref. 29
P. O. Box 5447
Spartanburg, S. C. 29304

Phone 803/576-7660

COPY

Southern Wood Piedmont Company

RECEIVED
APR 7 1988
SUPERFUND BRANCH
SOLID WASTE MANAGEMENT SECTION

April 6, 1988

Mr. Jack Butler
Superfund Unit
Division of Health Services
P. O. Box 2091
Raleigh, NC 27602

Dear Mr. Butler:

As per our phone conversation of 3/30/88, attached please find Southern Wood Piedmont's completed questionaire. I appreciate your understanding and approval of these few days delay in submitting the questionaire. It allowed me to find and question two employees that had worked at the site before closure.

If you need any additional information, please call me at 803-576-7660.

Sincerely,

Edward L. Gibbs
Manager Regulatory Affairs

CC: M. D. Pruett

554bw

N.C. Department of Human Resources
Division of Health Services

For Agency Use Only
SITE # _____

SECTION A

NOTIFICATION OF AN INACTIVE HAZARDOUS SUBSTANCE OR WASTE DISPOSAL SITE

North Carolina General Statutes Section 130A-310 provides for protection of the public from inactive hazardous substance or waste disposal sites. Notification information, required by North Carolina General Statutes Section 130A-310.1(b) must be submitted to:

Superfund Unit
Division of Health Services
P.O. Box 2091
Raleigh, NC 27602-2091

RECEIVED
APR 7 1988
SUPERFUND BRANCH
SOLID WASTE MANAGEMENT SECTION

Please read instructions before completing.

Please type or print in black ink.

A. SITE NAME AND PERSON REQUIRED TO NOTIFY:

1. Site Name Southern Wood Piedmont - Gulf
(One site per form)

2. Person Completing Form:
Name Edward L. Gibbs
Mailing Address P. O. Box 5447
City Spartanburg State S.C. Zip Code 29304
Telephone (803) 576-7660

- Present Owner [ ]
- Past Owner [ ]
- Present Operator [ ]
- Past Operator [ ]
- Other [X] (specify) Environmental Mgr.

3. Present Owner:
Name Southern Wood Piedmont
Mailing Address P. O. Box 5447
City Spartanburg State S.C. Zip Code 29304
Telephone (803) 576-7660

- Corporation [X]
- Partnership [ ]
- Individual [ ]
- Other Responsible Party [ ] (specify) _____

4. Other General Creosoting
Mailing Address _____
City _____ State _____ Zip Code _____
Telephone ( )

- Past Owner [X]
- Present Operator [ ]
- Past Operator [ ]
- Other Responsible Party [ ] (specify) _____

5. Other _____
Mailing Address _____
City State Zip Code
Telephone ( )

- Past Owner [ ]
- Present Operator [ ]
- Past Operator [ ]
- Other Responsible Party [ ] (specify) _____

Site Name Southern Wood Piedmont - Gulf

B. SITE LOCATION:

1. Street or Route Address 2139 State Rd.
   City or Town Gulf
   County Chatham

2. Directions to the Site *(Use state road numbers where possible.)*

   From Sanford go north on 241 to Gulf township
   Turn right, go 1/2 mile to State Rd. 2139
   SWP - Gulf is vacant property across intersection.

3. Attach a Department of Transportation map or a USGS map showing the location of the site or facility. Label the map with the site name.

4. Check the appropriate description of the area surrounding the site. *(More than one may apply.)*

   [X] Residential [X] Industrial [X] Forest Land
   [ ] Business [ ] Pasture Land [ ] Farm Land
   [ ] Other *(specify)* _____

C. TYPE AND YEARS OF OPERATION:

1. Type of Operation Wood Treating [ ] Present
   Standard Industrial Classification Code (SIC) 2491 [X] Past
   Years of Operation (Dates) from 19/46 to 19/80

2. Type of Operation _____ [ ] Present
   Standard Industrial Classification Code (SIC) _____ [ ] Past
   Years of Operation (Dates) from __/__ to __/__

3. Type of Operation _____ [ ] Present
   Standard Industrial Classification Code (SIC) _____ [ ] Past
   Years of Operation (Dates) from __/__ to __/__

D. ENVIRONMENTAL PERMIT HISTORY:

If no environmental permit has been issued, check "None" for each type of permit. Complete for each of the following.

Type of Permit	None	Permit Number	Date Issued	Expiration Date	Comments
1. NPDES	[ ]	NC0000787	08/75	03/76	
2. Air	[ ]	?	?/	?/	Site had boiler permit
3. RCRA	[X]		/	/	
4. RCRA interim status	[X]		/	/	
5. State	[X]		/	/	
a. Non-discharge	[ ]	3931-R	08/76	06/81	System ceased operation
b. High productivity well	[X]		/	/	10 - 1980
c. Other *(specify)* _____	[ ]	8132	04/75	06/76	Waste water discharge
6. Local *(specify)* _____	[X]		/	/	
7. Other *(specify)* _____	[X]		/	/	

000003

Site Name Southern Wood Piedmont - Gulf

E. CURRENT ENVIRONMENTAL PERMITS:

If no environmental permit has been issued, check "None" for each type of permit. Complete for each of the following.

Type of Permit	None	Permit Number	Date Issued	Expiration Date	Comments
1. NPDES	[X]		__/__	__/__	
2. Air	[X]		__/__	__/__	
3. RCRA	[X]		__/__	__/__	
4. RCRA interim status	[X]		__/__	__/__	
5. State	[X]		__/__	__/__	
a. Non-discharge	[X]		__/__	__/__	
b. High productivity well	[X]		__/__	__/__	
c. Other (*specify*) _____	[X]		__/__	__/__	
6. Local (*specify*) _____	[X]		__/__	__/__	
7. Other (*specify*) _____	[X]		__/__	__/__	

F. KNOWN OR SUSPECTED RELEASE OF HAZARDOUS SUBSTANCE OR WASTE TO THE ENVIRONMENT:

(More than one may apply.)

Environmental Media	Known	Suspected	Date of Known or Suspected Release	Likely	Unlikely	None	Comments
1. Groundwater	[ ]	[ ]	__/__	[ ]	[ ]	[ ]	No information
2. Surface water	[ ]	[ ]	__/__	[ ]	[ ]	[ ]	" "
3. Surface soil	[ ]	[ ]	__/__	[X]	[ ]	[ ]	
4. Subsurface soil	[X]	[ ]	4 6/8 0	[ ]	[ ]	[ ]	Material buried on site
5. Air	[ ]	[ ]	__/__	[ ]	[X]	[ ]	@ closure - 1980

G. PHYSICAL STATE OF HAZARDOUS SUBSTANCE OR WASTE AS DEPOSITED: *(More than one may apply.)*

1. [X] Solid
2. [ ] Powder
3. [ ] Liquid
4. [X] Sludge
5. [ ] Non-Containerized Gas
6. [ ] Containerized Gas
7. [ ] Other (*describe*) _____

H. HAZARDOUS SUBSTANCE OR WASTE DISPOSAL AND STORAGE METHOD: *(More than one may apply.)*

1. [ ] Piles
2. [ ] Land treatment
3. [X] Landfill
4. [ ] Tanks, underground
5. [ ] Tanks, above ground
6. [ ] Septic tanks
7. [ ] Impoundment
8. [ ] Underground injection
9. [ ] Drums, above ground
10. [ ] Drums, above ground, in open
11. [ ] Drums, below ground
12. [ ] Other (*specify*) _____

I. HAZARDOUS SUBSTANCE OR WASTE TYPE USED OR DISPOSED ON SITE: *(More than one may apply.)*

1. [X] Organics
2. [ ] Inorganics
3. [ ] Solvents
4. [ ] Pesticides
5. [ ] Heavy metals
6. [ ] Acids
7. [ ] Bases
8. [ ] PCBs
9. [ ] Mixed municipal waste
10. [ ] Unknown
11. [ ] Other (*specify*) _____

Site Name Southern Wood Piedmont - Gulf

J. HAZARDOUS SUBSTANCE OR WASTE QUANTITY: *(More than one may apply.)*

1. Pounds:
   - [ ] less than 10 pounds
   - [ ] 10 pounds or more, but less than 100 pounds
   - [ ] 100 pounds or more, but less than 1000 pounds
   - [ ] 1000 pounds or more
   - [X] Unknown

2. Drums:
   - [X] less than 10 drums
   - [ ] 10 drums or more, but less than 100 drums
   - [ ] 100 drums or more, but less than 1000 drums
   - [ ] 1000 drums or more
   - [ ] Unknown

3. Cubic Feet:
   - [ ] less than 10 cubic feet
   - [ ] 10 cubic feet or more, but less than 100 cubic feet
   - [ ] 100 cubic feet or more, but less than 1000 cubic feet
   - [X] 1000 cubic feet or more
   - [ ] Unknown

4. Gallons:
   - [ ] less than 10 gallons
   - [ ] 10 gallons or more, but less than 100 gallons
   - [ ] 100 gallons or more, but less than 1000 gallons
   - [ ] 1000 gallons or more
   - [X] Unknown

5. Total area of site:
   - [ ] less than 1 acre
   - [ ] 1 acre or more, but less than 5 acres
   - [ ] 5 acres or more, but less than 10 acres
   - [X] 10 acres or more
   - [ ] Unknown

K. SOURCE OF HAZARDOUS SUBSTANCE OR WASTE USED OR DISPOSED ON SITE:

(More than one may apply)

	Used On Site	On-Site Disposal	Off-Site Disposal
1. Mining	[ ]	[ ]	[ ]
2. Construction	[ ]	[ ]	[ ]
3. Textiles	[ ]	[ ]	[ ]
4. Fertilizer	[ ]	[ ]	[ ]
5. Paper/printing	[ ]	[ ]	[ ]
6. Leather tanning	[ ]	[ ]	[ ]
7. Iron/steel foundry	[ ]	[ ]	[ ]
8. Chemical, general	[ ]	[ ]	[ ]
9. Plating/polishing	[ ]	[ ]	[ ]
10. Military/ammunition	[ ]	[ ]	[ ]
11. Electrical conductors	[ ]	[ ]	[ ]
12. Transformers	[ ]	[ ]	[ ]
13. Utility companies	[ ]	[ ]	[ ]
14. Sanitary/refuse	[ ]	[ ]	[ ]
15. Photo finish	[ ]	[ ]	[ ]
16. Lab/hospital	[ ]	[ ]	[ ]
17. Wood treating	[X]	[X]	[ ]
18. Battery reclamation	[ ]	[ ]	[ ]
19. Pesticides formulation, packaging and/or distribution	[ ]	[ ]	[ ]
20. Herbicide formulation, packaging and/or distribution	[ ]	[ ]	[ ]
21. Other Agrichemical formulation, packaging and/or distribution	[ ]	[ ]	[ ]
22. Dry cleaning	[ ]	[ ]	[ ]
23. Petrochemical processing or refining	[ ]	[ ]	[ ]
24. Unknown	[ ]	[ ]	[ ]
25. Other (*specify*) _____	[ ]	[ ]	[ ]

000005

Site Name Southern Wood Piedmont - Gulf

L. SPECIFIC HAZARDOUS SUBSTANCE OR WASTE COMPOUNDS ASSOCIATED WITH THE SITE, IF KNOWN: *(More than one may apply.)*

	Waste Compounds/ Substances	Generated On Site	Off-Site Disposal	On-Site Disposal
1.	Wood treating wastewater treatment sludges	[X]	[ ]	[X]
2.	(creosote and pentachlorophenol) & Tank Sludges	[ ]	[ ]	[ ]
3.		[ ]	[ ]	[ ]
4.		[ ]	[ ]	[ ]
5.		[ ]	[ ]	[ ]
6.		[ ]	[ ]	[ ]

M. ACCESSIBILITY OF SITE: *(More than one may apply.)*

1. [ ] Security guard
2. [X] Physical barrier (steep bank, creek, walls, etc.)
   Describe physical barriers ditch restricts access by vehicles onto site
3. [ ] Site completely surrounded by fence
4. [ ] Site partially surrounded by fence
5. [ ] Locked gate
6. [ ] Unlocked gate
7. [X] No control of access to site
8. [ ] Other (*specify*) Warning signs are posted

N. REMEDIAL ACTION: *(More than one may apply.)*

1. [ ] No environmental action
2. [X] Environmental study
3. [ ] Remedial action

O. AVAILABILITY OF ANALYTICAL MONITORING DATA:

Is analytical monitoring data for the site available?

