669SERBSF10,638

669SERBSF10,638

Site Name (Subject):	SPANN PROPERTY
Site ID (Document ID):	NCD986180917
Document Name (DocType):	Correspondence (C)
Report Segment:	
Description:	General Correspondence, 1988 - 1995
Date of Document:	8/22/1995
Date Received:	
Box: *Enter SF and # with no spaces*	SF10,638
Access Level:	PUBLIC
Division:	WASTE MANAGEMENT
Section:	SUPERFUND
Program (Document Group):	SERB (SERB)
Document Category:	FACILITY

Print Report for Record | **Go to New Blank Record** | **Go to New Record - (default to last record values)** | **Delete Record**

EPA DID NOT MAIL TO FACILITY

DATE: August 22, 1995

SUBJECT: REMOVAL FROM EPA'S CERCLIS INVENTORY

FROM: Matthew J. Robbins, Brownfields Coordinator
Waste Management Division, Region IV

TO: SPANN PROPERTY
US 25
HENDERSONVILLE
NC 28726

EPA has identified the Brownfields Initiative as one of the Agency's top priorities. The term "brownfields" refers to previously used properties that may lie vacant because potential contamination makes them unmarketable to the private sector. EPA has recently announced a comprehensive Brownfields strategy, including Pilot grants to municipalities, to stimulate economic revitalization.

One part of the strategy has been for EPA to review its complete inventory of Superfund sites. These sites have been screened and determined to require no remedial action under the Federal Superfund Program based on information available as well as on conditions and policies that currently exist. This is to notify you that EPA has removed your facility from EPA's computer inventory known as CERCLIS. THIS DOES NOT INDICATE THAT THE STATE HAS MADE A SIMILAR DETERMINATION.

If you have any questions, please call me at 404/347-5059 ext. 6214.

cc: State Agency

REMEDIAL SITE ASSESSMENT DECISION - EPA REGION IV

RECEIVED
OCT 03 1994
SUPERFUND SECTION

Site Name: Spann Property **EPA ID#:** NCD986180917

Alias Site Names: _____

City: Hendersonville **County or Parish:** Henderson **State:** NC

Refer to Report Dated: August 17,1994 **Report type:** Site Inspection

Report developed by: NCDEHR

DECISION:

|x| **1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:**

|x| 1a. Site does not qualify for further remedial site assessment under CERCLA (No Further Remedial Action Planned - NFRAP)

| | 1b. Site may qualify for further action, but is deferred to: | | RCRA | | NRC

| | **2. Further Assessment Needed Under CERCLA:** 2a. (optional) Priority: | | Higher | | Lower

2b. Activity Type: | | PA | | ESI | | SI | | HRS evaluation

| | Other: _____

DISCUSSION/RATIONALE:

Site is believed to be associated with General Electric NPL site also located in Henderson County, North Carolina. The site allegedly received PCB waste from the GE facility in the 1960s. Currently the site is used as an auto salvage yard. Sampling of the site indicated the presence of metals in a nearby private well and the presence of toluene in the sediment off site. The only legitimate threat at the site is the surface water threat to the wetlands and the habitat of the hellbender (amphibian) and the bog turtle (reptile).

Report Reviewed and Approved by: John McKeown Signature: _____ Date: 9/9/1994

Site Decision Made by: John McKeown Signature: _____ Date: 9/9/1994

EPA Form # 9100-3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

September 29, 1994

RECEIVED
OCT 03 1994
SUPERFUND SECTION

4WD-WPB

Ms. Pat DeRosa, Head
CERCLA Branch
North Carolina Department of Environment,
Health and Natural Resources
Division of Solid Waste Management
P.O. Box 27687
Raleigh, North Carolina 27611-7687

Dear Ms. DeRosa:

The following reports have recently been reviewed and accepted by EPA - Region IV Site Assessment Section:

Site Inspections

Forbes Road Well Site	NFRAP
Spann Property	NFRAP

Site Inspection Prioritizations (SIPs)

Anilox Roll	NFRAP
Asheboro Municipal Landfill	NFRAP
Ashland Petroleum Company	NFRAP
BP Oil	NFRAP
Carochem	NFRAP
Cone Mills Corporation Plant	NFRAP
Croft Metals	NFRAP
Dayco Corporation	NFRAP
Eaton Corporation	NFRAP
Fasco Industries, Inc.	NFRAP
Gaston Co., Dyeing Machine Company	NFRAP
Gaston Co., Dyeing Machine Company (Stanley)	NFRAP
Greensboro City Landfill	NFRAP
Harrisburg Park Landfill	NFRAP
Henson Landfill	NFRAP
Highway 801 Barber	NFRAP
Holding Pond for Scrubber Waste	NFRAP
Honeywell Micro Switch Division	NFRAP
Kelly-Springfield Tire Company	Further Action
Lee County Landfill	NFRAP
Marantz Piano Company	NFRAP
Old Western NC Fairgrounds	NFRAP

Olin Corp. Ecusta Paper & Film Group	NFRAP
Pantasote, Inc.	NFRAP
REA Magnet Wire Company	Further Action
Rowe Corporation Property	NFRAP
S&S Metals Recycling Site	NFRAP
Scovill Inc.	NFRAP
Stewart-Warner Site	NFRAP
Superior Products Company	NFRAP
Texaco, Inc.	NFRAP
Torpedo Wire and Strip	NFRAP
Union County Landfill	Further Action
Uniroyal, Inc.	NFRAP

EXPANDED SITE INSPECTION

Davis Park Road TCE Site	Further Action

Enclosed please find the Remedial Site Assessment Decision Forms for each report generated by the North Carolina Superfund program and a copy of the actual report generated by the EPA Contractor.

If you have any questions concerning these site decisions, please call me at (404) 347-5059, Extension 6150.

Sincerely,

Cynthia K. Gurley

Cynthia K. Gurley
North Carolina, PO

Enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

August 8, 1994

AUG 15 1994

4WD-WPB

Ms. Pat DeRosa, Head
CERCLA Branch
North Carolina Department of Environment,
Health and Natural Resources
Division of Solid Waste Management
P.O. Box 27687
Raleigh, North Carolina 27611-7687

Dear Ms. DeRosa:

The following reports have recently been reviewed and accepted by EPA - Region IV Site Assessment Section:

Preliminary Assessments

Kinston Tornado Site Lenoir County NCD 986 214 989	No Further Remedial Action Planned (NFRAP)
Ross Road Tire Fire Gaston County NCD 986 191 807	Further Action (FA) Low Priority

Site Inspections

Surry County Tire Fire Surry County NCD 986 171 254	NFRAP

Site Inspection Prioritizations (SIPs)

Corning Glass Works New Hanover County NCD 003 938 586	NFRAP
American Petrofina Mktg Guilford County NCD 096 160 262 (Black & Veatch Waste Science)	NFRAP

Carolina Solvents, Inc. NFRAP
Catawba County
NCD 047 285 598

Thomasville Furniture Ind. NFRAP
Caldwell County
NCD 054 290 770

Enclosed please find the Remedial Site Assessment Decision Forms for each report generated by the North Carolina Superfund program and a copy of the actual report generated by the EPA Contractor.

In addition, I have enclosed a copy of the CERCLA Site Status Report for North Carolina.

If you have any questions concerning these site decisions, please call me at (404) 347-5059, Extension 6150.

Sincerely,

Cynthia K. Gurley

Cynthia K. Gurley
North Carolina, PO

Enclosures

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

DEHNR

July 15, 1994

Mr. & Mrs. Raymond Gilliland
Route 8, PO Box 123
Hendersonville, North Carolina 28739

Dear Mr. & Mrs. Gilliland,

On 4 April 1994, Mr. Harry Zinn and I collected samples of water from your domestic well and submitted them for analysis at the NC State Laboratory for Public Health in Raleigh, NC. On 3 May 1994 I received the complete analytical results for the samples and now transmit these results to your attention.

1. In summary, no volatile organic compounds (VOCs), semi-volatile organic compounds, pesticides, or polychlorinated biphenyls (PCBs) were detected in the samples. Acetone was reported in the sample, but was also detected in a blank sample of purified water submitted to the lab. Acetone frequently shows up in analyses as a lab contaminant. The compound is therefore not believed to exist in your well water.

2. Four inorganic elements, barium, lead, selenium, and zinc, were detected in the sample of your well water. All 4 elements were detected at concentrations below their respective Federal and State health-based limits for drinking water.

3. No additional inorganic elements were detected at measurable concentrationsin in your water-well sample. Results are summarized below:

(next page)

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-4996 FAX 919-715-3605
An Equal Opportunity Affirmative Action Employer 50% recycled/ 10% post-consumer paper

Element	Reported Concentration in ug/l	EPA Standard (ug/l)	State Standard (ug/l)
Acetone	3	3,500	700
Barium	100	2,000	2,000
Lead	10	NA	15
Selenium	9	50	50
Zinc	100	11,000	2,100

"EPA Standard" refers to EPA's health-based Maximum Contaminant Level (MCL) for each element in drinking water, or its Reference Dose Screening Concentration. "State Standard" refers to North Carolina's Class GA standards for groundwater quality, as outlined in the North Carolina Administrative Code, Title 15A, Subchapter 2L. These are the water quality standards used in most Federal and State pollution investigations. "ug/l" is a unit of concentration in micrograms per liter (1 ug/l is equivalent to 1 part per billion).

If you have any questions about these results, please call me at (919) 733-2801.

Sincerely,

Stuart F. Parker, Jr.
Hydrogeologist,
NC Superfund Section

Health, & Natural Resources
Solid Waste Management Division

Raleigh, North Carolina 27611

Site Number NCD 986 180 917 Field Sample Number 15 715 [redacted]

Name of Site SPANN PROPERTY Site Location HENDERSONVILLE, NC

Collected By SF PARKER/M ZIPP ID# _____ Date Collected 4/4/94 Time 1930

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
X Ground water (1)	____ Solid (5)	GILLILAND
____ Surface water (2)	____ Liquid (6)	DOMESTIC WATER
____ Soil (3)	____ Sludge (7)	SUPPLY WELL
____ Other (4)	____ Other (8)	(DRINKING WATER)
		SP-01-GW

Organic Chemistry

Parameter	Results(mg/l)
X P&T:GC/MS	
____ Acid:B/N Ext.	
____ MTBE	

Radiochemistry

Parameter	Results (PCI/l)
____ Gross Alpha	
____ Gross Beta	

Microbiology

Parameter	Results (Col/100ml)

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
____ Arsenic	
____ Barium	
____ Cadmium	
____ Chloride	
____ Chromium	
____ Copper	
____ Fluoride	
____ Iron	
____ Lead	
____ Manganese	
____ Mercury	
____ Nitrate	
____ Selenium	
____ Silver	
____ Sulfates	
____ Zinc	
____ pH	
____ Conductivity	
____ TDS	
____ TOC	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
____ Arsenic	
____ Barium	
____ Cadmium	
____ Chromium	
____ Lead	
____ Mercury	
____ Selenium	
____ Silver	

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Organic Compounds	Results(mg/l)
____ benzene	
____ carbon tetrachloride	
____ chlordane	
____ chlorobenzene	
____ chloroform	
____ o-cresol	
____ m-cresol	
____ p-cresol	
____ cresol	
____ 1,4-dichlorobenzene	
____ 1,2-dichloroethane	
____ 1,1-dichloroethylene	
____ 2,4-dinitrotoluene	
____ heptachlor	
____ hexachlorobenzene	
____ hexachlorobutadiene	
____ hexachloroethane	
____ methyl ethyl ketone	
____ nitrobenzene	
____ pentachlorophenol	
____ pyridine	
____ tetrachloroethylene	
____ trichloroethylene	
____ 2,4,5-trichlorophenol	
____ 2,4,6-trichlorophenol	
____ vinyl chloride	
____ endrin	
____ lindane	
____ methoxychlor	
____ toxaphene	
____ 2,4-D	
____ 2,4,5-TP (Silvex)	

Date Received 4-7-94 Reported by John L. Real

Date Extracted _____ Date Reported 5-4-94

Date Analyzed 4-19-94 NW 4/18/94 Lab Number 941021

DHS 3191 (Revised 2/91)