[X] YES [ ] NO

IF YES: check the appropriate box to indicate the purpose for which the data was collected. *(More than one may apply.)*

- [ ] CERCLA
- [ ] RCRA
- [ ] Remedial Action
- [X] Environmental Audit
- [ ] Other (*specify*) _____

IF DATA WAS COLLECTED: FIRST COMPLETE SECTION P. CERTIFICATION AND SIGNATURE ON THE NEXT PAGE AND THEN COMPLETE DHS 3525, SECTION B SITE DATA ADDENDUM NOTIFICATION OF AN INACTIVE HAZARDOUS SUBSTANCE OR WASTE DISPOSAL SITE.

Site Name Southern Wood Piedmont - Gulf

P. CERTIFICATION AND SIGNATURE:

I certify that to the best of my knowledge and belief, the information supplied on this form is complete and accurate.

Signature _____ Date 3/3/88

Name and Title (*Type or print*) Edward L. Gibbs - Environmental Mgr.

Mailing Address P. O. Box 5447

Spartanburg, S. C. 29304

South ~~NORTH~~ CAROLINA

Spartanburg County

I, Mary Anne Stephens, a Notary Public for said County and State, do hereby certify that Edward L. Gibbs personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal, this the 5th day of April, 19 88

(*Official Seal*)

Mary Anne Stephens
Notary Public

My commission expires My Commission Expires October 9, 1996, 19

000007

N.C. Department of Human Resources
Division of Health Services

For Agency Use Only
SITE # _____

SECTION B

SITE DATA ADDENDUM FOR AN INACTIVE HAZARDOUS SUBSTANCE OR WASTE DISPOSAL SITE

North Carolina General Statutes Section 130A-310 provides for protection of the public from inactive hazardous substance or waste disposal sites. Notification information and site data, required by North Carolina General Statutes Section 130A-310.1(b) must be submitted to:

Superfund Unit
Division of Health Services
P.O. Box 2091
Raleigh, NC 27602-2091

Please read instructions before completing.

Please type or print in black ink.

A. SITE NAME AND PERSON REQUIRED TO NOTIFY:

1. Site Name Southern Wood Piedmont - Gulf
(One site per form)

2. Person Completing Form:
Name Edward L. Gibbs
Mailing Address P. O. Box 5447
City Spartanburg State S.C. Zip Code 29304
Telephone (803) 576-7660

Present Owner ☐
Past Owner ☐
Present Operator ☐
Past Operator ☐
Other ☒
(specify) Environmental Mgr.

3. Present Owner:
Name Southern Wood Piedmont
Mailing Address P. O. Box 5447
City Spartanburg State S.C. Zip Code 29304
Telephone (803) 576-7660

Corporation ☒
Partnership ☐
Individual ☐
Other ☐
(specify) _____

B. SITE LOCATION:

Street or Route Address 2139 State Rd.
City or Town Gulf
County Chatham

000008

Site Name Southern Wood Piedmont - Gulf

C. ON-SITE WATER AND SEWER:

1. Wastewater Management

Does the site currently have an on-site wastewater management system? ☐ YES ☒ NO

Has the site previously had an on-site wastewater management system? ☒ YES ☐ NO ☐ UNKNOWN

If there is a past or present on-site wastewater treatment system, check all appropriate boxes below to describe the wastewater treatment system used at the facility. Indicate the dates of operation for each wastewater treatment system. More than one system may apply. Complete for all on-site systems, both past and present.

	Process Wastewater		Sanitary Wastewater		Dates of Operation	
	Yes	No	Yes	No	Beginning	Ending
Municipal	☐	☒	☐	☒	__/__	__/__
Pretreatment						
a. With sludge generation	☐	☒	☐	☒	__/__	__/__
b. Without sludge generation	☐	☐	☐	☐	__/__	__/__
On-site wastewater disposal						
a. Drainfield	☐	☒	☒	☐	__/__	__/__
b. Septic tank	☐	☒	☐	☐	__/__	__/__
c. Land Application	☒	☐	☐	☐	aprox 19/75	19/80
Biological treatment	☒	☐	☐	☐	aprox 19/75	19/80
Discharge to surface water	☒	☐	☐	☐	aprox 19/46	19/75

Name of surface water _____

NPDES # _____

2. Water Supply Source

Does the site now have or has it in the past had a water system? ☒ YES ☐ NO

If yes, complete the following:

	Groundwater		Surface Water		Dates of Operation	
	Yes	No	Yes	No	Beginning	Ending
Municipal or County _____	☐	☒	☐	☒	__/__	__/__
Community _____	☐	☒	☐	☒	__/__	__/__
Non-Community _____	☒	☐	☐	☐	__/__	19/80

If surface water source is used, name of the body of water _____

Provide the use of the surface water: ☐ Potable ☐ Production ☐ Cooling ☐ Fire protection ☐ Irrigation ☐ Other (*specify*) _____

Attach a facility or local map with intake point marked for private or on-site surface water sources. Label the map with the site name.

000009

Site Name: Southern Wood Piedmont - Gulf

D. ON-SITE WELLS:

Does the site now have or has it in the past had any on-site wells? [X] YES [ ] NO
If yes, complete the following:

1. Attach a facility or site map showing the location of all on-site wells. Label the attachment: "D. 1. On-Site Wells".
2. Total number of on-site wells: 3
3. For each on-site well, provide the following information:

   a. Label the corresponding well on the map required in D. 1.: _____
   b. Presently used? [ ] YES [X] NO
   c. If not presently in use, give year abandoned: 1980(Approx.)
   d. Type of well: [X] Monitoring [ ] Injection [ ] Production [ ] Fire Protection [ ] Cooling [ ] Irrigation [ ] Potable [ ] Other (*specify*) _____
   e. Permitted well? [ ] YES [X] NO
      Permit Number _____
   f. Type of construction: PVC
   g. Date installed: Approx. 1978
   h. Depth of well: _____ ft.
   i. Size (diameter): _____ inches
   j. Depth to static water level: _____ ft.
   k. Has laboratory analysis ever indicated ground water contamination? [ ] YES [ ] NO Not Known

Additional Section B, Part D. 3. forms are available.

E. CLOSEST OFF-SITE WELL

Provide the following information for the closest currently used off-site well within a one-mile radius of the site, where such information is known to you:

1. Owner Mr. Jr. Poe
2. Location Address Gulf, N.C.
3. City _____
4. Show the location of the well on a map of the area. Label the attachment: "E. 4. Off-Site Well".

F. ANALYTICAL MONITORING DATA

Complete for any monitoring which has been done at the site.

1. Groundwater — Has groundwater monitoring been conducted at the site? [X] YES [ ] NO
   If yes, complete the following:

	Date	Method	Method Number	Compounds Detected	Level
a. Organics					
(1) Purgeables					
(2) Base Neutrals/Acid					
(3) PCB					
(4) Pesticides/Herbicides					
(5) Other	1978	(See attached)			
b. Inorganics					

Laboratory performing analyses: SWP - Environmental Lab
Does the laboratory have EPA contract laboratory status? [ ] YES [X] NO

DHS 3525 (11/87)

Site Name Southern Wood Piedmont - Gulf

2. Surface Water — Has surface water monitoring been conducted at the site? [X] YES | | NO
If yes, complete the following:

	Date	Method	Method Number	Compounds Detected	Level
a. Organics					
(1) Purgeables	9/83	EPA - 846		EPA conducted on site sampling (1986	
(2) Base Neutrals/Acid	"			"	
(3) PCB	"			"	
(4) Pesticides/Herbicides	"			"	
(5) Other	"			"	
b. Inorganics	"			"	

Laboratory performing analyses: State & EPA Region IV 1986 Project # 83-190
Does the laboratory have EPA contract laboratory status? [X] YES [ ] NO

3. Soil — Has soil testing been conducted at the site? [X] YES [ ] NO
If yes, complete the following:

	Date	Method	Method Number	Compounds Detected	Level
a. Organics					
(1) Purgeables	9/83	EPA-846		EPA conducted on site sampling (198)	
(2) Base Neutrals/Acid	"			"	
(3) PCB	"			"	
(4) Pesticides/Herbicides	"			"	
(5) Other	"			"	
b. Inorganics	"			"	

Laboratory performing analyses: State & EPA Region IV - Project #83-190
Does the laboratory have EPA contract laboratory status? [X] YES [ ] NO

4. Air — Has air monitoring been conducted at the site? [ ] YES [X] NO
If yes, complete the following:

	Date	Method	Method Number	Compounds Detected	Level
a. Organics					
b. Inorganics					
c. Particulates					
d. Visible Emissions					
e. Ambient Air Monitoring					
f. Other					

Laboratory performing analyses:
Does the laboratory have EPA contract laboratory status? [ ] YES [ ] NO

G. CLEANUP ACTIONS

Describe briefly any cleanup activities at the site and attach a map showing cleanup activities. Label the map with the site name.

Site was closed in 1980. All structures were demolished. All surface impoundments were closed by absorbing sludges and backfilling with clay.

Site Name Southern Wood Piedmont Gulf

List documents related to cleanup actions including, but not limited to, work plans, cleanup action plans, and remedial action plans.

Document Date	Document Name	Purpose of Document

H. RECORDATION

Is the location/existence of the disposal site recorded in the register of deeds' office in the county or counties in which the land is located? ☐ YES ☒ NO

If yes, date of recordation: _____

I. CERTIFICATION AND SIGNATURE:

I certify that to the best of my knowledge and belief, the information supplied on this form is complete and accurate.

Signature Edward L. Gibbs Date 3/3/88

Name and Title (*Type or print*) Edward L. Gibbs, Environmental Mgr.

Mailing Address P. O. Box 5447

Spartanburg, S. C. 29304

South
~~NORTH~~ CAROLINA

Spartanburg County

I, Mary Anne Stephens, a Notary Public for said County and State, do hereby certify that Edward L. Gibbs personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal, this the 5th day of April, 19 88

(*Official Seal*)

Mary Anne Stephens
Notary Public

My Commission Expires
October 9, 1996

My commission expires _____, 19_____

000012

Site Name Southern Wood Piedmo... - Gulf

SECTION B: SUPPLEMENTAL FORM

SITE DATA ADDENDUM FOR AN INACTIVE HAZARDOUS SUBSTANCE OR WASTE DISPOSAL SITE

D. ON-SITE WELLS:

3. For each on-site well, provide the following information:

a. Label the corresponding well on the map required in D. 1.: #1
b. Presently used? ☐ YES ☒ NO
c. If not presently in use, give year abandoned: 1980
d. Type of well: ☐ Monitoring ☐ Injection ☒ Production ☐ Fire Protection ☐ Cooling ☐ Irrigation ☒ Potable ☐ Other (*specify*) _____
e. Permitted well? ☐ YES ☒ NO
Permit Number _____
f. Type of construction: ?
g. Date installed: ?
h. Depth of well: ? ft.
i. Size (diameter): ? inches
j. Depth to static water level: _____ ft.
k. Has laboratory analysis ever indicated ground water contamination? ☐ YES ☐ NO

D. ON-SITE WELLS:

3. For each on-site well, provide the following information:

a. Label the corresponding well on the map required in D. 1.: #2
b. Presently used? ☐ YES ☒ NO
c. If not presently in use, give year abandoned: 1980
d. Type of well: ☐ Monitoring ☐ Injection ☒ Production ☐ Fire Protection ☐ Cooling ☐ Irrigation ☒ Potable ☐ Other (*specify*) _____
e. Permitted well? ☐ YES ☒ NO
Permit Number _____
f. Type of construction: ?
g. Date installed: ?
h. Depth of well: ? ft.
i. Size (diameter): ? inches
j. Depth to static water level: _____ ft.
k. Has laboratory analysis ever indicated ground water contamination? ☐ YES ☐ NO