#941021-941040

Health, & Natural Resources
Solid Waste Management Division

P.O. Box 28047, 306 N. Wilmington Street
Raleigh, North Carolina 27611

Site Number NCD 986 180 917 Field Sample Number 15 717

Name of Site SPANN PROPERTY Site Location HENDERSONVILLE, NC

Collected By SF PARKER/H ZIPP ID# _____ Date Collected 4/4/94 Time 19:30

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
X Ground water (1)	____ Solid (5)	GILLILAND
____ Surface water (2)	____ Liquid (6)	DOMESTIC WATER
____ Soil (3)	____ Sludge (7)	SUPPLY WELL
____ Other (4)	____ Other (8)	(DRINKING WATER)
		SP-01-GW

TCLP Compounds

Inorganic Compounds	Results (mg/l)
____ Arsenic	
____ Barium	
____ Cadmium	
____ Chromium	
____ Lead	
____ Mercury	
____ Selenium	
____ Silver	

Organic Chemistry

Parameter	Results (mg/l)
____ P&T:GC/MS	
X Acid:B/N Ext.	
____ MTBE	
X PESTICIDE/PCB	
____ PCB's	<0.0001
____ ENDRIN	<0.0001
____ LINDANE	<0.0002
____ Methoxychlor	<0.001
____ Toxaphene	<0.002
____ Chlordane	<0.0002
____ Heptachlor	<0.0001
____ Hexachloro-BENZENE	<0.0001

Inorganic Chemistry

Parameter	Results (mg/l) (mg/kg)
____ Arsenic	
____ Barium	
____ Cadmium	
____ Chloride	
____ Chromium	
____ Copper	
____ Fluoride	
____ Iron	
____ Lead	
____ Manganese	
____ Mercury	
____ Nitrate	
____ Selenium	
____ Silver	
____ Sulfates	
____ Zinc	
____ pH	
____ Conductivity	
____ TDS	
____ TOC	

Radiochemistry

Parameter	Results (PCi/l)
____ Gross Alpha	
____ Gross Beta	

Microbiology

Parameter	Results (Col/100ml)

Organic Compounds	Results (mg/l)
____ benzene	
____ carbon tetrachloride	
____ chlordane	
____ chlorobenzene	
____ chloroform	
____ o-cresol	
____ m-cresol	
____ p-cresol	
____ cresol	
____ 1,4-dichlorobenzene	
____ 1,2-dichloroethane	
____ 1,1-dichloroethylene	
____ 2,4-dinitrotoluene	
____ heptachlor	
____ hexachlorobenzene	
____ hexachlorobutadiene	
____ hexachloroethane	
____ methyl ethyl ketone	
____ nitrobenzene	
____ pentachlorophenol	
____ pyridine	
____ tetrachloroethylene	
____ trichloroethylene	
____ 2,4,5-trichlorophenol	
____ 2,4,6-trichlorophenol	
____ vinyl chloride	
____ endrin	
____ lindane	
____ methoxychlor	
____ toxaphene	
____ 2,4-D	
____ 2,4,5-TP (Silvex)	

Date Received 4-7-94 NW Reported by _____
PEST+PCB: 4-8-94 VP, BD
Date Extracted BNA 4-8-94 SA, WG Date Reported _____
BNA PEST+PCB
Date Analyzed 4-11-94, 4-8-94 Lab Number 941022
BO VP

DHS 3191 (Revised 2/91)

N.C. Department of Environment,
Health, & Natural Resources
Solid Waste Management Division

P.O. Box 28047, 306 N. Wilmington Street
Raleigh, North Carolina 27611

Site Number NCD 986 180 917 Field Sample Number 16668

Name of Site SPANN PROPERTY Site Location HENDERSONVILLE, NC

Collected By SF PARKER/H ZIPP ID# _____ Date Collected 4/4/94 Time 1938

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
X Ground water (1)	____ Solid (5)	GILLILAND
____ Surface water (2)	____ Liquid (6)	DOMESTIC WATER
____ Soil (3)	____ Sludge (7)	SUPPLY WELL
____ Other (4)	____ Other (8)	(DRINKING WATER)
		SP-01-GW

Organic Chemistry

Parameter	Results (mg/l)
____ P&T:GC/MS	
____ Acid:B/N Ext.	
____ MTBE	

Radiochemistry

Parameter	Results (PCi/l)
____ Gross Alpha	
____ Gross Beta	

Microbiology

Parameter	Results (Col/100ml)

Inorganic Chemistry

Parameter	Results (mg/l) (~~mg/kg~~)
X Arsenic	<0.01
X Barium	0.10
X Cadmium	<0.002
____ Chloride	
X Chromium	<0.01
____ Copper	
____ Fluoride	
____ Iron	
X Lead	0.010
____ Manganese	
X Mercury	<0.0005
____ Nitrate	
X Selenium	0.009
X Silver	<0.05
____ Sulfates	
X Zinc	0.10
____ pH	
____ Conductivity	
____ TDS	
____ TOC	

TCLP Compounds

Inorganic Compounds	Results (mg/l)
____ Arsenic	
____ Barium	
____ Cadmium	
____ Chromium	
____ Lead	
____ Mercury	
____ Selenium	
____ Silver	

Organic Compounds	Results (mg/l)
____ benzene	
____ carbon tetrachloride	
____ chlordane	
____ chlorobenzene	
____ chloroform	
____ o-cresol	
____ m-cresol	
____ p-cresol	
____ cresol	
____ 1,4-dichlorobenzene	
____ 1,2-dichloroethane	
____ 1,1-dichloroethylene	
____ 2,4-dinitrotoluene	
____ heptachlor	
____ hexachlorobenzene	
____ hexachlorobutadiene	
____ hexachloroethane	
____ methyl ethyl ketone	
____ nitrobenzene	
____ pentachlorophenol	
____ pyridine	
____ tetrachloroethylene	
____ trichloroethylene	
____ 2,4,5-trichlorophenol	
____ 2,4,6-trichlorophenol	
____ vinyl chloride	
____ endrin	
____ lindane	
____ methoxychlor	
____ toxaphene	
____ 2,4-D	
____ 2,4,5-TP (Silvex)	

Date Received _____ Reported by _____

Date Extracted _____ Date Reported 005714 APR 8 94

Date Analyzed _____ Lab Number _____

DHS 3191 (Revised 2/91)

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 28047 - 306 N. WILMINGTON ST., RALEIGH, NC 27611

(1)

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	941021	941023	941025	941028	941030	941032
	FIELD NO	15715	15718	15721	15726	15728	15731
COMPOUND	TYPE	(1)	(2)	(4)	(4)	(2)	(4)
	UNITS	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
CHLOROMETHANE	20ppb	u	u	u	u	u	u
VINYL CHLORIDE	10						
BROMOMETHANE	20						
CHLOROETHANE	10						
TRICHLOROFLUOROMETHANE	10						
ACETONE	50	3J,B					
1,1-DICHLOROETHENE	5	u					
IODOMETHANE	10						
METHYLENE CHLORIDE	5						
CARBON DISULFIDE							
TRANS-1,2-DICHLOROETHENE							
H ACRYLONITRILE	200						
1,1-DICHLOROETHANE	5						
2-BUTANONE	50						
CIS-1,2-DICHLOROETHENE	5						
CHLOROFORM							
1,1,1-TRICHLOROETHANE							
CARBON TETRACHLORIDE	10						
BENZENE	5						
1,2-DICHLOROETHANE							
TRICHLOROETHANE							
1,2-DICHLOROPROPANE							
BROMODICHLOROMETHANE	10						
	↑ MDL ↑						

B - BACKGROUND PRESENT IN LAB BLANKS.
J - Estimated value
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.
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.
H - COMPOUND REUABLY DETECTABLE ONLY AT HIGH CONCENTRATIONS.
C - POSSIBLE LAB CONTAMINATION.

(2)

STATE LABORATORY OF PUBLIC HEALTH
PO BOX 28047 - 306 N. WILMINGTON ST., RALEIGH, NC 27611

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	941021	941023	941025	941028	941030	941032
	FIELD NO	15715	15718	15721	15726	15728	15731
COMPOUND	TYPE	(1)	(2)	(4)	(4)	(2)	(4)
	UNITS	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
DIBROMOMETHANE	5 ppb	u	u	u	u	u	u
4-METHYL-2-PENTANONE	50						
CIS-1,3-DICHLOROPROPENE	5						
TOLUENE					11		
TRANS-1,3-DICHLOROPROPENE					u		
1,1,2,2-TETRACHLOROETHANE	10						
1,1,2-TRICHLOROETHANE	5						
2-HEXANONE	50						
TETRACHLOROETHENE	5						
DIBROMOCHLOROMETHANE	10						
ETHYLENE DIBROMIDE	5						
CHLOROBENZENE							
1,1,1,2-TETRACHLOROETHANE	10						
ETHYL BENZENE	5						
XYLENES	10						
STYRENE	5						
BROMOFORM	10						
H TRANS-1,4-DICHLORO-2-BUTENE	80						
H 1,2,3-TRICHLOROPROPANE	200						
1,4-DICHLOROBENZENE	10						
1,2-DICHLOROBENZENE							
H 1,2-DIBROMO-3-CHLOROPROPANE	200						
H VINYL ACETATE							
	↑MDL↑						

B - BACKGROUND PRESENT IN LAB BLANKS.
J - Estimated value
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.
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.
H - COMPOUND RELIABLY DETECTABLE ONLY AT HIGH CONCENTRATIONS.
C - POSSIBLE LAB CONTAMINATION.

(1)

STATE LABORATORY OF PUBLIC HEALTH
DIVISION OF HEALTH SERVICES, N.C. DEPARTMENT OF HUMAN RESOURCES
P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	941022	941024	941026	941027	941029	941031
	FIELD #	15717	15720	15722	15725	15727	15730
COMPOUND	TYPE	(1)	(2)	(4)	(2)	(4)	(2)
	UNITS	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	~~mg/l~~ µg/kg	µg/l ~~mg/kg~~	~~mg/l~~ µg/kg	µg/l ~~mg/kg~~
N-nitrosodimethylamine	10/330	U	U	U	U	U	U
bis(2-chloroethyl)ether	↓	↓	↓	↓	↓	↓	↓
2-chlorophenol	↓	↓	↓	↓	↓	↓	↓
phenol	↓	↓	↓	↓	↓	↓	↓
1,3-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
1,4-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
1,2-dichlorobenzene	↓	↓	↓	↓	↓	↓	↓
bis(2-chloroisopropyl)ether	↓	↓	↓	↓	↓	↓	↓
hexachloroethane	↓	↓	↓	↓	↓	↓	↓
N-nitroso-di-n-propylamine	↓	↓	↓	↓	↓	↓	↓
nitrobenzene	↓	↓	↓	↓	↓	↓	↓
isophorone	↓	↓	↓	↓	↓	↓	↓
2-nitrophenol	↓	↓	↓	↓	↓	↓	↓
2,4-dimethylphenol	↓	↓	↓	↓	↓	↓	↓
bis(2-chloroethoxy)methane	↓	↓	↓	↓	↓	↓	↓
2,4-dichlorophenol	↓	↓	↓	↓	↓	↓	↓
1,2,4-trichlorobenzene	↓	↓	↓	↓	↓	↓	↓
naphthalene	↓	↓	↓	↓	↓	↓	↓
hexachlorobutadiene	↓	↓	↓	↓	↓	↓	↓
4-chloro-m-cresol	↓	↓	↓	↓	↓	↓	↓
hexachlorocyclopentadiene	↓	↓	↓	↓	↓	↓	↓
2,4,6-trichlorophenol	↓	↓	↓	↓	↓	↓	↓
2-chloronaphthalene	↓	↓	↓	↓	↓	↓	↓
acenaphthylene	↓	↓	↓	↓	↓	↓	↓
dimethyl phthalate	↓	↓	↓	↓	↓	↓	↓
2,6-dinitrotoluene	↓	↓	↓	↓	↓	↓	↓
acenaphthene	↓	↓	↓	↓	↓	↓	↓
2,4-dinitrophenol	50/1650	↓	↓	↓	↓	↓	↓
2,4-dinitrotoluene	10/330	↓	↓	↓	↓	↓	↓
4-nitrophenol	50/1650	↓	↓	↓	↓	↓	↓
fluorene	10/330	↓	↓	↓	↓	↓	↓
4-chlorophenylphenylether	↓	↓	↓	↓	↓	↓	↓
diethyl phthalate	↓	↓	↓	↓	↓	↓	↓
4,6-dinitro-o-cresol	50/1650	↓	↓	↓	↓	↓	↓
diphenylamine	10/330	↓	↓	↓	↓	↓	↓
azobenzene	↓	↓	↓	↓	↓	↓	↓
4-bromophenylphenylether	↓	↓	↓	↓	↓	↓	↓
hexachlorobenzene	↓	↓	↓	↓	↓	↓	↓
pentachlorophenol	50/1650	↓	↓	↓	↓	↓	↓
phenanthrene	10/330	↓	↓	↓	↓	↓	↓
anthracene	↓	↓	↓	↓	↓	↓	↓
dibutyl phthalate	↓	↓	↓	↓	↓	↓	↓
fluoranthene	↓	↓	↓	↓	↓	↓	↓