Name Southern Wood Piedmont Gulf

SECTION B: SUPPLEMENTAL FORM

SITE DATA ADDENDUM FOR AN INACTIVE HAZARDOUS SUBSTANCE OR WASTE DISPOSAL SITE

D. ON-SITE WELLS:

3. For each on-site well, provide the following information:

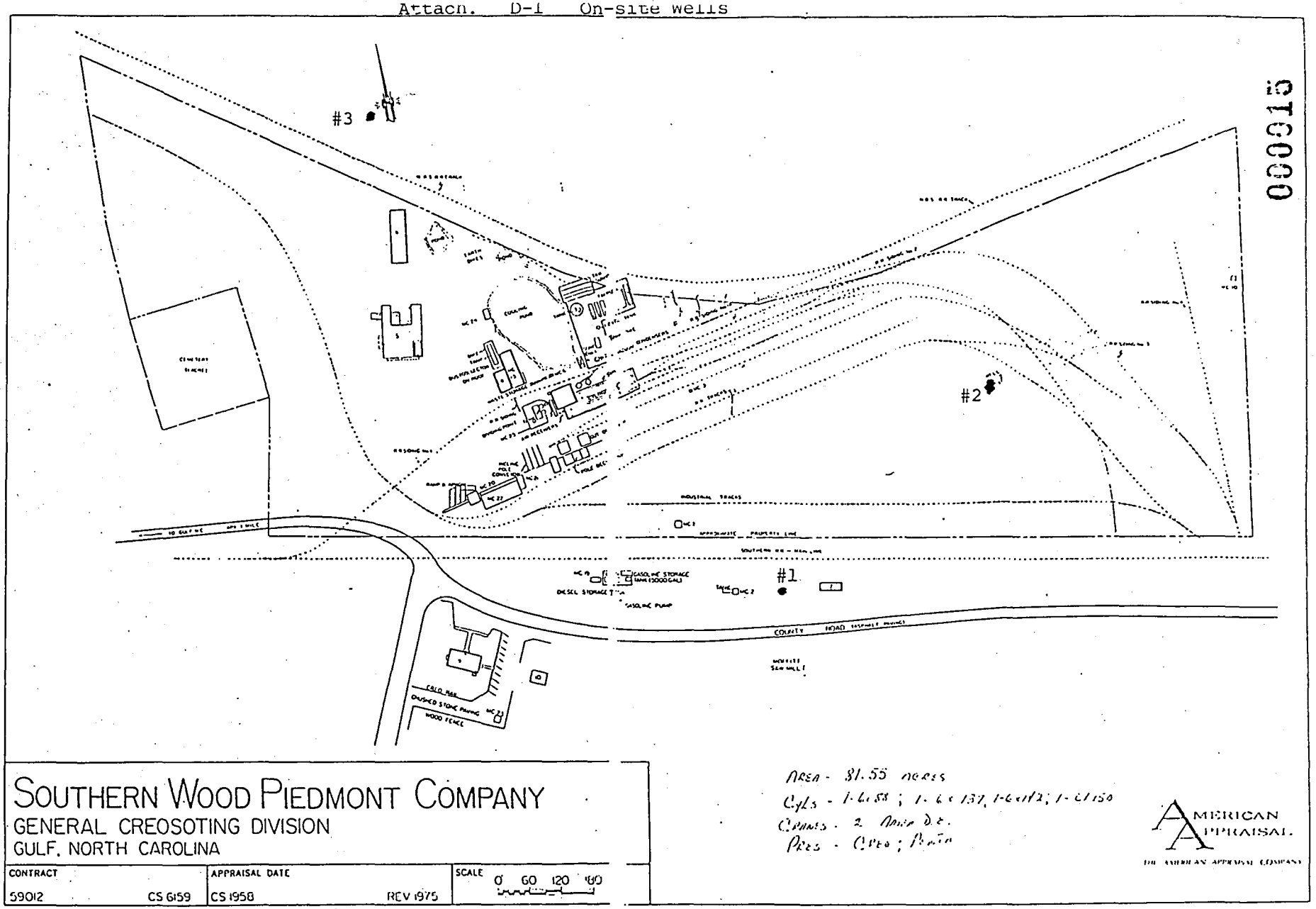
a. Label the corresponding well on the map required in D. 1.: #3
b. Presently used? ☐ YES ☒ NO
c. If not presently in use, give year abandoned: 1980
d. Type of well: ☒ Monitoring ☐ Injection ☐ Production ☐ Fire Protection ☐ Cooling ☐ Irrigation ☐ Potable ☐ Other (*specify*) _____
e. Permitted well? ☐ YES ☒ NO
Permit Number _____
f. Type of construction: _____
g. Date installed: _____
h. Depth of well: _____ ft.
i. Size (diameter): _____ inches
j. Depth to static water level: _____ ft.
k. Has laboratory analysis ever indicated ground water contamination? ☐ YES ☐ NO

D. ON-SITE WELLS:

3. For each on-site well, provide the following information:

a. Label the corresponding well on the map required in D. 1.: _____
b. Presently used? ☐ YES ☐ NO
c. If not presently in use, give year abandoned: _____
d. Type of well: ☐ Monitoring ☐ Injection ☐ Production ☐ Fire Protection ☐ Cooling ☐ Irrigation ☐ Potable ☐ Other (*specify*) _____
e. Permitted well? ☐ YES ☐ NO
Permit Number _____
f. Type of construction: _____
g. Date installed: _____
h. Depth of well: _____ ft.
i. Size (diameter): _____ inches
j. Depth to static water level: _____ ft.
k. Has laboratory analysis ever indicated ground water contamination? ☐ YES ☐ NO

Attach. D-1 On-site wells



SOUTHERN WOOD PIEDMONT COMPANY

GENERAL CREOSOTING DIVISION

GULF, NORTH CAROLINA

CONTRACT		APPRAISAL DATE		SCALE
59012	CS 6159	CS 1958	REV 1975	0 60 120 180

AREA - 81.55 acres

Cyls - 1-6x58 ; 1-6x137, 1-6x112 ; 1-6x150

Cranes - 2 Ample D.E.

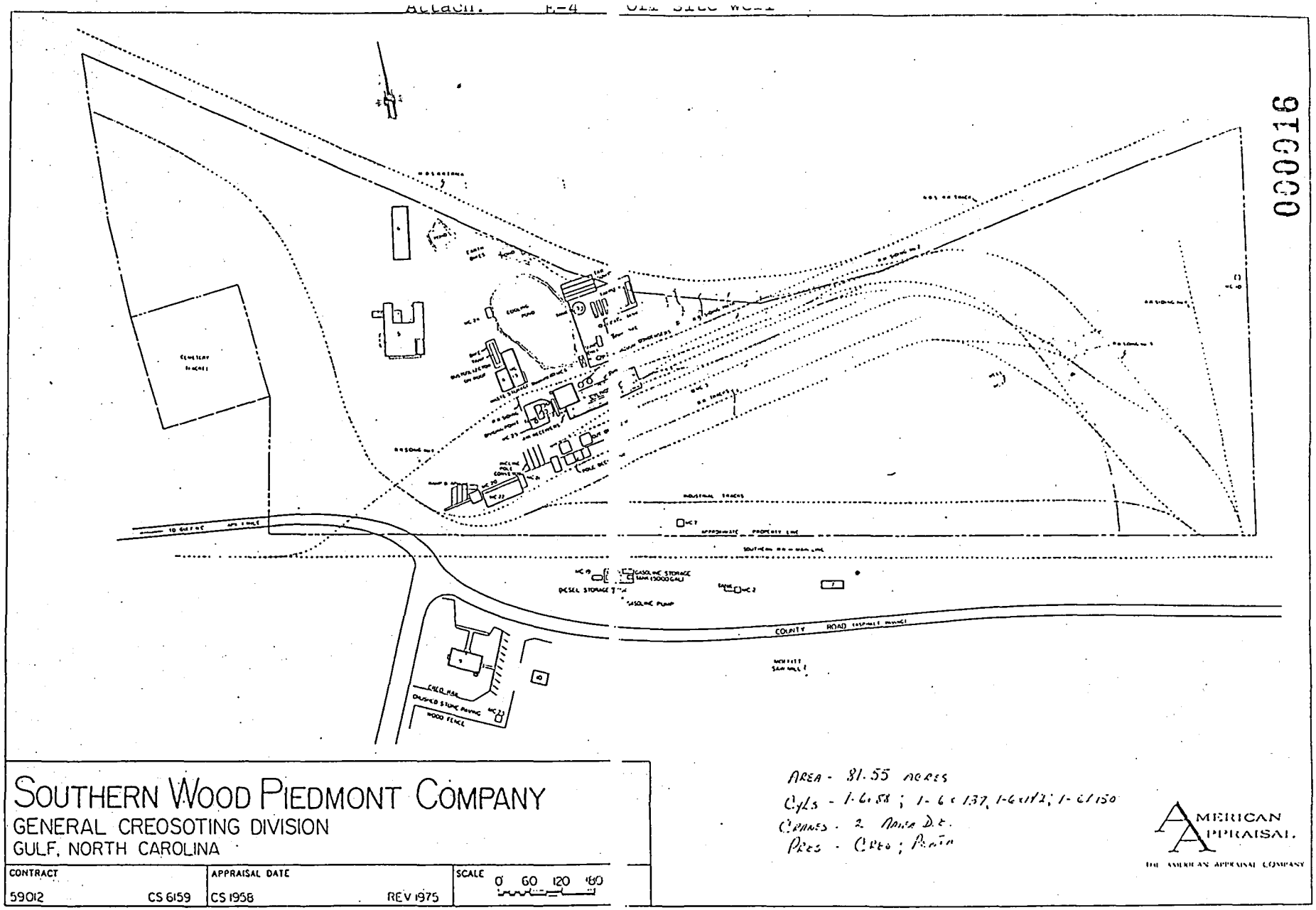
Pres - Creo ; Penta

AMERICAN APPRAISAL

THE AMERICAN APPRAISAL COMPANY

000015

Attach. F-4 Old Site Map



SOUTHERN WOOD PIEDMONT COMPANY

GENERAL CREOSOTING DIVISION

GULF, NORTH CAROLINA

CONTRACT		APPRAISAL DATE		SCALE
59012	CS 6159	CS 1958	REV 1975	0 60 120 180

AREA - 81.55 ACRES

CYLS - 1-6x58 ; 1-6x137, 1-6x112 ; 1-6x150

CRANES - 2 ALLIS D.E.

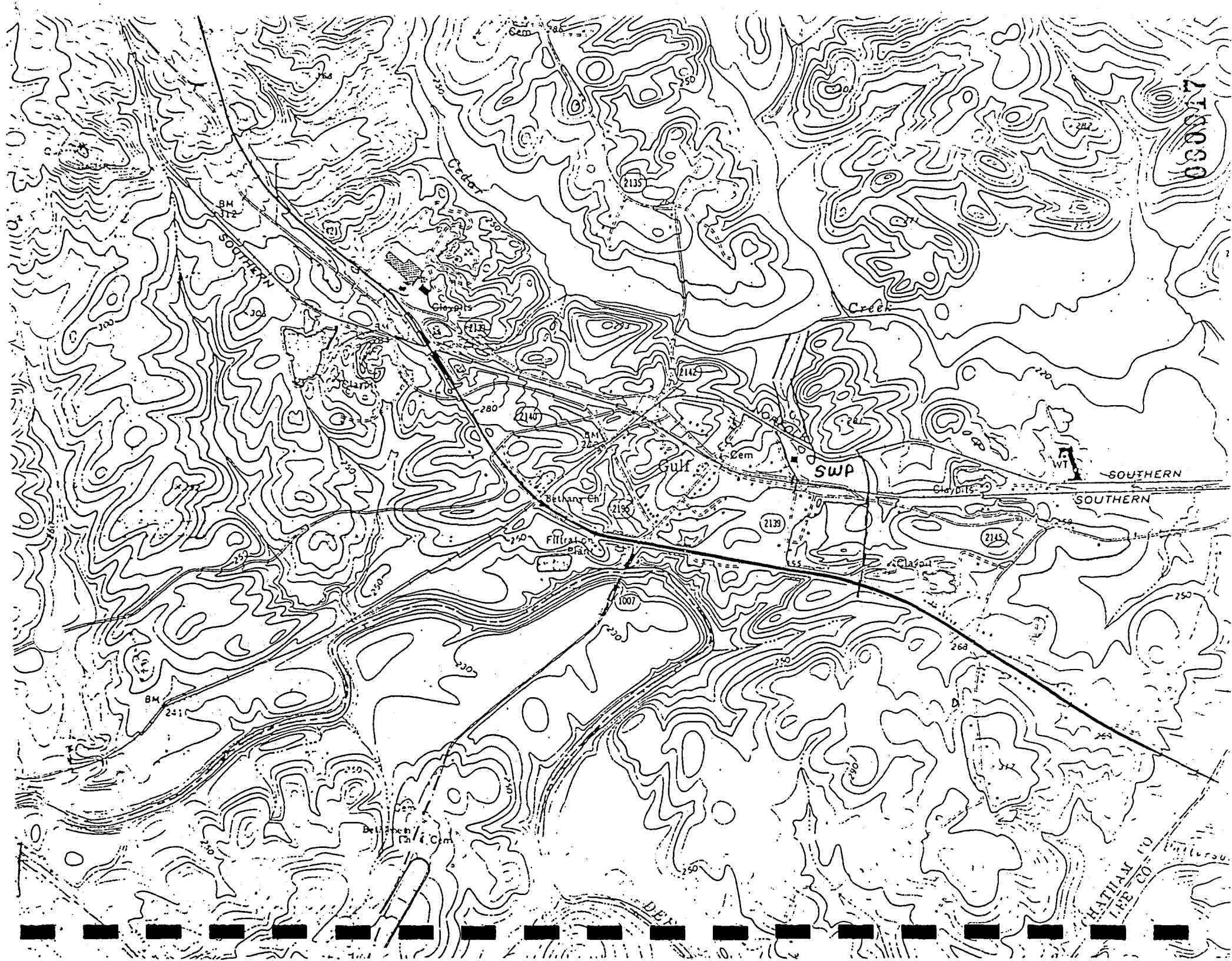
PRES - CREO ; PENTA

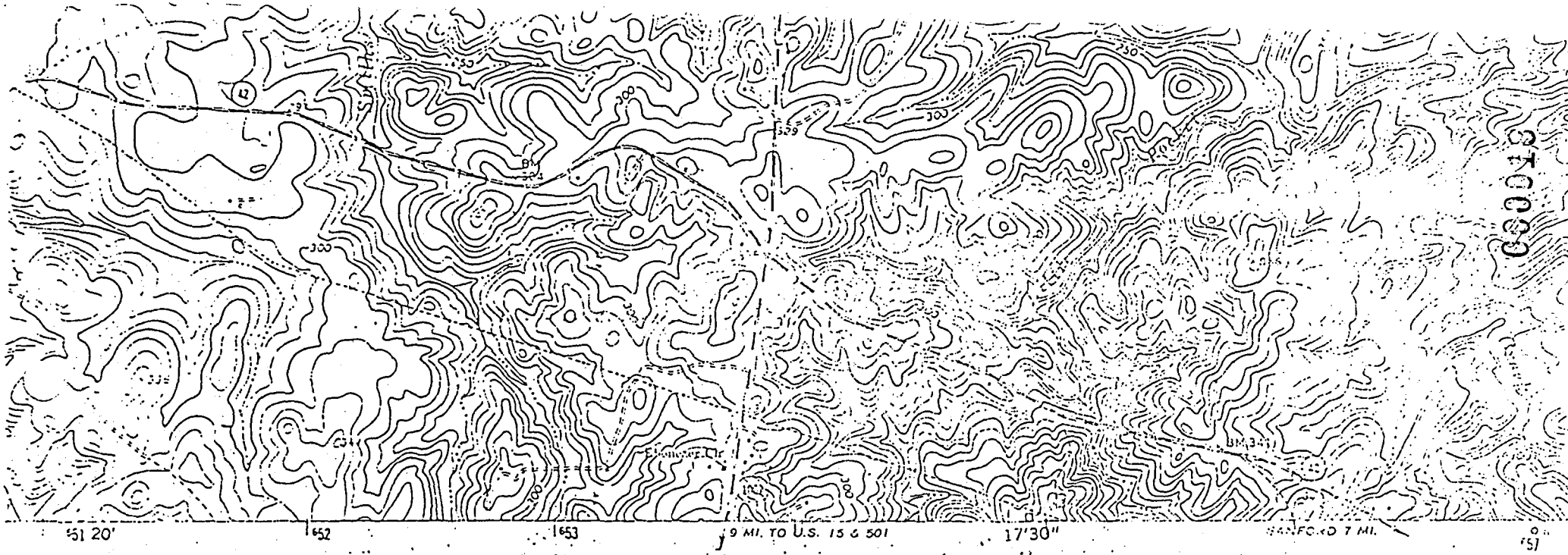
AMERICAN APPRAISAL

THE AMERICAN APPRAISAL COMPANY

009916

Approx. location of nearest known well relative to SWP Gulf site.


Cedar
Creek
SOUTHERN
SOUTHERN
SOUTHERN
Clay Pits
Clay Pits
Clay Pits
Gulf
SWP
Cem
Bethany Ch
Filtration Plant
Bethany Ch & Cem
BM 112
BM 241
BM 224
2135
2142
2140
2195
2139
2145
1007
WT
CHATHAM CO
LEE CO
DEX



SCALE 1:24 000

1 ½ 0 1 MILE

10:0 0 1000 2000 3000 4000 5000 6000 7000 FEET

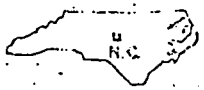
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

Primary highway
hard surface

Secondary highway
hard surface

Interstate



QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ADVANCE SHEET
SUBJECT TO CORRECTION
WORKING COMPOSITE
UNIT C—MALLARDI

SITE WELL DATA

WAT ANALYSIS REPORT

PLANT Hulk, NC

DATE SAMPLE TAKEN 1978

LOCATION Well

DATE ANALYSIS RUN

	Date Sample Taken X	1/26	2/17	3/15	4/26	5/25	6/22	7/11	8/19	9/13	10/4	11/10	12/14
pH	7.93	8.47	8.25	8.2	7.92	8.08	WELL DAMPED	8.16	8.13	7.25	7.15	7.61	7.99
C.O.D.	54	24.7	67	86	11	43		23	42	103	45	86	63
Phenols	.011	.023	.017	.013	.019	.004		.008	.009	.007	.005	.005	.007
Oil and Grease	6.69	2.4	4	3.2	3.4	17.8		11	12	3.2	10.7	2.9	3
Total Solids	405	355	456	422	530	358		325	414	408	390	378	422
Dissolved Solids	366	321	438	388	368	318		301	390	394	358	360	386
Suspended Solids	40	34	18	34	162	40		24	24	14	32	18	36
Volatile Solids	136	116	161	171	159	89		180	—	148	147	90	96
Non-volatile Solids	268	239	291	251	371	269		145	—	260	243	288	326
Total Cr.													
As.													
Cu.								-					

Analyst _____

Results in mg/l where applicable.

000020

v

SOU(ERN WOOD PIEDMONT COMPANY(

WATER ANALYSIS REPORT

1-75
11-M-1.4.8

PLANT Gulf, N.C. DATE SAMPLE TAKEN 1979

LOCATION Sampling Well DATE ANALYSIS RUN

Date	1/18	2/21	3/14	4/12	5/2	6/5	7/9	8/2		10/29	11/23	12/29
pH	7.79	7.88	8.12	7.74	7.92	7.85	7.99	8.05		8.14	8.04	8.13
C.O.D.	68	25	54	92	23	26	135	106		48.7	167.2	92.6
Phenols	.010	.006	.009	.007	.018	.002	.001	.004		.003	.003	.001
Oil and Grease	11	2.4	1.6	5	1.8	.3	2.9	2.1		1.5	24.5	10.2
Total Solids	449	413	431	584	434	425	415	438		402	269	376
Dissolved Solids	357	345	371	510	330	401	281	434		356	221	939
Suspended Solids	92	68	60	74	84	24	134	4		46	48	80
Volatile Solids	96	87	147	323	154	158	181	204		181	107	205
Non-volatile Solids	353	326	284	261	270	267	234	234		221	162	234
Total Cr.												
As.												
Cu.												

Analyst Janet Davis

Michael A. Rollin
Oct-m

Results in mg/l where applicable.

pH = 7.97
C.O.D = 76.59
phenols = .0058
O&G = 5.75

T.S. 421.4
D.S. 413.1
S.S. 64.9
V.S. 167.5
N.V.S. 258.7

000021

21

WATER ANALYSIS REPORT

PLANT Yadkin, NC DATE SAMPLE TAKEN 1980

LOCATION Pumping Well DATE ANALYSIS RUN

Date Sample Taken	1/18	2/25	3/17	4/	5/16	6/9	7/8	8/4		X		
pH	8.3	7.53	7.89	7.74	7.54	7.64	8.24	7.76		7.83		
C.O.D.	70.6	31.4	24	-	47	22.7	114	56.8		52.4		
Phenols	.004	.001	.003	-	0	?.001	.005	.004		.003		
Oil and Grease	1.5	3	28	—	0	0	1.1	.4		1.26		
Total Solids	404	448	419	437	412	412	444	411		423.4		
Dissolved Solids	352	372	327	397	376	348	404	407		372.9		
Suspended Solids	52	76	92	40	36	64	40	4		50.5		
Volatile Solids	157	183	146	156	165	159	170	176		164		
Non-volatile Solids	247	265	273	284	247	253	274	235		259.4		
Total Cr.												
As.												
Cu.												

Analyst _____

Results in mg/l where applicable.

October 15, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont (NCD 053 488 557)
Teleconference with Mr. T.M. (Chuck) Davis, Southern Wood Piedmont

On the above date I spoke with Mr. Chuck Davis, 803/599-1075, as Mr. William Arrants had recommended. Mr. Davis stated that an assessment report is in draft and should be finished by the end of the year (1993).

Mr. Davis reported that the upper ponds had been cleaned and that the lower ponds had been capped and grassed over. He indicated a few new wells were now in, that there is ground water contamination, but that it is believed to be localized to the site property. When asked about analytical data, he volunteered to prepare tables and a site sampling map to send us when he returns to his office early next week.

Mr. Davis also said that the comprehensive assessment report mentioned above may include a corrective action plan mentioning on site soil separation and biotreatment.

October 15, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Teleconference with Mr. William Arrants, Southern Wood Piedmont

On the above date I spoke with Mr. William Arrants, Environmental Compliance and Safety Manager, 803/599-1075. He had returned my call from Tennessee after receiving my message. Mr. Arrants was aware that a consultant had done considerable work for the company, but recommended that I contact Mr. Chuck Davis for details.

October 26, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont (NCD 053 488 557)
Second teleconference with Mr. T.M.(Chuck) Davis,
Southern Wood Piedmont

On the above date I spoke with Mr. Chuck Davis, 803/599-1075, to follow up on our October 15, 1993 teleconference, during which he had volunteered to prepare tables and a site sampling map to send us. Since I had not yet received mail from Southern Wood Piedmont, I called to inquire and remind.

Mr. Davis said that there were several documents in and that he was gathering data for us. He indicated he should have something available by the end of next week or the next. He mentioned that the assessment report was now in typing, and said he would keep me posted.

When asked, Mr. Davis replied that no sampling had been performed for dioxin.

December 21, 1993

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont (NCD 053 488 557)
Teleconference with Mr. Michael Pruette, Southern Wood Piedmont

In the absence of Mr. Chuck Davis, I spoke on the above date with Mr. Michael Pruette, Manager of Environment and Engineering for Southern Wood Piedmont, 803/599-1070, to ascertain whether he had any reports and/or analytical data he could share with me at this time. He indicated that Southern Wood Piedmont has performed an extensive environmental assessment at the site and that a report is in progress. The company prefers not to share analytical results until the entire report is completed.

He mentioned an order from Ms. Charlotte Jesneck, N.C. Superfund Section, for which Southern Wood Piedmont was given 180 days from October 18, 1993, to produce certain data. Mr. Pruette said that the company will be able to meet that deadline.