MDL
H_2O/SOIL

J - Estimated value.
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. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

N.C. Division of Health Services
DHS 3068-0 (4/86 Laboratory)

(2)

STATE LABORATORY OF PUBLIC HEALTH
DIVISION OF HEALTH SERVICES, N.C. DEPARTMENT OF HUMAN RESOURCES
P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	941022	941024	941026	941027	941029	941031
	FIELD #	15717	15720	15722	15725	15727	15730
COMPOUND	TYPE	(1)	(2)	(4)	(2)	(4)	(2)
	UNITS	µg/l ~~mg/kg~~	µg/l ~~mg/kg~~	~~mg/l~~ µg/kg	µg/l ~~mg/kg~~	~~mg/l~~ µg/kg	µg/l ~~mg/kg~~
pyrene	10/330	U	U	U	U	U	U
benzidine	50/1650						
butyl benzyl phthalate	10/330						
benz(a)anthracene							
chrysene							
3,3-dichlorobenzidine	50/1650						
bis(2-ethylhexyl)phthalate	10/330						
di-n-octyl phthalate	10/330						
benzo(b)fluoranthene	50/1650						
benzo(k)fluoranthene							
benzo(a)pyrene							
indeno(1,2,3-cd)pyrene							
dibenzo(a,h)anthracene							
benzo(g,h,i)perylene							
aniline	50/1650	U	U	U	U	U	U
benzoic acid							
benzyl alcohol							
4-chloroaniline							
dibenzofuran	10/330						
2-methylnaphthalene							
2-methylphenol							
4-methylphenol							
2-nitroaniline	50/1650						
3-nitroaniline							
4-nitroaniline							
2,4,5-trichlorophenol							

MDL
H_2O/501L

J - Estimated value.
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. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

N.C. Division of Health Services
DHS 3068-0 (4/86 Laboratory)

NC-DEHNR
Division of Solid Waste Management
☐ Superfund Section
☐ Hazardous Waste Section
☐ Solid Waste Section

Inorganics Lab: _____

CHAIN OF CUSTODY RECORD

Project Name: SPANN PROPERTY
Site ID # (NCD#) 986 180 917
Location: Route 25 Hendersonville NC
Address: _____

Sampled by: Stuart Parker Superfund Section
Sampler ID —
Telephone: (919) 733 2801
Date Sampled: 4/4-5/94
Time Sampled: —

Sample Types: Soil X Water X Waste _____ Other SEDIMENT

Remarks: 15723 DESTROYED 4/6/94

Field Sample Numbers

15715	15717	15718	15720	15721	15722	15725
15726	15727	15728	15730	15731	15732	15733
15735	15736	15737	15738	15739	15740 (MP)	

Relinquished by: [signature] (Signature) Date: 4/7/94 Time: 1435

Received by: William C Glenn Jr (Signature) Date: 4-7-94 Time: 14:35

Relinquished by: _____ (Signature) Date: _____ Time: _____

Received by: _____ (Signature) Date: _____ Time: _____

Relinquished by: _____ (Signature) Date: _____ Time: _____

Received by: _____ (Signature) Date: _____ Time: _____

Results Reported: John R. Neal (Signature) #941021-941040 Date: 5-4-94 Time: _____

(A:\COCR.FRM)

:C-DEHNR
)ivision of Solid Waste Management
☐ Superfund Section
☐ Hazardous Waste Section
☐ Solid Waste Section

Organics a :
Inorganics Lab: X

RECEIVED
JUN - 2 1994
SUPERFUND SECTION

CHAIN OF CUSTODY RECORD

Project Name: SPANN PROPERTY
Site ID # (NCD#) 986 180 917
Location: Route 25 Hendersonville NC
Address:

Sampled by: Stuart Parker Superfund Section
Sampler ID —
Telephone: (919) 733 2801
Date Sampled: 4/4-5/94
Time Sampled: —

Sample Types: Soil X Water X Waste Other SEDIMENT

Remarks:

Field Sample Numbers: ~~16667~~ ~~16668~~ 16668 16669 16670 16671 16672 16673 16674 16675 16676 16677

Relinquished by: Stuart D Parker Jr (Signature) Date: 4/7/94 Time: 1450

Received by: Joyce Davis (Signature) Date: 4/7/94 Time: 2:51

Relinquished by: (Signature) Date: Time:

Received by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

Received by: (Signature) Date: Time:

Results Reported: (Signature) Date: 7/15/94 Time:

(A:\COCR FRM)

PMMGRID STATE N.C. PUBLIC WATER SUPPLY SYSTEM 04/28/94
ACTIVE SYSTEMS
GRID LATITUDE: 351930 / 352700, LONGITUDE: 0822530 / 0823500

PWS ID	SYSTEM NAME	TYPE	POPULATION	RES.PERSON WORK PHONE	SOURCE NAME	SOURCE TYPE	SOURCE AVAIL.	LATITUDE	LONGITUDE
111135	HOMESTEAD MOBILE VILLAGE	C	77		WELL #1	G	P	352650	823050
111481	WORDS OF LIFE TABERNACLE CH	N	90	7046845570	WELL	G	P	352640	823430
145010	HENDERSONVILLE, CITY OF	C	45400	7048917779	MILLS RIVER	S	P	352331	823404
145030	LAUREL PARK, TOWN OF	C	2000	7046927568	HENDERSONVILLE	P	P	352331	823404
145105	BRIGHTWATER I & II	C	224	7048914742	WELL SUPPLY	G	P	352030	823115
	BRIGHTWATER I & II	C	224	7048914742	WELL SUPPLY	G	P	352030	823115
145113	FLETCHER ACADEMY INC	C	400	7046848501	WELL	G	P	352350	822905
	FLETCHER ACADEMY INC	C	400	7046848501	WELL	G	P	352350	822905
	FLETCHER ACADEMY INC	C	400	7046848501	WELL	G	P	352350	822905
	FLETCHER ACADEMY INC	C	400	7046848501	WELL	G	P	352350	822905
145127	HOOPERS CREEK WTR SYSTEM	C	195	7042749468	HENDERSONVILLE	P	P	352330	823410
145135	GRAHAMS MHP	C	50	7042985152	WELL	G	P	352615	823100
145138	GREEN ACRES COMM WTR SYSTEM	C	88	7046924668	WELL	G	P	351940	823030
145140	HIGH VISTA ESTATES	C	250	7048913990	WELLS	G	P	352530	823500
	HIGH VISTA ESTATES	C	250	7048913990	WELLS	G	P	352530	823500
145145	TWIN OAKS MOBILE HOME PARK	C	35	7046845417	WELL	G	P	352555	822735
145146	BRIGHTWATER III	C	100	7048914742	WELL	G	P	352030	823115
145149	FAIRFIELD APARTMENTS	C	110	7046842294	WELL	G	P	352400	823100
145157	HOLLY TREE S/D	C	42	7046936062	WELL	G	P	352200	822615
145164	ESTATES OF THE SALISBURY	C	72	8006271939	WELL #2	G	P	352251	822700
	ESTATES OF THE SALISBURY	C	72	8006271939	WELL #1	G	P	352251	822701
145166	CAROLINA ACRES MHP	C	25	7046924940	WELL #1	G	P	352125	822745
145403	KANUGA CONFERENCE CENTER	C	375	7046929136	SPRING #2	G	P	352347	823457
145420	MOUNTAIN VIEW REST HOME	C	44	7046929960	WELL	G	P	352300	822800
145421	HENDERSON'S REST HOME	C	50	7046922220	WELL	G	P	352235	822825
145428	HORSESHOE REST	N	100	7048914000	WELL	G	P	352030	823310
145430	JAKES DRIVING RANGE	N	75	7046848086	WELL	G	P	352300	823010
145441	LAMBS MHP	C	38	7046938889	WELL	G	P	352235	822830
	LAMBS MHP	C	38	7046938889	WELL	G	P	352235	822830
	LAMBS MHP	C	38	7046938889	WELL	G	P	352235	822830
145443	SOUTH MILLS RIVER MHP	C	48	7048917257	WELL SUPPLY	G	P	352310	823350
145455	CAMP HIGH LANDER	N	450		DRILLED WELL	G	P	352010	823340
145457	CAMP SKY VALLEY	N	120		SPRING	G	P	352017	822915
145460	FAIRFIELD TENNIS CAMP	N	75	7046870534	WELL	G	P	352410	823015
	FAIRFIELD TENNIS CAMP	N	75	7046870534	WELL	G	P	352410	823015
145461	NO CAROLINA ELKS CAMP	N	600		DRILLED WELL	G	P	352019	822843
145462	BREEZY ACRES SUB	N	33	7046842762	WELL	G	P	352620	822810
145504	HENDERSON CO WEIGH STA---EBL	N	145	9197337872	WELL	G	P	352305	822910
145505	HENDERSON CO WEIGH STA WBL	N	125	9197337872	WELL	G	P	352305	822910

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MAY - 2 1994
SUPERFUND SECTION

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

DEHNR

March 11, 1994

Mr. Robert Smith
Environmental Health Supervisor
Henderson County Health Department
1347 Spartanburg Highway
Hendersonville, NC 28792

RE: Site Inspection
Spann Property
NCD 986 180 917

Dear Mr. Smith:

David Lilley of the North Carolina Superfund Section spoke with Mary Dickson of your office today to notify you that the NC Superfund Section will conduct a site inspection of the subject site located in Henderson County, North Carolina. The inspection will be conducted on March 28-30, 1994 by Stuart Parker of the NC Superfund Section.

The purpose of the inspection is to determine if the site poses a hazard to public health or the environment because of releases of contaminants to soil, surface water, groundwater, or air. The inspection team will take samples on and around the site to determine if a hazardous condition exists. Additionally, they will locate all nearby water supplies (surface and groundwater, community and private) and any close sensitive environments, schools, and day care centers.

This inspection is not an emergency situation but is a normal step in the evaluation of all uncontrolled and unregulated potential hazardous waste sites in North Carolina. You may want to have your representative meet the inspection team at the site. If so, please contact Stuart Parker at (919) 733-2801 and he will coordinate a meeting. I am enclosing background data on the site for your information.

If the inspection indicates the need for future study of the site, we will contact your office to advise. If you have any questions please don't hesitate to call David Lilley or me at (919) 733-2801.

Sincerely,

Pat DeRosa, Head
CERCLA Branch
NC Superfund Section

Enclosures

cc: Dexter Matthews
Doug Holyfield
Pat Williamson
Kim Clarke
David Lilley
Donna Keith

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-4996 FAX 919-715-3605
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Federal

Trip Notification & Authorization

Prepared by: Stuart Parker Today's Date: 3/3/94

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only.