I talked with Ms. Jesneck about Mr. Pruette's comment. Ms. Jesneck indicated that Southern Wood Piedmont had been granted an extension of 6 months to comply with an earlier order to affix analytical data pertinent to the contaminants on the site to the deed for the property.

March 22, 1994

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Teleconference with Ms. Sandra Watson, Southern Wood Piedmont

On the above date I spoke with Ms. Sandra Watson, Chemist, 803/599-1075. She had called me at the request of Mr. Michael Pruette regarding the monitoring wells on the site. Ms. Watson reported that there are about 36 wells, clustered, and screened at various depths ranging from 13 feet to 97 feet below land surface. She acknowledged that some "hits" indicating ground water contamination had been found in some wells, but that the consultant's report for an environmental assessment of the site is still in preparation.

March 22, 1994

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont (NCD 053 488 557)
Second teleconference with Mr. Michael Pruette, Southern Wood Piedmont

In the absence of Mr. Chuck Davis, I spoke on the above date with Mr. Michael Pruette, Manager of Environment and Engineering for Southern Wood Piedmont, 803/599-1070, to ascertain whether he had any reports and/or analytical data he could share with us at this time. He indicated that work is still in progress on a report on an extensive environmental assessment of the site performed by a consultant for the company, but that the report is "getting close".

I asked Mr. Pruette several questions. He indicated that he would have Ms. Sandy Watson, Chemist, call me back to discuss how many monitoring wells there are on site and their depths.

According to Mr. Pruette, during the 1990 removal of waste to Marine Shale in Louisiana, one large and two small dry lagoons that were located between the two railroad lines on the site property (the Norfolk and Southern railroad to the north and the Southern railroad to the south) were excavated. Excavation was performed to a depth of visibly clean soil and then the areas were backfilled with clean soil obtained from a "borrow pit" on property to the north of the site property. This clean soil was removed for a property owner who was building a lake. Lagoons north of the Norfolk and Southern railroad were not excavated, just filled with clean soil.

Mr. Pruette indicated that there had been from 4 to 7 or 8 lagoons on the site property at different times when changes were made in waste handling procedures. Apparently there was a stair step arrangement of settling ponds at one time. He mentioned that some old aerial photographs of the area which show several lagoons had been located, probably by the consultant for Southern Wood Piedmont.

January 24, 1994

TO: File

FROM: Irene Williams, Environmental Chemist Irene Williams
N.C. Superfund Section

RE: Southern Wood Piedmont Gulf Site (NCD 053 488 557)
Ground water users, potential information sources

On the above date I spoke with Mr. Raebon King, owner of the J.R. Moore and Sons Store in Gulf, NC, 919/898-9901. I asked Mr. King if he knew Mr. Junior Poe who was mentioned in an early report as owning a private well near the site. He did know Mr. Poe but thought that since he had moved away and then returned Mr. Poe was now using the Goldston-Gulf municipal water service.

Mr. King mentioned that he was fairly certain that Mr. James Poe had a well that was still in use. Mr. King also gave me the name and telephone number of Ms. Margaret Jordan Ellis who lives near the "old creosote plant" and is reportedly very concerned with the environment. Further exploration of the possible ground water users in the vicinity of the site should include contacting these persons as well as Mr. Charles Oldham who filed an intent to sue in 1983.

Potential Information Sources Regarding Ground Water Users

Mr. Junior Poe	898-4170
Mr. James Poe	898-4878
Ms. Margaret Ellis	898-4814
Mr. Charles Oldham	775-5031 (Home)
	323-1961, ext. 202 (Work)

29 August 1988

TO: Lee Crosby

FROM: Stan Atwood SA

SUBJECT: S. Wood Piedmont-Gulf, NC

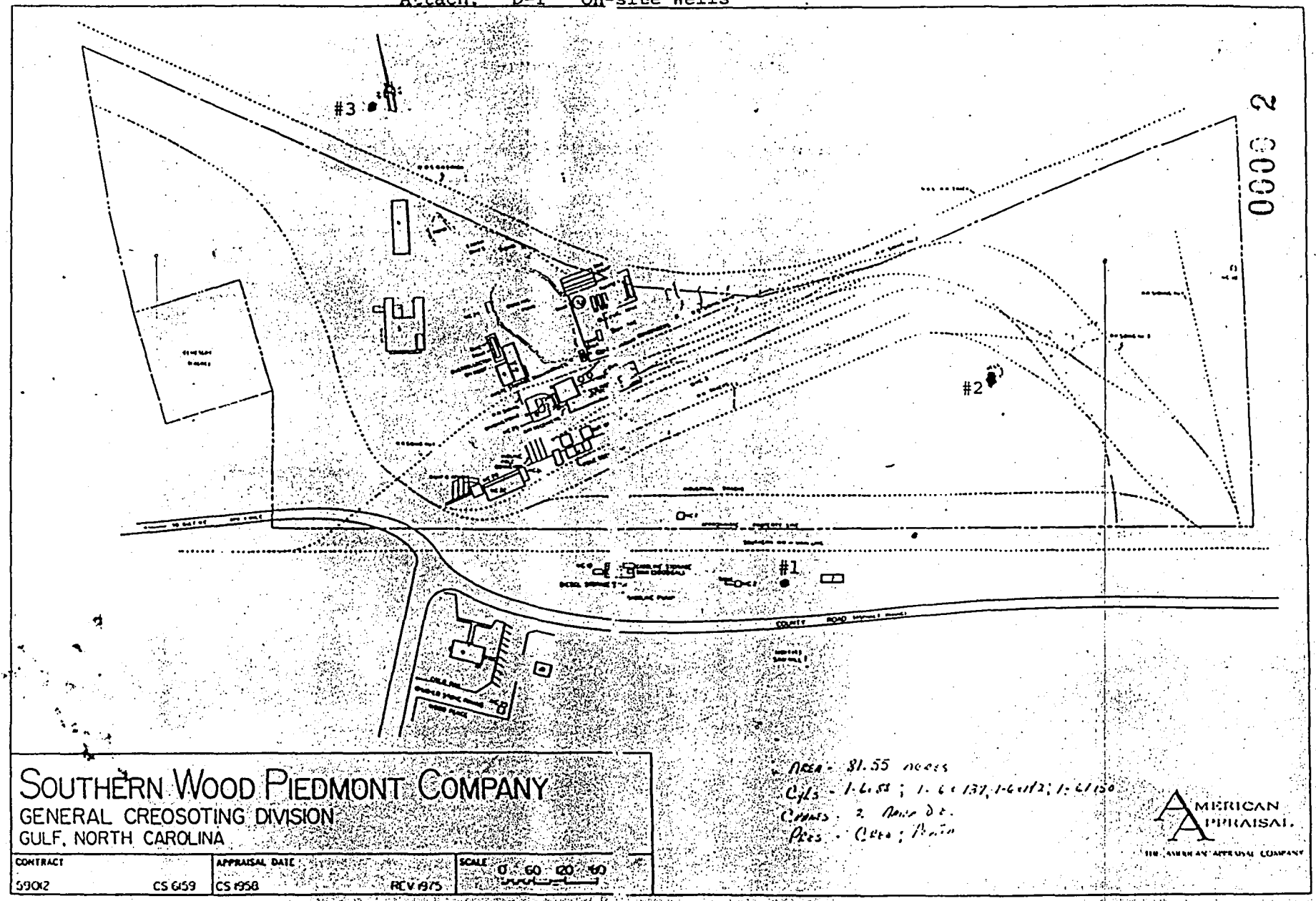
I met briefly with Charles Oldham on August 18 to discuss the subject site.. Mr. Oldham owns property adjacent to S. Wood Piedmont and is concerned about soil and groundwater contamination at the site. Mr. Oldhams's address is 2205 Southern Road, Sanford, NC 27330; his phone number is 775-5031.

The notification form indicates that creosote and pentachlorophenol sludges were buried on site in 1980. Boring logs indicate at least three contaminated areas and monitoring well data collected between 1978 and 1980 show contamination with oil and grease and phenols. Mr. Oldham was particularly concerned about the phenols. The current NC groundwater standard is 1 ppb. Phenols were as high as 28 ppb in January 1978 but appear to decrease through 1980 (see attachments). There are apparently three wells on site; however, it is not clear if all three were sampled. The analyses, nevertheless, are incomplete. Future analyses should also include TCDD (dioxin) because of the presence of pentachlorophenol.

Under GS 130A-310.1 (c) the Secretary has the authority to order any responsible party to conduct site monitoring to ascertain the nature and extent of any hazard posed by a site. We should consider this for this site.

SA/ds/ibm.3

Attach. D-1 On-site Wells



0000 2

WAT ANALYSIS REPORT

PLANT Hulf, NC DATE SAMPLE TAKEN 1978

LOCATION Well DATE ANALYSIS RUN

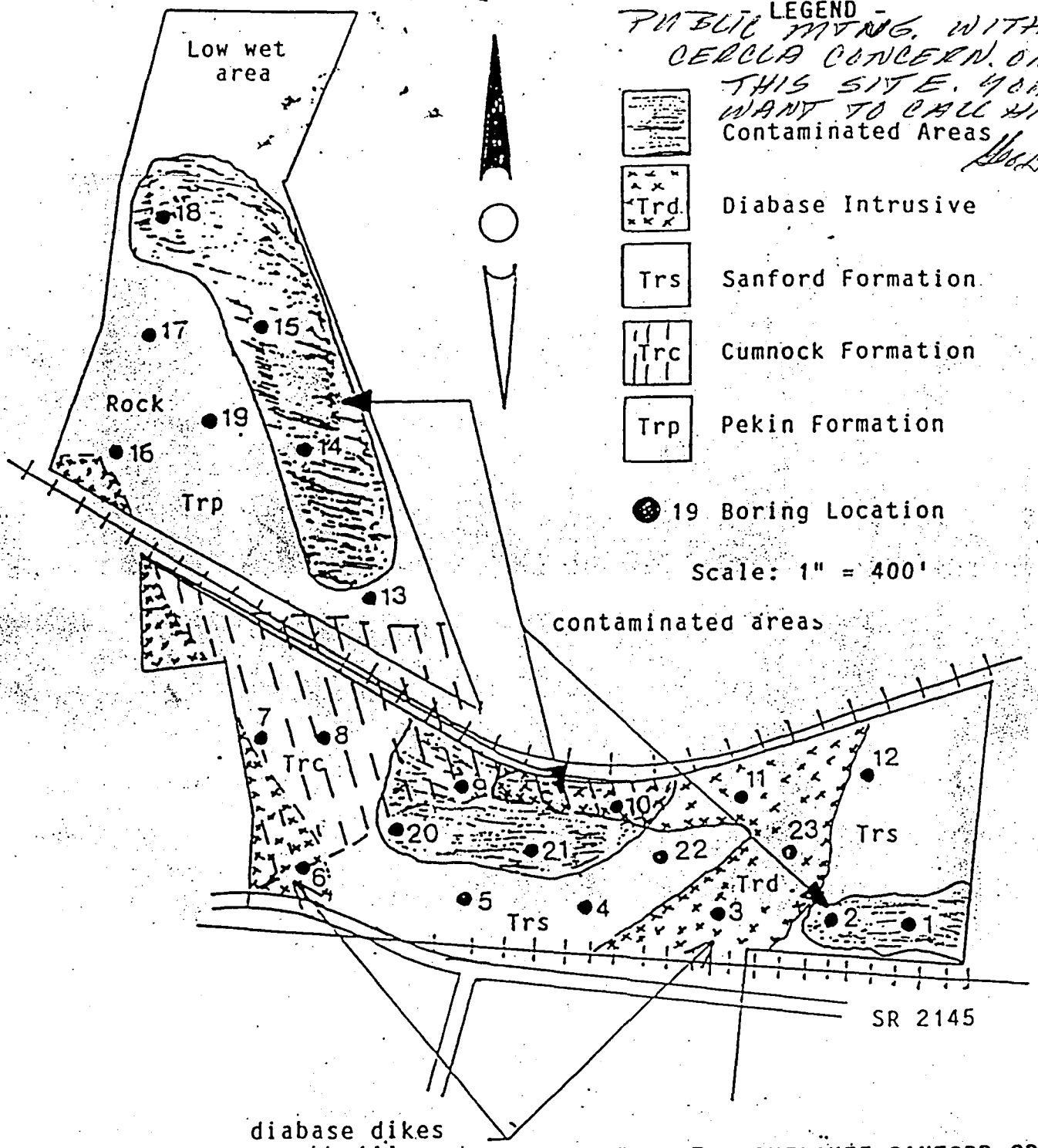
Date Sample Taken	X	1/26	2/17	3/15	4/26	5/25	6/22	7/11	8/19	9/13	10/4	11/10	12/14
pH	7.93	8.47	8.25	8.2	7.92	8.08	WELL SAMPLE	8.16	8.13	7.25	7.15	7.61	7.99
C.O.D.	54	24.7	67	86	11	43		23	42	103	45	86	63
Phenols	.011	.023	.017	.013	.019	.004		.008	.009	.007	.005	.005	.007
Oil and Grease	6.69	2.4	4	3.2	3.4	17.8		11	12.	3.2	10.7	2.9	3
Total Solids	405	355	456	422	530	358		325	414	408	390	378	422
Dissolved Solids	366	321	438	388	368	318		301	390	394	358	360	386
Suspended Solids	40	34	18	34	162	40		24	24	14	32	18	36
Volatile Solids	136	116	161	171	159	89		180	—	148	147	90	96
Non-volatile Solids	268	239	291	251	371	269		145	—	260	243	288	326
Total Cr.													
As.													
Cu.													