Site Trip

Date of Trip: 3/28-30/94

If trip date changed or cancelled note below:

Trip Date Changed To: _____ Cancelled: ___

NCD#: 986 180 917 Site Name: Spann Property

City: Hendersonville County: [redacted] Henderson

Reason for Trip: Site Inspection

Name of Hotel (Overnight Trip): TBA Hotel Telephone Number: ( ) ___ - _____

Authorized by: David B. [illegible]
Industrial Hygienist

Project Team Leader: Stuart Parker

Assistants: Harry Linn, _____, _____

Attach To Notification Form: 1 copy each: Submit to the Industrial Hygienist

- Preliminary Assessment Form (First page only)
- Site Map
- PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)

Environmental Supervisor or Health Director to call: Mr. Robert Smith [redacted] Title: Env. Health Supervisor

(Note if Dr., M.D., etc.)

Telephone Number: (704) 692-4228

Notes: Health Department Official Contacted: Mary Dickson

Back Up Letter Required: Yes ✓ No ___

Notified Ms. Dickson for Mr. Smith on 3-11-94 (DBL)

Note: Signed original to Data Manager

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

DEHNR

March 7, 1994

Mr. Craig Benedikt
NC CERCLA Project Officer
EPA Region IV Waste Division
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: Sampling Plan
Site Inspection
Spann Property
Hendersonville, Asheville County, NC
NCD 986 180 917

Dear Mr. Benedikt:

The enclosed document summarizes proposed sampling activity to be undertaken at the Spann Property in Hendersonville, NC as part of a Site Inspection. The sampling plan is based on findings made during the Preliminary Assessment of the site submitted by the NC Superfund Section on August 17, 1992. The plan summarizes the locations of samples to be collected during the SI and the rationale for the various samples.

The site is presently used as an automotive scrapyard. One dwelling with 3 residents is also present. During the late 1960s, however, the site was used by a waste disposal contractor/hauler to dispose of various solid wastes generated at General Electric Corporation's facility in East Flat Rock, NC. The waste, which reportedly consisted mainly of cardboard, was burned outdoors and/or buried within the property, possibly within mapped wetlands.

The contractor who performed the onsite disposal previously disposed of GE waste on his own property, which was subsequently proposed for the National Priorities List after the discovery of contamination by PCBs and chlorinated solvents. Because similar disposal activities were reported at the Spann Property, solvent and PCB contamination is suspected there as well.

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-4996 FAX 919-715-3605
An Equal Opportunity Affirmative Action Employer 50% recycled/ 10% post-consumer paper

The nearest drinking water wells to the site are located 0.5 to 1.0 mile away. Because of the distance and relative immobility of PCBs in groundwater, the solvents are considered the primary threat to the drinking water supplies.

The Spann Property site drains to Mud Creek through 2 mapped wetland areas. The surface water pathway contains significant wetland frontage and fisheries which might be affected by contaminated runoff from the site.

In addition to the scrapyard owner and 2 other residents, an undetermined number of workers are present at the site. The site is fenced to limit public access, however, and evidence of contaminated surface soil or airborne vapors or particulates was not observed during the PA reconnaissance. The threat of soil or air exposure associated with the site is therefore considered minimal.

For the above reasons, sampling will focus on the surface water pathway and on the nearest domestic or public well to the site. An attempt will be made to locate the former GE disposal area onsite and to sample the waste or associated leachate for contaminants. Surface water and sediment samples will be collected upstream and below significant wetland frontage downstream of the site, in order to evaluate the possibility of fishery or wetland contamination.

If you have any questions, please contact me at (919) 733-2801

Sincerely,

Stuart F. Parker, Jr.
Hydrogeologist,
NC Superfund Section

Attachments

Approved:_____ Date:_____
Craig Benedikt
NC CERCLA Project Officer

Site Inspection
Sampling Plan
Spann Property
NCD 986 180 917
Hendersonville, Asheville County, NC

Date: March 7, 1994
Preparer: Stuart F. Parker, Jr.
Hydrogeologist, NC Superfund Section
SIP Date: March 28-30, 1994
Sampling Team: Stuart F. Parker, Jr., Hydrogeologist
Harry Zinn, Environmental Engineer
Site Contacts: Ms Mary Beck, owner; Herbert Hodge, scrapyard operator and onsite resident.

Site Conditions:

The Spann property is a triangular 8 acre parcel. The site presently contains an approximately 3.5 acre automotive scrapyard and a single private residence occupied by the scrapyard operator. The site is at least partially fenced and is bordered by Route 25 on the northwest and by wetlands and Mud Creek on the south and northeast.

During the Preliminary Assessment, the NC Superfund Section determined that waste hauling contractor Gene Shepherd leased portions of the site from 1968 to 1970 in order to dispose of cardboard and other wastes generated by General Electric Corporation in Flat Rock, NC. Shepherd reportedly transported the materials to the site, where the cardboard was burned and the other materials buried. The disposal locations were not identified during the PA reconnaissance, but had been described as being at the edge of a swampy area and on a knoll in the middle of the same area. Whether these described areas occur within one of the wetlands or whether the description represents the entire site is unclear. Mary Beck, the heir to the property, subsequently leased the parcel to Mr. Hodge, whose automotive disposal and salvage company presently occupies the site.

During the periods 1956-1962 and 1965-1967, prior to his use of the Spann Property, Mr. Shepherd had disposed of GE waste materials on his own property on Roper Road. This property was proposed for the NC National Priorities List after sampling operations in 1988 detected PCBs and volatile organic compounds there. Shepherd's property is now designated the General Electric/Shepherd Farm site (NCD 986 170 686).

PCBs were detected in soils at the burning and disposal areas at the Shepherd Farm site, in downgradient stream sediment, and in a 55-gallon drum of solidified material at the property. Various combinations of chlorinated solvents, including tetrachloroethene (PCE), 1,1,1-trichloroethane (TCA) and dichloroethane (DCA) were detected in local wells and in a downgradient surface water sample. Trace level TCA was also detected in the 55-gallon drum. Transformer parts and other electrical components, indicating a possible PCB source, were observed at the Shepherd Farm site during walkovers by NC Superfund Section and NUS Corporation field personnel in February 1989 and May 1990.

There was no indication that Shepherd's more recent disposal practices at the Spann property differed substantially from those at the Shepherd Farm site. The NC Superfund Section therefore concluded that chlorinated solvents and PCBs may also be present at the Spann Property, and accordingly recommended the site for a Site Inspection.

Ground Water Pathway:

The site is underlain by the metamorphic Henderson Gneiss Formation and by saprolite and loamy surface soil. The saprolite and bedrock behave as a single unconfined aquifer. Under these conditions, the site's proximity to a perennial stream indicates a shallow water table. The burial of wastes at the site may therefore have released contaminants to groundwater.

The area within 0.25 mile of the site is supplied with drinking water by a municipal surface water intake located upstream of the site. The nearest drinking water wells to the site are estimated to be located 0.25 to 0.5 mile to the northwest. Because of the distance and relative immobility of PCBs in groundwater, the solvents are considered the primary threat to the groundwater supplies.

Surface Water Pathway:

Runoff from the Spann Property site drains to Mud Creek via 2 probable points of entry. The south edge of the site drains south through mapped wetland to what appears to be a drainage/irrigation ditch which connects to the creek. The remainder of the site drains to wetland which fronts Mud Creek along the northeast edge of the site. Mud Creek contains significant wetland acreage and fisheries, and both Mud Creek and French Broad Creek downstream of the site are reported to be fisheries. Seven sensitive environments for rare species exist along French Broad River. No surface water intakes are reported within the 15-mile surface water pathway.

The site poses the threat of chlorinated solvent and PCB contamination of downstream wetlands, sensitive environments, and fisheries. Use of the site as a burning and disposal area may also have released other contaminants, such as semivolatile organic compounds and inorganics.

Soil and Air Pathways

Three people live on the site and an undetermined number of people work at the scrapyard. The site is fenced to limit public access, however, and wastes dumped at the site reportedly were buried using a bulldozer. Evidence of contaminated surface soil or airborne vapors or particulates was not observed during the PA reconnaissance. The present threat of soil or air exposure associated with the site is therefore considered minimal.

Sampling Strategy:

For the above reasons, sampling is anticipated to focus on the surface water pathway and on the nearest domestic or public well to the site. The nearest well to the site will be located and sampled. An attempt will be made to locate the former GE disposal area onsite and to sample the waste or associated leachate for contaminants. If an apparent source area is not identified, samples will be collected within each of the 2 wetland areas abutting the site. Where possible, both surface water and sediment will be sampled.

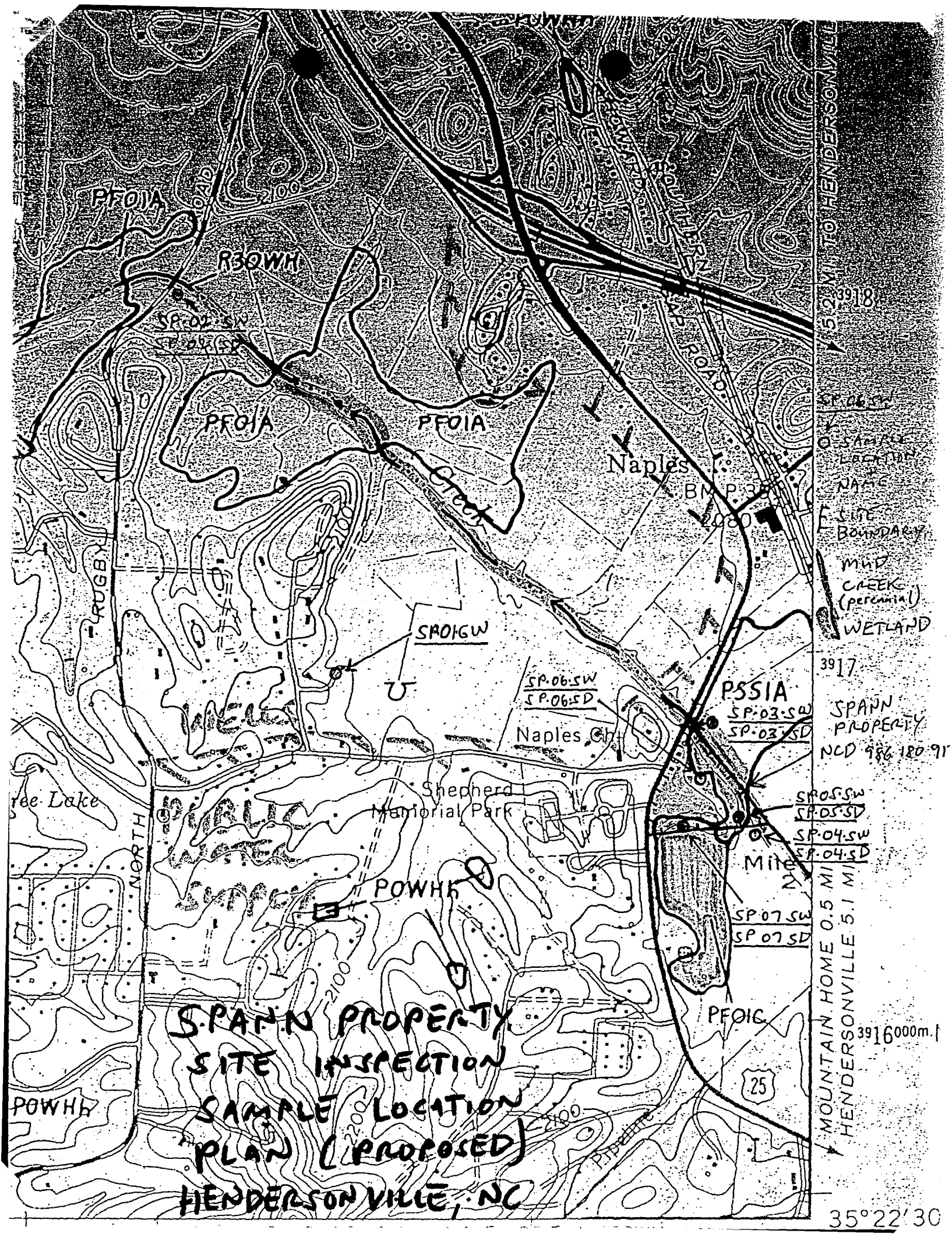
Additional surface water and sediment samples will be collected from immediately upstream of the site and from the drainage ditch which passes the site on the southeast. At least 1 downstream location on Mud Creek, below significant wetland frontage, will be sampled in order to evaluate potential wetland or fishery contamination.

Sample Analysis

All samples collected during the SIP will be analyzed for volatile and semi-volatile organic compounds, pesticides, PCBs and inorganic analytes. Anticipated sampling locations are summarized below:

Sample Code	Location	Type	Rationale
SP-01-GW	Nearest domestic well.	Groundwater.	Target sample.
SP-02-SW SP-02-SD	Rugby Road crossing of Mud Creek.	Sediment and surface water downstream of significant wetland.	Target sample.
SP-03-SW SP-03-SD	Route 25 crossing of Mud Creek.	Sediment and surface water downstream of significant wetland.	Target sample.
SP-04-SW SP-04-SD	Upstream of site on Mud Creek	Surface water and sediment.	Background sample.
SP-05-SW SP-05-SD	Drainage ditch SE of site	Surface water and sediment.	Release/ attribution sample.
SP-06-SW SP-06-SD	Source/ onsite wetland.	Soil/Surface water and sediment.	Source/ release sample.
SP-07-SW SP-07-SD	Source/ onsite wetland.	Soil/Surface water and sediment.	Source/ release sample.

GW = Groundwater (spring, seep)
SD = Sediment/soil
SW = Surface water


PFO1A
R3OWH
SP-02-SW
SP-06-SD
PFO1A
PFO1A
Naples
BM P 3
2080
SP01GW
SP-06-SW
SP-06-SD
Naples Ch
PSS1A
SP-03-SW
SP-03-SD
SPANN PROPERTY
NCD 986 180 91
Shepherd
Memorial Park
SP05-SW
SP-05-SD
SP-04-SW
SP-04-SD
Mile
POWHR
SP 07 SW
SP 07 SD
PFO1G
POWHR
RUGBY
NORTH
ree Lake
2100
2200
2100
25
3918
3917
3916000m.
0.2 MI TO HENDERSONVILLE
MOUNTAIN HOME 0.5 MI
HENDERSONVILLE 5.1 MI
SAMPLE LOCATION NAME
SITE BOUNDARY
MUD CREEK (perennial)
WETLAND
35°22'30
SPANN PROPERTY
SITE INSPECTION
SAMPLE LOCATION
PLAN (PROPOSED)
HENDERSONVILLE, NC

PFO1A
POWHh
Mile 0
Brickton
Strip mines
Butler Bridge
Hollaman Lake
Jones Cem
JEFFRESS
FRENCH BROAD CREEK FISHERY DOWNSTREAM
ESF
R3OWH
Mile 1
FRENCH BROAD CREEK FISHERY UPSTREAM
Naples
NEAREST WELL
PSS1A
PPE RELEASE SW+SED (ON WETLD)
SP SD SW
UPSTREAM SW+SED
Oak Hill Court
Filtration plant
POWKr
POWHx
Innisfree Lake
Shepherd Memorial Park
Mile 2
PFO1C
Mile 3
5.2 MI. TO HENDERSONVILLE INTERCHANGE
MOUNTAIN HOME 0.5 MI.
HENDERSONVILLE 5.1 MI.
35°22'30"
82°30'
32'30" RUGBY 1.3 MI.
HENDERSONVILLE 6.4 MI.
(HORSE SHOE 193-SE)
INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1979

SKYLAND, N.C.

Site Name: Spann Properties
Site Number: NCD 986 180 91

Site Location: Hendersonville, N.C.
Henderson County
Latitude: 35 23 06
Longitude: 82 30 10.5

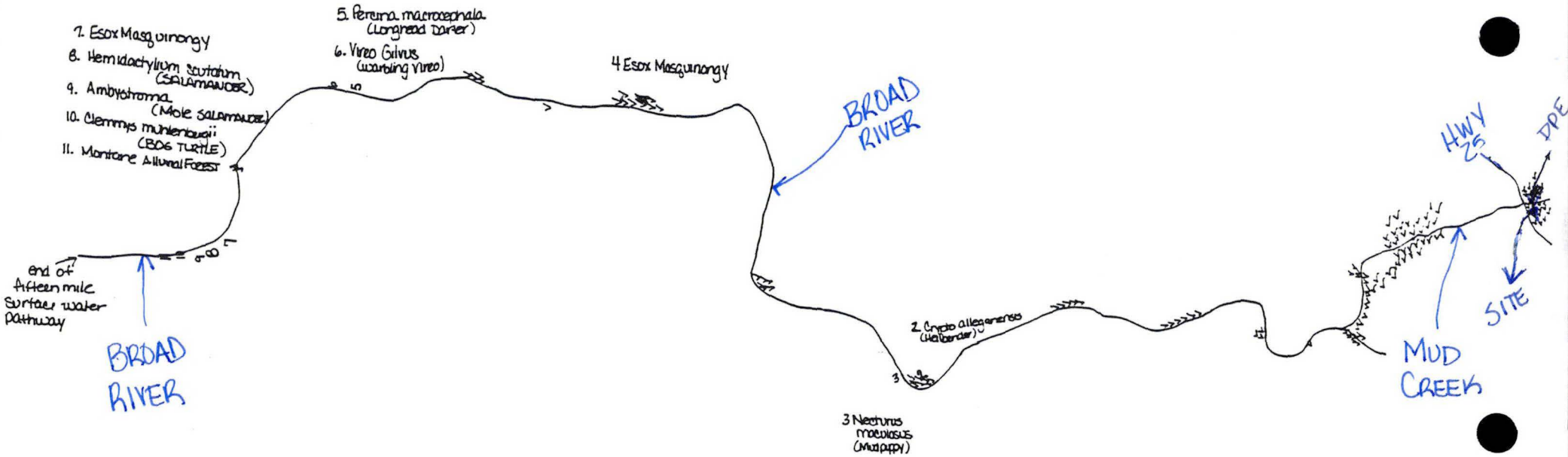
Date: February 18, 1994

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	35	35	15	15
>1/4 to 1/2 mile	171	206	74	89
>1/2 to 1 mile	1,015	1,221	439	528
>1 to 2 miles	4,730	5,951	2,020	2,548
>2 to 3 miles	4,563	10,514	2,002	4,550
>3 to 4 miles	9,483	19,997	4,156	8,706

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.

FIGURE 4 FIFTEEN MILE SURFACE WATER PATHWAY



VV WETLANDS
VV

NOT TO SCALE

SPANN PROPERTY
NCD 986 180917
15 MILE SURFACE WATER PATHWAY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

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SUPERFUND SECTION

4WD-WPB

FEB 24 1993

Ms. Pat DeRosa
CERCLA Branch
North Carolina Department of Environment,
Health and Natural Resources
P.O. Box 27687
Raleigh, North Carolina 27611-7687

Dear Ms. DeRosa:

The following reports, prepared by North Carolina PA/SI staff, have been reviewed and accepted by the Region IV Site Assessment Section:

Site Name	Disposition
* North Belmont PCE Site NCD986187128 PA Report	SI-High
* Shelby Dyeing and Finishing NCD986180909 SI Report	SIP-High
* New Haven Drive TCE Site NCD986171379 SSI Report	ESI-High
* Oak Hill PCB Site NCD986190858 PA Report	SI-Low
* Ross Avenue Property NCD986180891 PA Report	SEA
* Central Transport, Inc. NCD046148540 PA Report	Defer to RCRA
* Spann Property NCD986180917 PA Report	SI-High
* Glen Raven Mills NCD986175651 PA Report	SI-Low

Printed on Recycled Paper

* Cherokee Oil Site NCD986190239 PA Report	SI-High
* Glen Raven Mills NCD003158094 SSI Report	SEA
* Concord Coal Gas Plant NCD986197333 PA Report	SI-Low
* Cline PCB Well NCD986185403 PA Report	SEA
* Sybron Arden NCD002221703 SI Report	SEA
* Lexington Coal Gas Plant NCD986197358 PA Report	SEA
* Charlotte Coal Gas Plant No. 1 NCD986188811 PA Report	SEA
* Quorum Knitting NCD062548995 SI Report	ESI-Low

The following reports, which were prepared by EPA Region IV's ARCS and TES contractors, have been reviewed and accepted by this office:

* Burlington Furniture Robbinsville Plant NCD024770125 EPI Report	Defer to RCRA
* Collingwood Furniture Industries, Inc. NCD982101966 EPI Report	Defer to RCRA
* Haywood County Landfill NCD981474190 SIP Report	SEA
* Burlington Industries NCD093334894 SIP Report	SEA

If you should have any questions or comments regarding the dispositions for these sites, please feel free to contact me at (404) 347-5065.

Sincerely yours,

Craig A. Benedikt

Craig A. Benedikt
EPA NC CERCLA Project Officer

N.C. Department of Environment, Health, & Natural Resources
Solid Waste Management Division

SAMPLE ANALYSIS REQUEST

State Laboratory of Public Health
P.O. Box 28047, 306 N. Wilmington Street
Raleigh, North Carolina 27611

Site Number NCD 986 180 917 Field Sample Number 151723 [redacted]

Name of Site SPANN PROPERTY Site Location HENDERSONVILLE, NC

Collected By SF PARKER/H ZINN ID# _____ Date Collected 4/5/94 Time 0930

Agency: ____ Hazardous Waste ____ Solid Waste X Superfund

Sample Type

Environmental	Concentrate	Comments
____ Ground water (1)	____ Solid (5)	SP-03-SW
X Surface water (2)	____ Liquid (6)	(MUD CREEK ~~AT PARCEL 10~~)
____ Soil (3)	____ Sludge (7)	UPSTREAM OF NTE 25)
____ Other (4)	____ Other (8)	

TCLP Compounds

Inorganic Compounds	Results (mg/l)
____ Arsenic	
____ Barium	
____ Cadmium	
____ Chromium	
____ Lead	
____ Mercury	
____ Selenium	
____ Silver	

Organic Chemistry

Parameter	Results (mg/l)
X P&T:GC/MS	
____ Acid:B/N Ext.	
____ MTBE	

Inorganic Chemistry

Parameter	Results (mg/l) (mg/kg)
____ Arsenic	
____ Barium	
____ Cadmium	
____ Chloride	
____ Chromium	
____ Copper	
____ Fluoride	
____ Iron	
____ Lead	
____ Manganese	
____ Mercury	
____ Nitrate	
____ Selenium	
____ Silver	
____ Sulfates	
____ Zinc	
____ pH	
____ Conductivity	
____ TDS	
____ TOC	

Organic Compounds	Results (mg/l)
____ benzene	
____ carbon tetrachloride	
____ chlordane	
____ chlorobenzene	
____ chloroform	
____ o-cresol	
____ m-cresol	
____ p-cresol	
____ cresol	
____ 1,4-dichlorobenzene	
____ 1,2-dichloroethane	
____ 1,1-dichloroethylene	
____ 2,4-dinitrotoluene	
____ heptachlor	
____ hexachlorobenzene	
____ hexachlorobutadiene	
____ hexachloroethane	
____ methyl ethyl ketone	
____ nitrobenzene	
____ pentachlorophenol	
____ pyridine	
____ tetrachlo[illegible]	
____ [illegible]ane	
____ methoxychlor	
____ toxaphene	
____ 2,4-D	
____ 2,4,5-TP (Silvex)	

Radiochemistry

Parameter	Results (PCi/l)
____ Gross Alpha	
____ Gross Beta	

Microbiology

Parameter	Results (Col/100ml)

SOLID & HAZARDOUS WASTE MGMT BRANCH - ORGANIC
Sample No: 015723 Site No: 986180917 Date: 4/5/94
Site Name: SPANN PROPERTY
Site Location: HENDERSONVILLE Time: 0930
Collector: SF PARKER/H ZINN

Date Received _____ Rec[illegible]

Date Extracted _____ Da[illegible]

Date Analyzed _____ Lab Number _____

DHS 3191 (Revised 2/91)

Telecommunication

TO: File
From: Holly Spires, Hydrogeologist

Date: June 16,1992

Re: Spann Property NCD 986 180 917
Dumping on Spann Property by Mr Shepherd

In speaking with Mr Shepherd, who runs a garbage disposal operation, he did dispose for GE at one time. Mr Shepherd was under three year contracts with GE Flatrock. Approximate times he could not recall. He claims that in the late 1940's the city landfill closed down due to overfilling of garbage. The county was using the city landfill at this time. There wasn't any place to dump the county garbage. Mr John Spann agreed to let Mr Shepherd dump county municipal garbage on the eight acre site. This occurred until the county opened up their own landfill. Mr Shepherd did not know the approximate times of the opening of the county landfill. Mr Shepherd was now hauling waste for GE Flatrock. After two years of dumping at the county landfill, they told Mr Shepherd that he could not dispose of GE trash at this site, but was allowed to dispose of municipal waste. He was filling up the landfill with GE waste. They were filling a 25 yard packer twice a day to dispose of garbage. This garbage contained cardboard, pallets and office supplies and sometimes barrels of buffing compound. After he could not dispose of the waste in the county landfill, he then started to take the trash to his house and burn the cardboard and pallets. This happened for quite a while said Mr Shepherd. Then the neighborhood started to expand with houses around his farm so he had to burn the waste somewhere else. Mr Spann agreed to let him dispose of the waste on his property. According to Mr Shepherd the area of the site was at one time eight acres. Mr Shepherd paid Mr Spann to haul garbage from GE to the site. According to Mr Shepherd they were pretty good friends. This disposal occurred in the swampy area. There was a knoll approximately 200 feet wide according to Mr Shepherd in the swampy area. This is where he disposed of the cardboard and pallets to be burned once a week and the rest of the garbage to be buried. Mr Shepherd explained that they burned just about all the cardboard and pallets. He said that Mr Spann didn't check on what was coming onto the property. Mr Spann lived in a log cabin which is no longer there. Mr Shepherd disposed for county dumps for 15 - 16 years. The county dump now is located on Asheville Highway and RT 191 on Stony Mountain Road.