Analyst _____

Results in mg/l where applicable.

Rated 15 in index

{CHARLES OLDHAM
775-5031
SHOWED UP AT OUR PUBLIC MTNG. WITH A CERCLA CONCERN ON THIS SITE. YOU MAY WANT TO CALL HIM.



PXS#70687 - CHEROKEE SANFORD GROUP
Southern Wood Piedmont
Gulf, NC Property
August 1987

PATTERSON
EXPLORATION SERVICES

P. O. BOX 1473 - SANFORD, N. C. 27330 - (919) 776-8111

BORING LOGS - PXS# 70687

Hole # B-1

0 - 1'	Gravel
1 - 6'	Fill - Light creosote odor
6 - 18'	Firm tan sandy siltstone, rotten
18 - 22'	Red "greasy" shale
22 - 24'	Rock - hard siltstone
	Bag 6-24'

#B-2

0 - 6'	0-1 Gravel, 1-6 wood shavings, dark brown silty clay, fill - strong creosote odor
6 - 16'	Red siltstone, firm to hard
16 - 20'	Brown siltstone, sandy - Rock
	Bag 16-20'

#B-3

0 - 1'	Crusher run
1 - 8'	Diabase dike
	NST

#B-4

0 - 1'	Gravel, sandy
1 - 8'	Mottled brown, yellow, orange clay silt Bag 1-8'
8 - 30'	Red rotten siltstone "crunchy", O.K. Fair Bag 8-30'
26-30'	Shale - "Greasy"

#B-5

0 - 1'	Crusher run
1 - 4'	Damp plastic silty clay - yellow orange
4 - 14'	Light reddish brown shale "Greasy" - Good
14 - 21'	Red shale - silty Good - "Greasy"
21 - 24'	Firm "Greasy" silty shale
24 - 30'	Soft to firm purple shale - Wet
	Bag 4-30'

#B-6

0 - 5'	Brown silty clay
6 - 10'	Brown very moist clayey silt
10 - 17'	Brown wet clayey silt
17 - 19'	Diabase rock

#B-7

0 - 3'	Brown clayey silt
3 - 4'	Black silty clay
4 - 5'	Black rotten shale
5 - 6'	Tan silty clay
6 - 11'	Light gray clay
11 - 16'	Brown silt
16 - 29'	Wet gray clayey silt

#B-8

0 - 1"	
1" - 3'	Brown clayey silt
3 - 7'	Brown clay
7 - 9'	Brown clayey silt
9 - 12'	Brown clayey silt
12 - 14'	Siltstone
14 - 26'	Brown clayey silt, wet at 21'
26 - 29'	Black shale

#B-9

0 - 10'	Fill, old pond - strong creosote
10 - 17'	Fill - silts and clays
17 - 26'	Siltstone - red brown strong to moderate creosote odor

#B-10 Edge of ponds

0 - 3'	Dark brown clay , slight "greasy", creosote odor
3 - 14'	Brown silt, creosote (moderate) odor
14 - 17'	Diabase

#B-11

0 - 6"	Gravel
6" - 10'	Brown silt
10 - 12'	Diabase - Refusal

#B-12

0 - 2"	Gravel
2" - 10'	Reddish brown "greasy" clay
10 - 20'	Reddish brown "greasy" clay
20 - 29½'	Reddish brown silty slightly greasy clay

#B-13

0 - 8'	Fill - Red silty greasy clay and large rock fragments
8 - 12'	Dark brown silty clay - Moderate creosote odor
12 - 19'	Brown silty (clayey) and siltstone Faint to moderate creosote odor
19'	EOB

#B-14

	No gravel
0 - 6'	Red silty clay, greasy - Creosote odor
6 - 11'	Multicolored silty clays, Fill & creosote
11 - 17½'	Red greasy clay, slight creosote odor

#B-15

0 - 1"	Gravel
1" - 12'	Fill - silts and clays - creosote - strong Water at 10' Strong creosote floating on water
	No sample

#B-16

0 - 5'	Reddish brown silty clay
5 - 6'	Siltstone - refusal
Moved B-19	between ridges
0 - 9'	Reddish brown clayey silt
9'	Rock

#B-17

0 - 5'	Reddish brown silty clay
5 - 5.8'	Siltstone
5.8 - 11'	Reddish brown clay
11 - 15'	Reddish brown clayey silt
15 - 17'	Reddish brown clay, some silt

#B-18

0 - 9'	Fill, silts & clays, strong creosote, Wet at 8.5'

#B-20

0 - 3'	Tan silt
3 - 5'	Tan - brown silty clay
5 - 8'	Tan - brown silt, creosote odor
8 - 16'	Siltstone - tan
16 - 17½'	Light gray silty clay
17½ - 19'	Siltstone - tan

#B-21

0 - 3"	Gravel
3" - 6'	Black silty clay, creosote odor
6 - 11'	Brown clay
11 - 22'	Brown silty clay, water at 21'
22 - 29'	Dark brown clayey silt

#B-22

0 - 6"	Gravel
6" - 9'	Bake zone silt
	8½' - 9' siltstone baked
	No sample

#B-23

0 - 6"	Gravel
6" - 9'	Black-brown silty clay
	Diabase (rotten)
	No sample

Ref. 33

8132

April 30, 1975

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. C. A. Burdell, Director
Research and Environmental
Southern Wood Piedmont Company
P. O. Box 5447
Spartanburg, South Carolina 29301

SUBJECT: Permit No. 8132
Southern Wood Piedmont Company
Gulf Plant
Chatham County, North Carolina

Dear Mr. Burdell:

In accordance with the application received April 5, 1974, we are forwarding herewith Permit No. 8132, issued April 30, 1975, to the Southern Wood Piedmont Company, Gulf Plant, Chatham County, North Carolina, for the continued operation of their wastewater treatment facility, consisting of gravity type oil separators holding ponds, and the discharge of the effluent into a tributary of Deep River (Little Cedar Creek) in the Cape Fear River Basin, for an interim period of time necessary to provide a terminal land application system with no discharge to the surface waters of the state.

This Permit shall be effective from the date of issuance until June 30, 1976, and shall be subject to the terms and conditions specified therein.

Sincerely,

Original Signed by
LEWIS R. MARTIN
Lewis R. Martin

Enclosure

cc: Chatham County Health Department
Mr. L. P. Benton, Jr.
Mr. T. P. Armstrong
Mr. W. E. Long
Mr. R. Van Tilburg

What did they operate under from June 30, 1976 to August 20, 1980

0000 1

NORTH CAROLINA

ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF NATURAL AND ECONOMIC RESOURCES

Raleigh

PERMIT

For the Discharge of Sewage, Industrial Wastes, or Other Wastes

---

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations

PERMISSION IS HEREBY GRANTED TO

Southern Wood Piedmont Company
Gulf Plant
Chatham County

FOR THE

continued operation of their wastewater treatment facility, consisting of gravity type oil separators, holding ponds, and the discharge of the effluent into a tributary of Deep River (Little Cedar Creek) in the Cape Fear River Basin, for an interim period of time necessary to provide a terminal land application system with no discharge to the surface waters of the state,

pursuant to the application received April 5, 1974, and in conformity with the project plans, specifications, and other supporting data, subsequently filed and approved by the Department of Natural and Economic Resources and considered a part of this Permit.

This Permit shall be effective from the date of issuance until June 30, 1975, and shall be subject to the following specified conditions and limitations:

1. This Permit shall become void unless the facilities to provide terminal land application of the wastewater are constructed in accordance with the following time schedule:

   a. Plans and specifications submitted on or before October 15, 1974.
   b. Begin construction on or before May 15, 1975.
   c. Complete construction on or before December 15, 1975.
   d. Begin operation on or before January 15, 1976.

2. This Permit is effective with respect to the limitations pertaining to the nature and volume of effluent set forth as follows:

Interim Effluent Limitations
In mg/l (lbs/day)

During the period beginning with the effective date of this Permit and lasting until Jan. 15, 1976, all discharges from the Southern Wood Piedmont Company Wastewater Treatment Plant shall be limited as specified below:

Effluent Characteristics	Daily Average	Daily Maximum	Other Units Average	Other Units Maximum
Flow			0.004 MGD	0.006 MGD
BOD, 5-Day, 20°C	1300 (39)	2000 (60)		
Total Suspended Solids	300 (9)	450 (14)		
Phenol	250 (8)	380 (12)		

Final Effluent Limitations

Beginning with Jan. 16, 1976, there shall be no discharge to the waters of the State.

The following definitions apply to this condition:

a. The daily average flow is defined as the average of the daily effluent flows in million gallons per day (MGD) during the calendar month.
b. The daily average effluent by concentration is defined as the average of the daily effluent concentrations in milligrams per liter (mg/l) during the calendar month.
c. The daily average effluent by weight is defined as the daily average effluent by concentration multiplied by the daily average flow multiplied by 8.34.
d. The daily maximum flow is defined as the maximum flow for one day during the calendar month.
e. The daily effluent by weight is defined as the flow in MGD multiplied by the daily concentration for the same day multiplied by 8.34.
f. The daily maximum effluent by weight is defined as the maximum daily effluent by weight for one day during the calendar month.

3. This Permit shall become void unless the Permittee conducts monitoring and reporting in accordance with "Regulation Relating to Monitoring and Reporting Wastewater Discharges and Their Effect Upon Receiving Waters," adopted on May 17, 1973, by the North Carolina Board of Water and Air Resources.

4. Pursuant to Chapter 90A of the General Statutes, this is a Class II wastewater treatment plant which requires that the operator in responsible charge hold a valid Grade II Certification.

5. Construction of any facilities associated with this Permit shall not be initiated until plans and specifications have been submitted to the Permitting Authority and written approval of the Plan Documents has been issued.

P. O. Box 5447
Spartanburg, S. C. 29304

Phone 803/576-7660

Ref. 34

Southern Wood Piedmont Company

11-M-1.4.8
August 6, 1980

Mr. Stan Taylor, Regional Engineer
Water Quality Section
N.C. DEPT. OF NATURAL RESOURCES
AND COMMUNITY DEVELOPMENT
P. O. Box 27687
Raleigh, North Carolina 27611

Dear Mr. Taylor:

Southern Wood Piedmont Company would like to thank you and Mr. Lars Godwin for the very cordial meeting on August 5, 1980. Confirming our conversation of that date, Southern Wood Piedmont Company will be closing our plant in Gulf, North Carolina, for economic reasons in 1980. This plant is located in Chatham County, and is west of Sanford, North Carolina, on Highway 421.