Ref. 19

May 9, 1991

To: File

From: D. Mark Durway

Re: Water supply in the vicinity of the Spann property located on U.S. Highway 25, 5 miles north of Hendersonville, NC

During a visit to Hendersonville on 2-20-91, I met with F.R. Hayes of the City of Hendersonville Engineering Department. Mr. Hayes showed me those areas within a 4-mile radius of the Spann property which are served by the Hendersonville water supply. These areas are shown on the USGS site map in the Spann property file.

Hayes said the city gets its water from three sources: an intake at Mills River Bridge on the Mills River northwest of Hendersonville; and two impoundments in Pisgah National Forest, which is also northwest of Hendersonville.

Hayes said that Henderson County does not have a county water system.

Mr. Hayes can be reached at:

F.R. Hayes
City of Hendersonville
Engineering Department
P.O. Box 1760
125 East 6th Avenue
Hendersonville, NC 28793
704-697-3065

dmd\pa\spann.ws

Memorandum

To: File

From: Holly Spires, Hydrogeologist
North Carolina Superfund

Re: Spann Property, NCD 986 180 917
Henderson County

Date: March 16, 1992

The average flow found at Mud Creek at State Road US 25 was 110 sq miles. The nearest drainage area found on the French Broad River was at the mouth of Mill River which approximately north of the intersection of Mud Creek and French Broad River. This drainage area was 355 sq miles. Using the the runoff map (*)and the formula:

Runoff estimated in drainage basin times the sq miles of drainage basin then divide by 13.58 to convert to mean annual discharge in cubic feet per second.

French Broad River

22 * 355 / 13.58 = 575.11 cfs

Mud Creek

22 * 110 /13.58 = 178.20 cfs

(*) Map of Mean Annual Runoff of the Northeastern, Southeastern, and Mid Atlantic United States, Water 1951-1980, U S Geological Survey, Water Resources Investigations Report 88-4094.

Ref. 9

Memorandum

To: File

From: Holly Spires, Hydrogeologist
NC Superfund Section

Re: Spann Property NCD 986 180 917
Henderson County
Four mile radius estimate of population

Date: March 13, 1992

PCGEMS calculated a four mile radius population around Spann Property. The results are as follows:

Distance	Population
0-1/4	43
0-1/2	152
0-1	443
0-2	2642
0-3	5596
0-4	10231

PCGEMS is not accurate for the 0 - 1/2 mile radius. The topographic map was used to more accurately find the population. I subtracted the inner population rings to obtain actual counts in between each ring.

Distance	House Count & PCGEMS	Cumulative Pop
0-1/4	43*	43
1/4-1/2	152*	195
1/2-1	248	283
1 - 2	2199	2019
2 - 3	2954	2620
3 - 4	4635	10231

Note: * based on house counts from topographic maps and 2.38 persons per household

Table 1 was created using the following steps: 1 using PCGEMS data for the four mile target area, 2 finding groundwater population without access to city water, 3 finding groundwater population with access to city water, 4 using the groundwater public water supply database to find community groundwater wells and 5 finding population with access to city water but not using city water. Add 2,4 and 5 to estimate the groundwater population.

Telcommunication

TO: File

From: Holly Spires, Hydrogeologist
NC Superfund Section

RE: Spann Property NCD 986 180 917
Henderson County

Date: March 12, 1992

Contact: John Goolsby
(704) 692 4228
County Health Department

Mr Goolsby from the Henderson County Health Department explained that the nearest school is Fletcher Academy northeast one mile from the site. The other school is Balfore Elementary approximately two miles south. Fletcher Academy is on a groundwater well. Balfore is on city water. Mr Goolsby also said that there are bored or drilled wells in the area which range in depths and if we wanted to find the actual depths to do a drive by and ask the residents otherwise his best guess is between 200 and 400 feet.

CALL
FOR
STUDENT
POPULATION
FLETCHER ACAD.

Telcommunication

TO: File

From: Holly Spires, Hydrogeologist
NC Superfund Section

RE: Spann Property NCD 986 180 917
Henderson County

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Ref. 11

Memorandum

TO: File

From: Holly Spires
North Carolina Superfund Section

Re: Spann Property NCD 986180917
Hendersonville, Henderson County
Hazardous Waste Quanitity Calculation

Date: March 11, 1992

The active scrap yard is approximately 3.5 acres. The area of disposal is unknown. There is waste covering the whole site. A worse case scenerio is that the whole site is contamimated. The site is still active as a scrap yard run by Herbert Hodge.

Memorandum

To: File

From: Holly Spires
North Carolina Superfund Section

Re: Spann Property NCD986180917
Heritage Foundation, Sensitive Environments

Date: 3-10-92

On Skyland NC topo map, there were many sensitive environments along the fifteen mile surface water pathway on the Broad River. Cryptobranchus allenganensis (hellbender) is located seven miles from the PPE on Mud Creek. The abbreviations for this species is SC, C-2, S-1, G-3, G-4. The second place the Cryptobranchus allenganensis occurs is along Mills River approximately 3 miles upstream of the Spann Property. Necturus Maculosus(mudpuppy) is located 7.25 miles from the PPE. The abbreviations for this are; SC, S-1, G-5. Percina Macrocephala (longhead darter) is located 10 miles from the PPE. The abbreviations are SC, C-2, SH, G-3. Vireo Gilvus is located 10.50 miles from the PPE. Sandy Bottoms is a Natural Heritage Area located 12 miles from the PPE. The abbreviations are SR, S2B, S2N, G3. Hermidactylium scutatum (salamander) which lives in pools, bogs, and other wetlands is located 12.25 from the PPE. The abbreviations are SC, S3, G5. Ambystroma Talpoidem (mole salamander) lives in fish-free semi-permanent woodland ponds is located 13 miles from the PPE. The abbreviations are SC, S2, and G5. Clemmys Muhlenbergii (bog turtle) is located 13.5 miles from the PPE. The abbreviations is T, C2, S2, G3. Montane Alluvial Forest is a natural community. There is a plant species called Synosma Cugelua located directly 2.0 miles from the site. The abbreviation are C, SH, G4.

ABBREVIATIONS

SC- Special Concern. Any species of wild animal native or once-native to North Carolina which is determined by the Wildlife Resources Commision to require monitoring but which may be taken under regulations adopted under provisions of this Article 25.

SR- Significantly Rare. Any other species which has not been determined as an Endangered, Threatenedm or Special Concern species, but which exists in the state in small numbers and has been determined to need monitoring.

Telecommunication

To: File

From: Holly Spires, Hydrogeologist
NC Superfund Section

RE: Spann Property NCD 986180917
Henderson County NC

Date: March 10, 1992

Contact: John Goolsby
(704) 692 4228
County Health Department

I spoke with Mr Goolsby from Henderson County Health Department about the nearest wells to the Spann Property. He explained that Rugby Road, approximately 1/2 to 1 mile away, are on shallow groundwater wells. Naples Church approximately 600 feet northwest of Spann Property is on a groundwater well. This church is upgradient of the site.

Telecommunication

To: File

From: Holly Spires, Hydrogeologist
NC Superfund Section

RE: Spann Property NCD 986180917
Henderson County NC

Date: March 10, 1992

Contact: John Goolsby
(704) 692 4228
County Health Department

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Telecommunication

To: File

From: Holly Spires
Hydrogeologist
NC Superfund Section

Re: Spann Property NCD986180917
Hendersonsville, Henderson County

Date: March 4, 1992

Contact: F.R. Hayes
Henderson Water
(704) 697-3065

In speaking with Mr. Hayes, he informed me that he helped Mark Durway with the topo map. Every area not served by Henderson Municipal Water is served by private or public groundwater. The actual surface water intake is near the Mills River Bridge. Approximately 17,000 people are served from this intake. There are no surface water intake along the fifteen mile surface water pathway.

Telecommunication

To: File

From: Holly Spires
Hydrogeologist
NC Superfund Section

Re: Spann Property NCD986180917
Hendersonsville, Henderson County

Date: March 4, 1992

Contact: F.R. Hayes
Henderson Water
(704) 697-3065

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PWID	PWMANAME	PWMAARCO	PWMAPNUM	PWPLSOC1	PWPLPOPL	PWPLTYPE	PWPLACTV	PWPLLAT1	PWPLLON1
0145421	HENDERSON'S REST HOME	704	6922220	G	000000050	C	A	0352235	0822825
0145428	HORSESHOE REST	704	8914000	G	000000100	N	A	0352030	0823310
0145430	JAKES DRIVING RANGE	704	6848086	G	000000075	N	A	0352300	0823010
0145438	~~DANA SCHOOL~~	704	6857743	G	000000600	P	A	0352015	0822230
0145439	~~EDNEYVILLE PRIMARY SCHOOL~~	704	6857600	G	000000398	P	A	0352220	0822220
0145441	LAMBS MHP	704	6938889	G	000000038	C	A	0352235	0822830
0145443	SOUTH MILLS RIVER MHP	704	8917257	G	000000048	C	A	0352310	0823350
0145455	CAMP HIGH LANDER		0000000	G	000000450	N	A	0352010	0823340
0145457	CAMP SKY VALLEY		0000000	G	000000120	N	A	0352017	0822915
0145460	FAIRFIELD TENNIS CAMP	704	6870534	G	000000075	N	A	0352410	0823015
0145461	NO CAROLINA ELKS CAMP		0000000	G	000000600	N	A	0352019	0822843
0145462	BREEZY ACRES SUB	704	6842762	G	000000033	N	A	0352620	0822810
0145504	HENDERSON CO WEIGH STA--EBL	919	7337872	G	000000145	N	A	0352305	0822910
0145505	HENDERSON CO WEIGH STA WBL	919	7337872	G	000000125	N	A	0352305	0822910
0155030	LINCOLN CO--CROUSE	704	7323361	P	000000650	C	A	0352515	0811820
0155103	LONG SHOALS WATER SYSTEM	704	4782785	G	000000250	C	A	0352450	0811414
0155408	LOWESVILLE CAFETERIA	704	8278301	G	000000100	N	A	0352500	0810045
0155421	BEECH'S GROCERY	704	8279177	G	000000200	N	A	0352620	0805855
0155424	LINKS SHELL STATION	704	7359285	G	000000050	N	A	0352614	0810950
0155430	AMAZING GRACE R H	704	4352952	G	000000025	N	A	0352615	0812702
0155442	LINGERFELTS 66 SERV	704	7351936	G	000000300	N	A	0352545	0812626
0160010	CHARLOTTE WTR TRTMT FACILITIES	704	3992142	S	000375000	C	A	0352055	0805637
0160108	BEECHWOOD MHP	704	5963856	G	000000104	C	A	0351954	0804954
0160133	DERITA APTS		0000000	G	000000120	C	A	0352501	0805010
0160140	FOREST PARK MHP	704	8752613	G	000000352	C	A	0352233	0804709
0160143	GEBO ACRES MHP	704	5987563	G	000000060	C	A	0351924	0804957
0160146	HUNTINGTON FOREST S/D	704	5257990	G	000000292	C	A	0352200	0805248
0160156	LAMPLIGHTER SOUTH-DANBY	704	5257990	G	000000280	C	A	0352000	0805000
0160165	NORMAN MHP	704	3943004	G	000000068	C	A	0352000	0805400
0160176	RIVERSIDE MHP	704	3920609	G	000000051	C	A	0352055	0805810
0160188	TAHA MHP		0000000	G	000000051	C	A	0352510	0805010
0160195	WESTWOOD FOREST MHP	704	5257990	G	000000420	C	A	0352500	0805500
0160198	WHEELINGTOWN MOBILE HOME PARK	704	5470144	G	000000600	C	A	0351945	0804315
0160199	WHER-RENA MARINA INC		0000000	G	000000100	N	A	0352530	0805120
0160202	SHELTON S/D	800	2225607	G	000000324	C	A	0351921	0804157
0160203	BAHIA BAY S/D	704	5257990	G	000000290	C	A	0352000	0805500
0160213	FARMWOOD SECT 15-21	704	5257990	G	000000380	C	A	0352500	0805700
0160217	FARMWOOD SECT A	704	5257990	G	000000500	C	A	0352021	0804513
0160232	WEXFORD S/D I	800	2225607	G	000000686	C	A	0351911	0804216
0160236	MALLARD CROSSING S/D	704	5257990	G	000000252	C	A	0351945	0804136
0160237	LOOKOUT POINT S/D	704	3321242	G	000000030	C	A	0352600	0805500
0160250	WEXFORD II S/D	800	2225607	G	000000516	C	A	0351920	0804151
0160265	MOUNTAIN POINT S/D	800	5371998	G	000000025	C	A	0352032	0805602
0160268	WILLOWBROOK S/D	800	5371998	G	000000030	C	A	0352612	0804906
0160401	FLORDIA STEEL CORP	704	3960361	G	000000035	N	A	0352005	0804935
0160404	CAROLINA TRACTOR EQUIPMENT CO	704	5968790	G	000000176	P	A	0352035	0805033
0160423	CLEAR CREEK ELEM SCHOOL	704	3436040	G	000000867	P	A	0352105	0805322
0160517	SHUFFLETON GRILL	704	3995186	G	000000075	N	A	0351945	0805715
0160540	OAK HILL GOLF COURSE	204	3942834	G	000000035	N	A	0351950	0805440
0160551	CHUCKS GRILL	704	5971588	G	000000125	N	A	0352040	0804927
0160566	ASBURY METHODIST CHURCH	704	8752485	G	000000270	N	A	0352305	0804815
0160569	HILLSIDE BAPTIST CH.	704	5470154	G	000000040	N	A	0352015	0804230
0160595	FAIRGROUND SNACK BAR	704	5964643	G	000013000	N	A	0351920	0805020
0160641	STOWE CHAPEL BAPTIST CHURCH		0000000	G	000000150	N	A	0352115	0804245

PWID	PWMANAME	PWMAARCO	PWMAPNUM	PWPLSOC1	PWPLPOPL	PWPLTYPE	PWPLACTV	PWPLLAT1	PWPLLON1
0160648	UNION GROVE BAPTIST CHURCH	704	8756882	G	000000090	N	A	0352442	0805545
0160650	HOPEWELL PREB CH	704	8752291	G	000000730	N	A	0352200	0805356
0160652	COOKS MEMORIAL PRESBYTERIAN CH	704	3997739	G	000000600	N	A	0351930	0805657
0160653	GILEAD ARP CHURCH	704	8752617	G	000000160	N	A	0352516	0805604
0160654	INDEPENDENCE HILL BAPTIST CH	704	5962124	G	000000160	N	A	0352135	0804914
0160655	NORTHDALE BAPTIST CHURCH	704	3997862	G	000000085	N	A	0351955	0805032
0160656	LEE'S REST HOME	704	5977575	G	000000065	P	A	0352043	0805147
0160658	MT. OLIVE BAPTIST CHUCH	704	8752324	G	000000246	N	A	0352240	0805531
0160659	MALLARD CREEK PRESBYTERIAN	704	5960749	G	000000700	N	A	0352005	0804500
0160677	LONG CREEK BAPTIST CH	704	3929622	G	000000635	N	A	0352125	0805213
0160685	LAURA'S ROZZELLE HOUSE	704	3927561	G	000000120	N	A	0352030	0805808
0160691	WESTSIDE BAPTIST CHURCH	704	3921505	G	000000025	N	A	0351958	0805616
0160703	PROSPERITY ARP CHURCH	704	8251242	G	000000150	N	A	0352215	0804715
0160705	LATTA PLANTATION PARK	704	8751391	G	000000045	N	A	0352200	0805415
0160718	ST. MARKS EPISCOPAL CHURCH	704	3923268	G	000000060	N	A	0352045	0805245
0160790	FOX DRIVE-IN THEATER	704	5960115	G	000000600	N	A	0351930	0804940
0160796	HOPEWELL AME ZION CHURCH	704	3730661	G	000000025	N	A	0352200	0805356
0160798	JONAHSVILLE AME ZION CHURCH	704	3729663	G	000000050	N	A	0352215	0804830
0160801	L B SMITH INC	704	5968283	G	000000026	N	A	0352055	0804950
0160810	TABOR INN	704	8752578	G	000000065	N	A	0352145	0805030
0160833	RAMSEY CREEK PARK	704	3363854	G	000000025	N	A	0352000	0805200
0175401	SUNNYVIEW GROCERY	704	6254644	G	000000025	N	A	0352225	0821120
0175412	VICTORY BAP CH	704	6254406	G	000000050	N	A	0352130	0821110
0175413	LAKE LURE MOBILE STATION		0000000	G	000000025	N	A	0352220	0821100
0175414	COOPERS GAP BAP CH	704	6254676	G	000000125	N	A	0352245	0821150
0175416	BIG LEVEL BAP CH	704	6254607	G	000000075	N	A	0352145	0820900
0175417	LEBANON U METH CH	704	6254486	G	000000075	N	A	0352110	0820710
0175418	PLEASANT GROVE BAPT CHURCH	704	2869487	G	000000050	N	A	0352105	0820530
0175419	PEA RIDGE CLUBHOUSE		0000000	G	000000025	N	A	0351940	0820630
0175420	BYARS BAP CH	704	8943769	G	000000050	N	A	0351945	0820705
0175424	PEA RIDGE BAP CH	704	8948773	G	000000100	N	A	0351925	0820610
0175447	MCGUINNS GRO STORE	704	6254746	G	000000025	N	A	0352125	0821040
0175453	SUNNYVIEW SCHOOL	704	6254530	G	000000100	P	A	0352210	0821100
~~0175466~~	FAITH TEMPLE BAP CH	704	8948881	G	000000050	N	A	0351925	0820840
0181010	FOREST CITY WTR TRTMT PLT	704	2485215	S	000007475	C	A	0352236	0815145
0181020	LAKE LURE, TOWN OF	704	6259396	G	000000820	C	A	0352513	0821500
0181027	ALEXANDER MILLS TOWN OF	704	2455711	P	000001080	C	A	0352245	0815145
0181038	ELLENBORO TOWN OF		0000000	P	000000980	C	A	0351930	0814530
0181040	BOSTIC, TOWN OF	704	2455108	P	000000500	C	A	0352245	0815145
0181050	CONCORD COMM WTR SYST	704	2452498	G	000000750	C	A	0352614	0815030
0181103	BRIDGES COMM WATER SYSTEM	704	4782785	G	000000300	C	A	0352120	0815210
0181106	CHIMNEY ROCK PARK	704	6259611	G	000000600	N	A	0352600	0821500
0181107	CHIMNEY ROCK WATER WORKS	704	6254767	G	000000210	C	A	0352600	0821500
0181109	EAST VILLA APARTMENTS	704	2455571	G	000000150	C	A	0352045	0814900
0181113	MEADOWBROOK MOBILE HOME PK #1	704	2456286	G	000000042	C	A	0352120	0815320
0181130	RUTHERFORD CO CONVALESCENT CTR	704	2869001	G	000000050	C	A	0352440	0815530
0181132	COLONIAL MANOR REST HOME	704	2877353	G	000000032	C	A	0352455	0815610
0181136	MEADOW BROOK MOBILE HOME PK #2	704	2456286	G	000000120	C	A	0352120	0815320
0181137	MEADOW BROOK MOBILE HOME PK #3	704	2456286	G	000000055	C	A	0352120	0815320
0181403	FAIRVIEW BAPT CH		0000000	G	000000100	N	A	0352110	0815040
0181410	KENTUCKY FRIED CHICKEN	704	2455716	G	000000100	N	A	0351925	0815355
0181411	RESTWELL HOME	704	2874042	G	000000025	N	A	0351940	0815720
0181412	CAMP OCCONEECHEE	704	6254036	G	000000170	N	A	0352430	0821215
0181413	MARY C NESBIT	704	6259287	G	000000036	N	A	0352505	0821250