Pursuant to our conversation, we would like to completely dismantle the plant, evaporate all of the remaining water in the water pollution control project, level the plant site, and plant trees and grass on the area by the end of this year. In order to accomplish this, we must greatly increase the evaporation of the water currently held in the water pollution control project.

As we discussed, we are therefore asking your department to issue us an addendum to our Permit No. 3931, to allow us to evaporate this water by dispersing it over the approximately forty acres of land currently used as storage sites on the plant. The water in question is water that has been through our biological treatment system, consisting of two aerated lagoons, followed by a spray irrigation system on approximately six acres of grassed land. The runoff from this grassed field is then collected in No. 4 pond, where it is chemically flocculated to reduce the amount of suspended solids, etc. Compiled analytical results for the first seven months of this year for the No. 4 pond are enclosed.

We would harrow or scarify this acreage in question to prevent runoff from leaving the plant site. In addition, we would also put small berms around the area to be irrigated to also prevent any runoff from leaving the plant. We will make every effort to insure that there is no runoff from these irrigation efforts. We would propose to use a combination of irrigation-type equipment and tank trucks to put this water out.

Also enclosed is the information you requested on the soil types in the Chatham County area where our plant is located. If we can provide any additional information on this subject, please let us know.

Due to the limited amount of hot, dry weather remaining in the year, we would appreciate your prompt action on this matter. Thank you for your cooperation.

Sincerely,

SOUTHERN WOOD PIEDMONT COMPANY

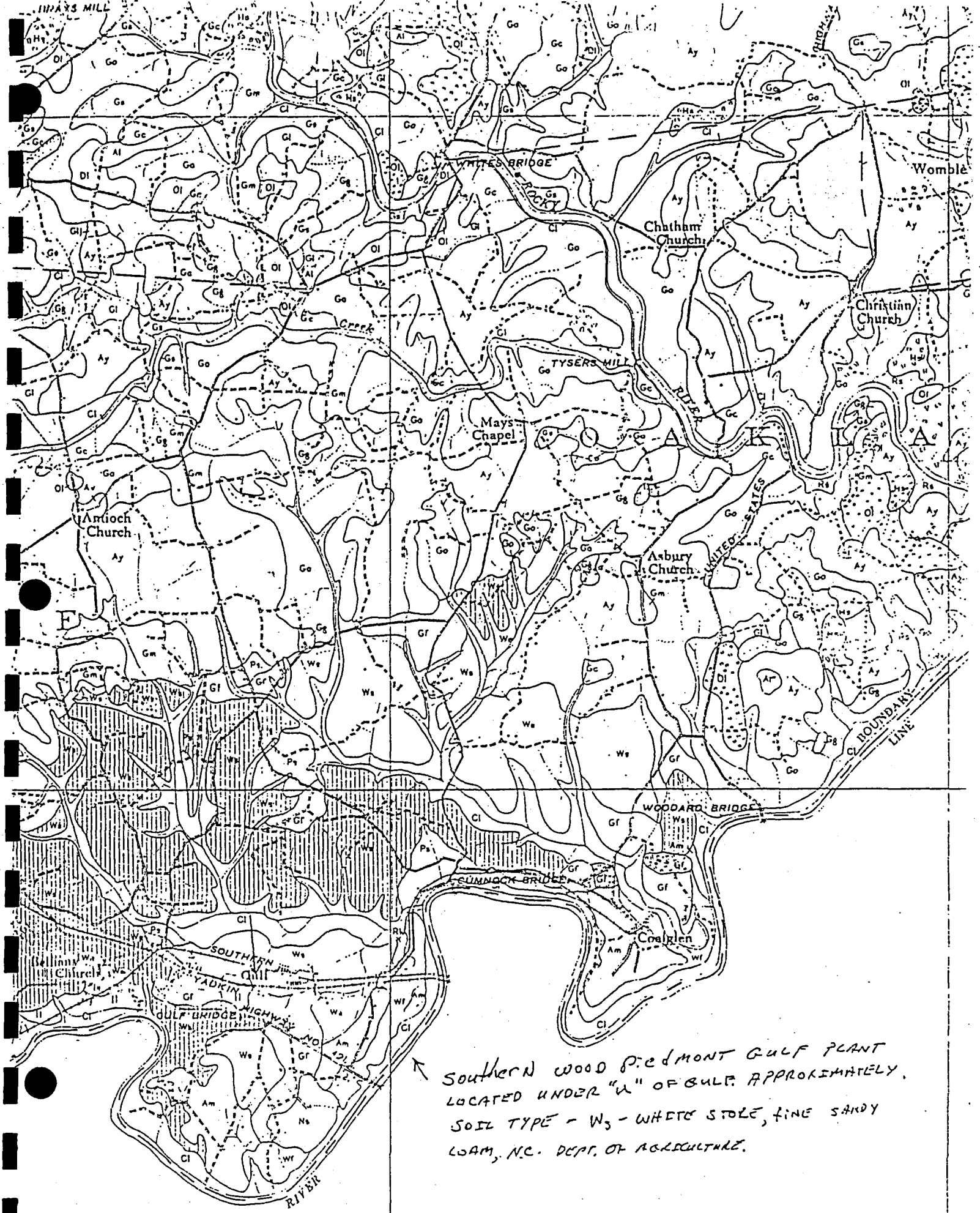
Joe Morgan III

Joe Morgan III
Environmental Manager

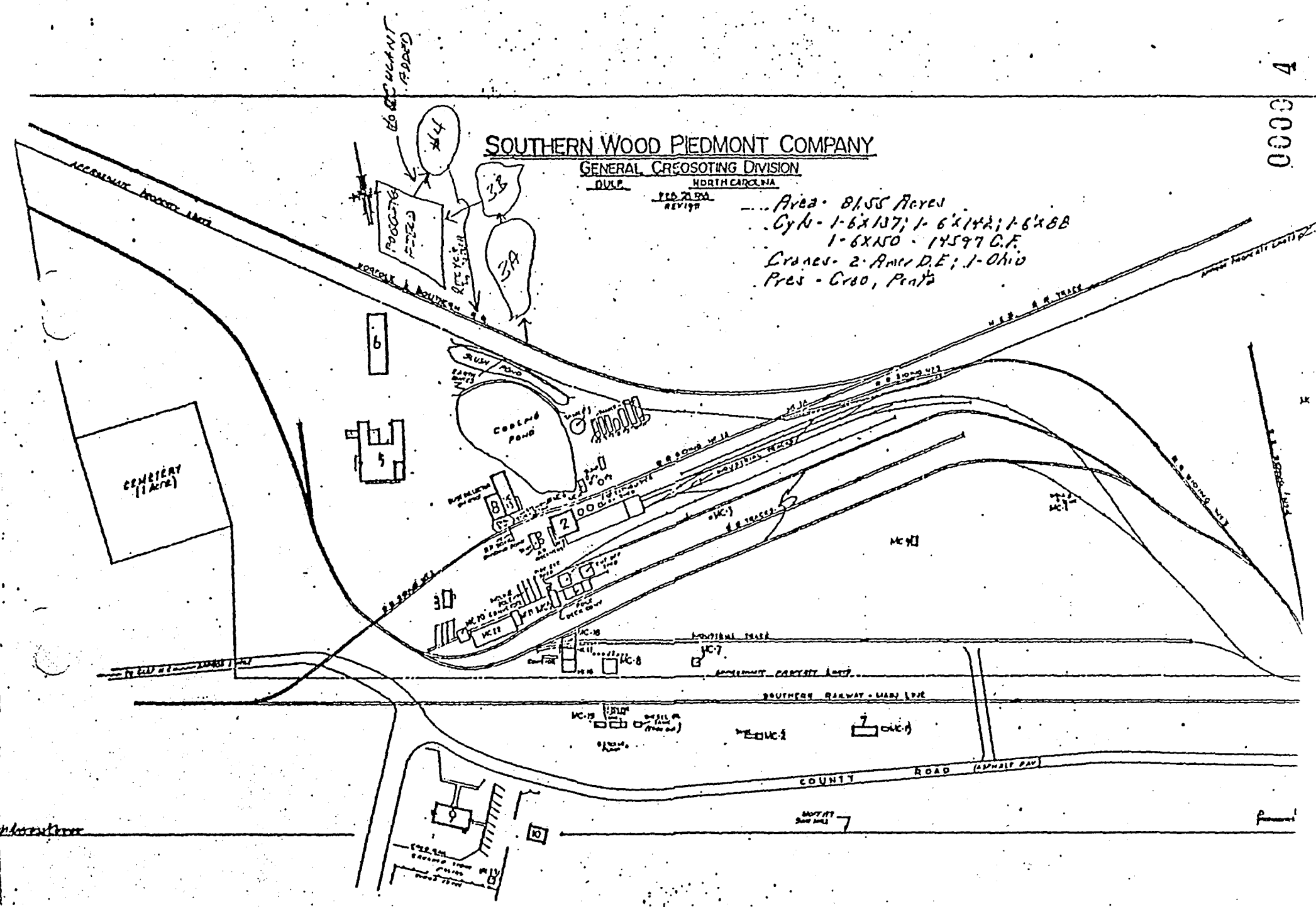
JMIII:kwf

cc: [redacted]
Mr. C. A. Burdell - Atlanta
Mr. M. T. Breen - Atlanta
Mr. C. E. Martin
Mr. M. E. Fix - Gulf
Mr. H. I. Warrington

Enclosures



Southern Wood Piedmont Gulf plant located under "u" of Gulf approximately. Soil type - W_s - White Stole, fine sandy loam, N.C. Dept. of Agriculture.


SOUTHERN WOOD PIEDMONT COMPANY
GENERAL CREOSOTING DIVISION
DULP
NORTH CAROLINA
Area - 81.55 Acres
Cyl - 1-6x137; 1-6x142; 1-6x68
1-6x150 - 14597 C.F.
Cranes - 2-Amer D.E.; 1-Ohio
Pres - Creo, Pen'ts
NORFOLK & SOUTHERN R.R.
COOLING POND
CEMETERY (1 Acre)
SOUTHERN RAILWAY - MAIN LINE
COUNTY ROAD (ASPHALT PAV)

SOUTHERN WOOD PIEDMONT COMPANY

WATER ANALYSIS REPORT

11-M-148

PLANT Gulf, N.C. DATE SAMPLE TAKEN 1980

LOCATION #4 DATE ANALYSIS RUN

	1/22	2/25	3/20	4/15	5/28	6/16	7/20					
pH	7.3	6.3	5.17	—	6.66	6.96	6.93					
C.O.D.	—*	547	487	685	855	637	485					
Phenols	—	.184	.32	.064	.075	.008	.04					
Oil and Grease	—	18	18.6	29.8	39.2	28.0	14					
Total Solids	960	1050	1179	—	1734	1699	1378					
Dissolved Solids	924	974	1071	—	1590	1587	1282					
Suspended Solids	36	76	108	—	144	112	96					
Volatile Solids	283	282	305	—	456	380	243					
Non-volatile Solids	677	768	874	—	1278	1319	1135					
Total Cr.												
As.												
Cu.												

Analyst Michael A. Robbin

Results in mg/l where applicable.

* Bottle Broken

Series 1933, No. 7 Issued August 1937

UNITED STATES DEPARTMENT OF AGRICULTURE

Soil Survey of Chatham County, North Carolina

By

R. C. JURNEY, in Charge, J. T. MILLER, and S. RANKIN BACON

Gulf p. 23 Congaree Sand Loam
p. 30 Ws White Sand Loam

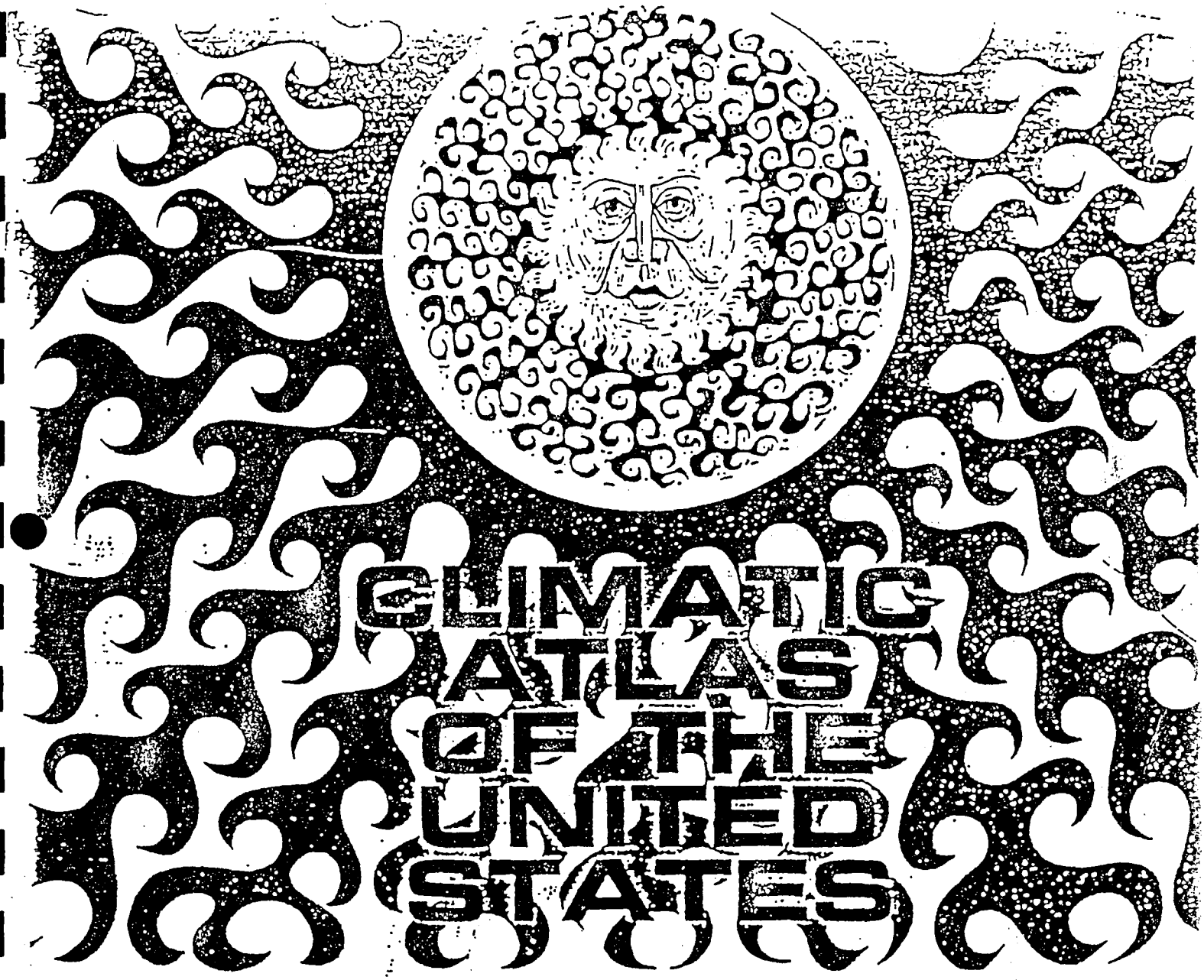
Bureau of Chemistry and Soils

In cooperation with the
North Carolina Department of Agriculture
and the
North Carolina Agricultural Experiment Station

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - - - Price 30 cents

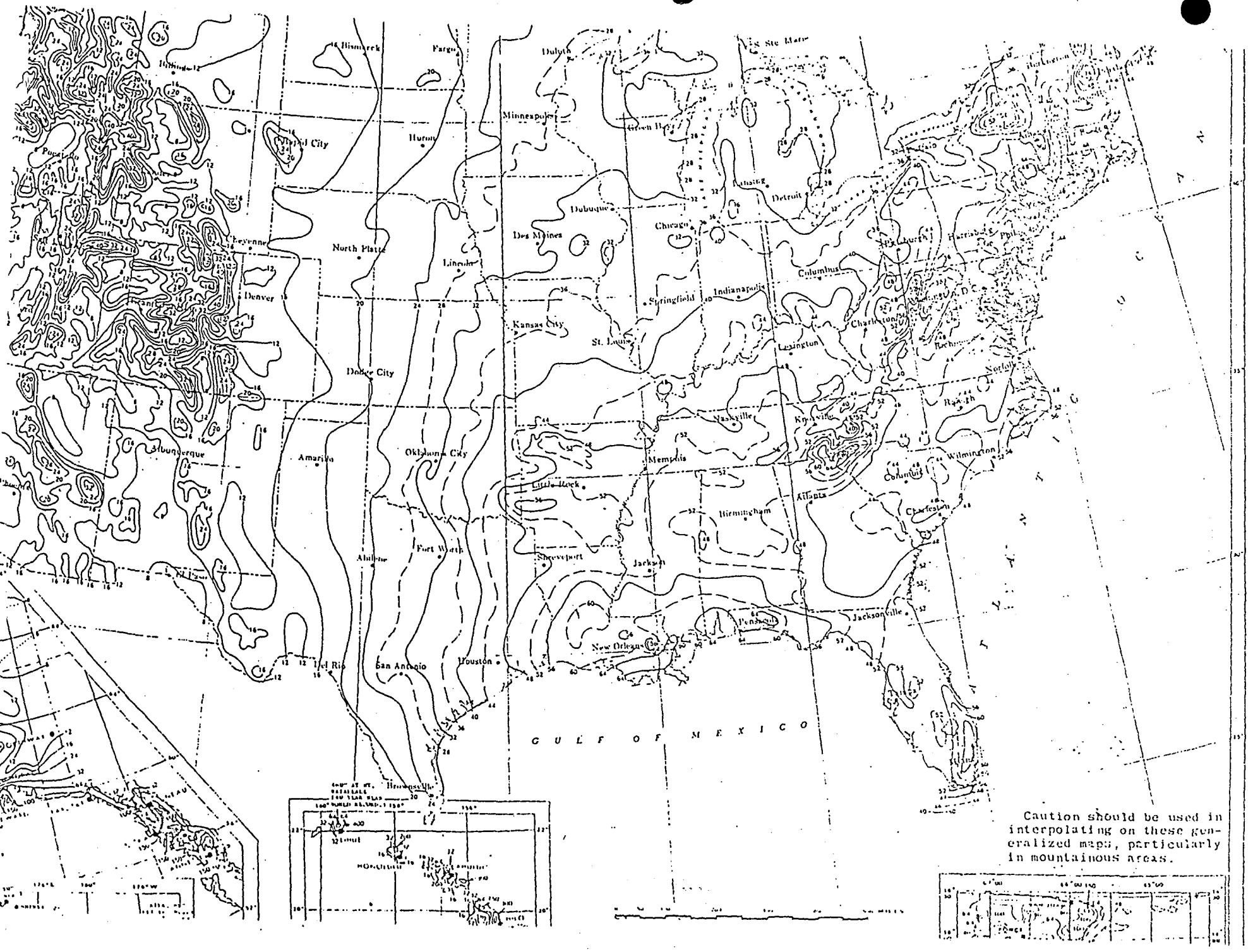
0000 6

Ref. 35



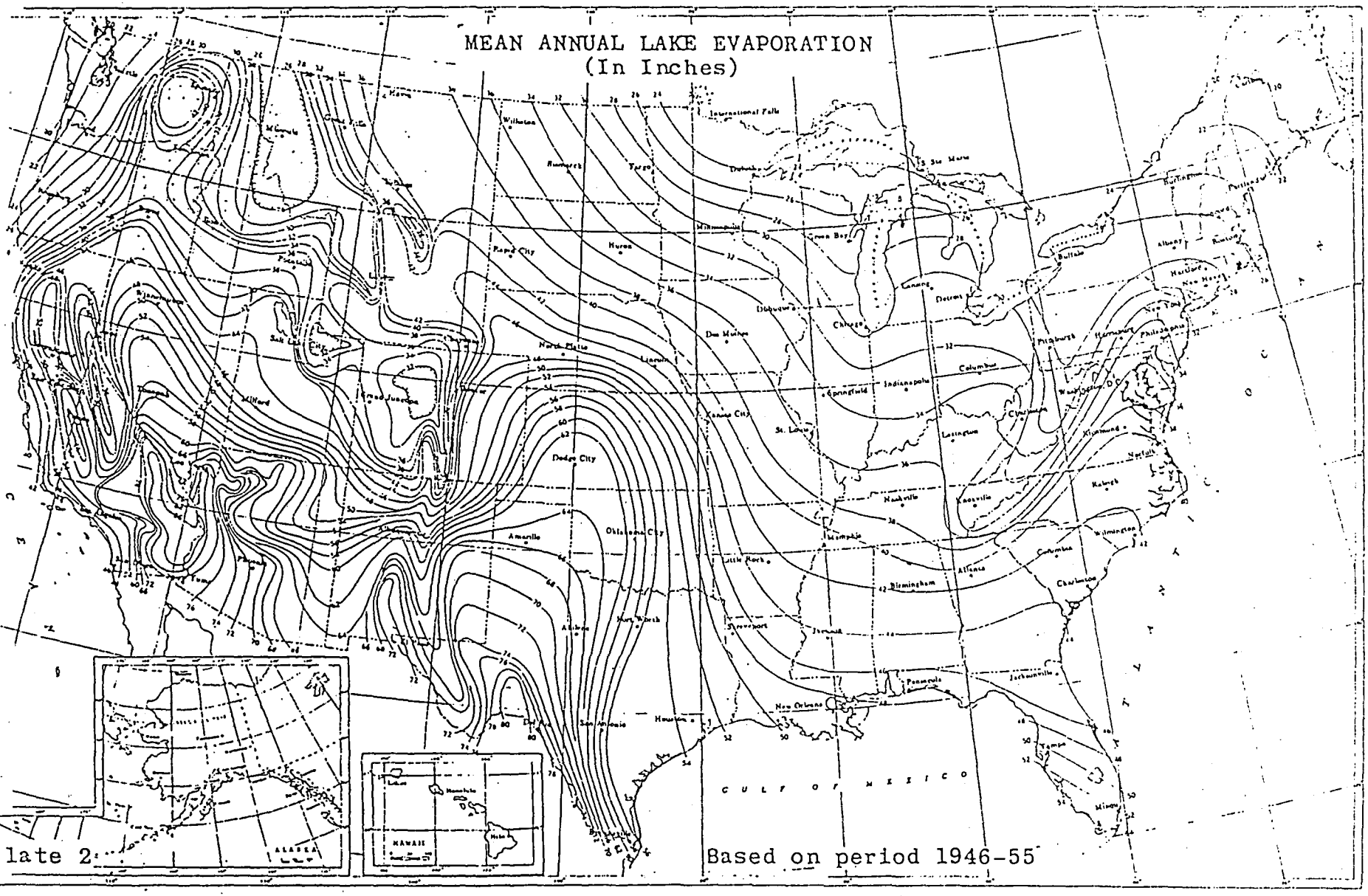
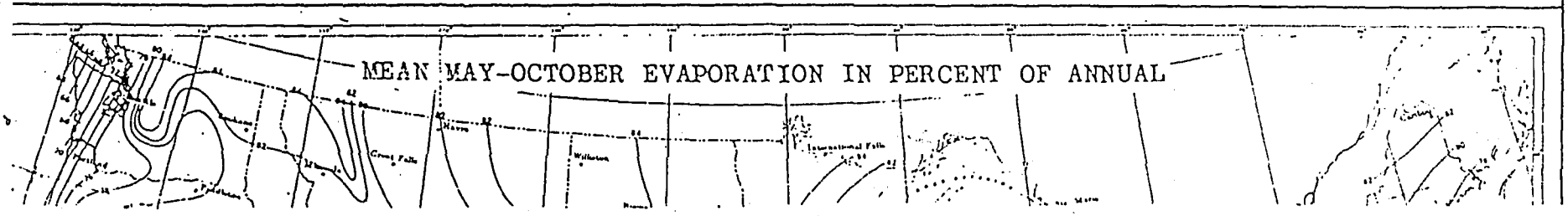
CLIMATIC ATLAS OF THE UNITED STATES

RCE . Environmental Science Services Administration . Environmental Data Service



Caution should be used in interpolating on these generalized maps, particularly in mountainous areas.

E EVAPORATION



late 2