Polk

Rutherford

PWID	PWMANAME	PWMAARCO	PWMAPNUM	PWPLSOC1	PWPLPOPL	PWPLTYPE	PWPLACTV	PWPLLAT1	PWPLLON1
0181416	CAMP LURECREST	704	6259933	G	000000220	N	A	0352530	0821330
0181428	WHITESIDES GENERAL STORE	704	2877129	G	000000025	N	A	0352540	0820530
0181430	DVCK CEDAR INN	704	6259840	G	000000200	N	A	0352540	0820950
0181431	STAGE COACH REST	704	6254197	G	000000200	N	A	0352530	0821500
0181444	DANIELTOWN M H P	704	2457722	G	000000052	N	A	0352116	0815541
0181447	THE KIDS PLACE	704	2872211	G	000000025	N	A	0351910	0815310
0181449	MILLIKEN	704	0000000	G	000000150	P	A	0352215	0815314
0181451	MT VERNON BAPTIST CHURCH	704	2869864	G	000000155	N	A	0352435	0815415
0181454	MOUNTAIN CREEK BAPTIST CHURCH	704	2873331	G	000000250	N	A	0352500	0820000
0181464	SUNSHINE UNITED METH CHURCH	704	2450293	G	000000100	N	A	0352540	0814840
0181465	MT VIEW BAPTIST CHURCH	704	2875221	G	000000100	N	A	0352540	0814840
0181466	WASHBURN STORE	704	2454129	G	000000050	N	A	0352330	0814900
0181467	SALEM METH CH		0000000	G	000000300	N	A	0352350	0814855
0181469	PINEY MTN BAPT CH	704	4538258	G	000000100	N	A	0352050	0814625
0181470	CORINTN BAP CHURCH	704	2456243	G	000000200	N	A	0352125	0814800
0181478	HOPEWELL METH CH	704	4538612	G	000000080	N	A	0352300	0814300
0181480	WALLS BAPTIST CH	704	4538981	G	000000150	N	A	0352300	0814645
0181484	GREEN HILL BAPTIST CHURCH	704	2869424	G	000000300	N	A	0352400	0815810
0181486	ASBURY UNITED METH CH	704	2875083	G	000000100	N	A	0352450	0815450
0181489	TANNERS GROVE METHODIST CHURCH	704	2459383	G	000000100	N	A	0352015	0815742
0181497	LEDFORD MOBIL HOMES		0000000	G	000000028	N	A	0352000	0814710
0181498	COUNTRYSIDE MOBIL HOME PARK		0000000	G	000000065	N	A	0352110	0814633
0181500	GRASSY KNOB BAP CH		0000000	G	000000075	N	A	0352425	0821040
0181504	FORK MTN CH		0000000	G	000000060	N	A	0352230	0815010
0181507	ROCK SPRINGS BAPTIST CH		0000000	G	000000150	N	A	0352355	0820730
0181508	PLEASANT HILL BAPTIST CHURCH	704	2873856	G	000000250	N	A	0352045	0815908
0181511	MT VIEW BAPTIST CHURCH	704	2869515	G	000000200	N	A	0351930	0815445
0181517	WILSON BAPTIST CHURCH	704	2869415	G	000000250	N	A	0352405	0815350
0181519	FIRST BROAD BAP CH		0000000	G	000000200	N	A	0352215	0815040
0181533	OAK RIDGE BAPTIST CHURCH	704	2879312	G	000000150	N	A	0352530	0820300
0181535	RUTHERFORD CO ANIMAL SHELTER	704	2872211	G	000000025	N	A	0352120	0815700
0181536	WASHBURN COMM CLUBHOUSE	704	2454129	G	000000040	N	A	0352330	0814900
0181538	CHERRY MTN FWB CH	704	2452131	G	000000080	N	A	0352350	0814730
0181543	ROBERSON CRK FWB CHURCH		0000000	G	000000150	N	A	0352330	0815000
0181544	OLD HICKORY GUN CLUB		0000000	G	000000050	N	A	0352330	0814950
0181567	MAE'S REST HOME	704	2481334	G	000000033	C	A	0352210	0815225
0181568	GREENS NURSING HOME	704	2869001	G	000000100	N	A	0352220	0815915
0181569	HAVEN IN THE HILLS REST HOME	704	2452998	G	000000050	C	A	0352245	0814930
0181570	EDGEWOOD NURSING CENTER	704	2452852	G	000000080	C	A	0351950	0815530
0181571	VIRGINIAS REST HOME	704	2877353	G	000000040	N	A	0352530	0815545
0181572	ESMERALDA INN CAFE	704	6259889	G	000000050	N	A	0352620	0821445
0181576	OAKLAND SCHOOL	704	2862085	G	000000150	P	A	0351925	0815545
0181578	MT VERNON ELEM SCHOOL	704	2874792	G	000000250	P	A	0352435	0815440
0181580	GREEN HILL ELEMENTARY SCHOOL	704	2873440	G	000000200	P	A	0352415	0815510
0181590	BIG SPRINGS BAPT CH		0000000	G	000000200	N	A	0352600	0814250
0181592	MAX CRAWLEY HOUSES		0000000	G	000000028	N	A	0351945	0815520
0181594	CAROLEEN PLANT-BURL END	704	6575375	G	000000100	P	A	0351950	0815525
0181596	PROCTER SCHOOL	704	2872211	G	000000287	P	A	0351955	0815530
0181597	HARRIS SCHOOL	704	2482354	G	000000600	P	A	0352510	0815640
0181598	RUTHERFORD COUNTY AIRPORT	704	2875998	G	000000075	N	A	0352500	0815630
0181599	UNCLE ADAMS RESTAURANT	704	6259111	G	000000100	N	A	0352600	0821000
0181601	SMITH GROVE BAPT CHURCH		0000000	G	000000200	N	A	0352200	0815300
0181604	DOGWOOD TRAVEL PARK	704	6252400	G	000000100	N	A	0352620	0821500

Telecommunication

To: File

From: Holly Spires
Hydrologist
Superfund Section

Re: Spann Property NCD 986180917
Hendersonville, Henderson County

Date: March 4, 1992

Contact: Mickey Clemins
Biologist for Wildlife Conservation
(704) 452 0422

Mr. Clemins explained that Mud Creek might have some rough fish such as the red breast sunfish, bluegills, small mouth bass. Up toward the river is carp and minnows plus some muskies. The area near Mud Creek is predominantly used for catfish fishing along the banks.

Telecommunication

To: File

From: Holly Spires
Hydrogeologist
NC Superfund Section

RE: Spann Property
NCD 986 180 917
Hendersonville, Henderson

Date: March 4, 1992

Contact: Herbert Hodge owner of Naples Salvage Yard
(704) 693 8946

Mr Hodge, who rents from Ms. Beck, explained that he is connected to city water. There might have been an old well at one time. The property is fenced in around the site with a locked gate. The site also borders the Mud Creek. There is a house and a building on the property. There are three people living on site.

3/04/92 GRID--0351907/0352621-0802631/0823452 PAGE 0001

G = ground
S = surface
P = purchase surface
W = purchase ground

C = community
N = non-community
P = non-transient non-community

A = Active

Ashe

Cabarrus

PWID	PWMANAME	PWMAARCO	PWMAPNUM	PWPLSOC1	PWPLPOPL	PWPLTYPE	PWPLACTV	PWPLLAT1	PWPLLON1
0105466	PARKWAY EAST S/D	919	8771882	G	000000025	P	A	0352010	0812030
0113010	CONCORD, CITY OF	704	7866161	S	000033761	C	A	0352510	0803444
0113025	HARRISBURG, TOWN OF	704	4555614	P	000002050	C	A	0352459	0803730
0113101	APOLLO MHP	704	4552409	G	000000200	C	A	0352115	0804140
0113117	JOHNNIE'S MHP	919	4552501	G	000000045	C	A	0351950	0803950
0113121	LITTLE MH VILLAGE	704	4552225	G	000000040	C	A	0352010	0803955
0113126	PEBBLE BROOK ACRES S/D	704	4782785	G	000000120	C	A	0352025	0803728
0113136	SPRINGDALE S/D	704	4782785	G	000000300	C	A	0352304	0803720
0113168	SILVER MAPLE ESTATES MHP	704	7865577	G	000000725	C	A	0351919	0803930
0113177	WHISPERING PINES #1	704	7865197	G	000000055	C	A	0352400	0803045
0113181	PINE RIDGE MHP #1	704	8882891	G	000000060	C	A	0351930	0802930
0113187	OLD FARM S/D	704	9326313	G	000000100	C	A	0352305	0803200
0113188	ZEMOSA ACRES WATER SYSTEM	704	5257990	P	000000600	C	A	0352610	0803940
0113189	WOLF MEADOW ACRES SECT 2	704	5364465	P	000000125	C	A	0352510	0803444
0113190	PINE RIDGE #2	704	8882891	G	000000065	C	A	0351932	0802930
0113191	POPLAR TRAILS WATER SYSTEM	704	8577571	G	000000210	C	A	0352445	0804330
0113196	COLD SPRINGS DEV WAT SYSTEM	704	7828228	G	000000025	C	A	0352250	0802915
0113197	TERRES BEND S/D	704	7890534	P	000000090	C	A	0352510	0803444
0113200	COLD SPRING ROAD HOME PARK	704	7828263	G	000000200	C	A	0352258	0802732
0113205	CABARRUS CO WTR DIST--HWY 29S	704	7888164	P	000003150	C	A	0352459	0803730
0113206	CABARRUS CO WTR DIST--HWY 73E	704	7888164	P	000000915	C	A	0352500	0803100
0113207	CABARRUS CO WTR DIST--HWY 73W	704	7888164	P	000002375	C	A	0352610	0803940
0113208	CABARRUS CO WTR DIST--HWY 601S	704	7888164	P	000002000	C	A	0351950	0803050
0113212	CABARRUS CO WTR DIST--HALL AVE	704	7888164	P	000000300	C	A	0352500	0803100
0113213	CUMBERLAND & ARROWHEAD S/D	704	7828228	G	000000110	C	A	0352055	0803305
0113215	ISENHOUR S/D	704	4366207	G	000000120	C	A	0352300	0802840
0113216	WHITEHURST PARK MHP	704	7862315	G	000000300	C	A	0352153	0803045
0113218	GLENWOOD MHP	704	4559285	G	000000040	C	A	0352220	0804000
0113221	STALLINGS GLEN S/D	704	4782785	G	000000025	C	A	0352027	0803711
0113223	GREEN ACRES PARK	704	7823957	G	000000087	C	A	0352155	0803325
0113224	CODDLE CREEK MHP	704	7868708	G	000000030	C	A	0352520	0804140
0113226	CABARRUS CO--COUNTRY ACRES	704	7888164	P	000000150	C	A	0352600	0803800
0113227	GLENWOOD-CAMPER WATER SYSTEM	704	4559285	G	000000025	C	A	0352205	0804127
0113402	COLD SPRINGS METH CHURCH	704	7822420	G	000000400	N	A	0352315	0802945
0113404	BETHANY BAPTIST CHURCH	704	7823784	G	000000350	N	A	0352330	0803045
0113405	MIAMI BAPTIST CHURCH		0000000	G	000000085	N	A	0352115	0802845
0113406	LAKE LYNN LODGE	704	7825095	G	000000250	N	A	0352445	0803115
0113407	COLD WATER LUTH CHURCH		0000000	G	000000055	N	A	0352515	0803245
0113412	MT PLEASANT PENT CHURCH		0000000	G	000000150	N	A	0352300	0802645
0113440	BLACKWELDERS EXXON		0000000	G	000000045	N	A	0352500	0802845
0113441	FARMERS SERVICE GROC	704	7824388	G	000000035	N	A	0352500	0803315
0113451	CANNON'S-X-ROADS SER	704	7864595	G	000000035	N	A	0352500	0804445
0113452	H&H GROCERY & SER		0000000	G	000000040	N	A	0352445	0804230
0113453	CEDAR GROVE PRES CH	704	7864994	G	000000065	N	A	0352445	0804230
0113454	POPLAR TEXACO STAT		0000000	G	000000045	N	A	0352400	0804130
0113455	CHURCH OF CHRIST	704	7823645	G	000000085	N	A	0352445	0803930
0113456	LINKER'S GROCERY	704	7822306	G	000000025	N	A	0352245	0804200
0113457	PITTS BAPTIST CH	704	7861953	G	000000300	N	A	0352245	0804015
0113458	WINSLOW SER & GROC	704	7882300	G	000000040	N	A	0352230	0804000
0113459	ROBERTA U/METH CH	704	7869215	G	000000225	N	A	0352115	0803815
0113479	OAK RIDGE MISS BAPT CH	704	7820187	G	000000200	N	A	0352045	0803330
0113480	MT CARMEL BAPT CH		0000000	G	000000055	N	A	0352530	0803245
0113481	VICTORY TEMPLE CH		0000000	G	000000040	N	A	0352530	0803245
0113482	GLORIETA BAPT CH		0000000	G	000000070	N	A	0352500	0802945

PWID	PWMANAME	PWMAARCO	PWMAPNUM	PWPLSOC1	PWPLPOPL	PWPLTYPE	PWPLACTV	PWPLLAT1	PWPLLON1
0113484	DAYS INN MOTEL & REST--CONCORD	704	7869121	G	000000075	N	A	0352600	0803950
0113485	ODELL ELEM SCHOOL		0000000	G	000000800	P	A	0352620	0804343
0113489	TENDER LOVING CENTER	704	7886611	G	000000112	P	A	0351940	0802755
0123035	FALLSTON WATER SYSTEM, INC.	704	5387919	G	000000600	C	A	0352530	0813000
0123045	LAWNDALE TOWN OF	704	5387446	G	000000700	C	A	0352505	0813345
0123055	CLEVELAND CO SANITARY DIST	704	5387824	S	000017306	C	A	0352618	0813416
0123102	BROAD RIVER ACRES WATER SYSTEM	704	4875990	G	000000050	C	A	0352045	0813245
0123106	DOVER YARN CO INC-BUFFALO PLNT	704	4872266	G	000000300	P	A	0351920	0812830
0123111	CLEVELAND MILLS-LAWNDALE		0000000	G	000000500	P	A	0352525	0813500
0123124	SUBURBAN ACRES S/D	919	6650817	G	000000120	C	A	0352000	0813000
0123151	SUBURBAN ACRES MHP	704	7393919	G	000000150	C	A	0351910	0812545
0123449	BARRETTS GROCERY	704	4353747	G	000000040	N	A	0352140	0812600
0123474	HORACE EAKER	704	4356096	G	000000150	N	A	0352000	0812234
0123479	CHALLENGER 3 GOLF CL	704	4825061	G	000000100	N	A	0352013	0813010
0123486	PINE GROVE GOLF CRS	704	4823504	G	000000100	N	A	0352222	0812920
0123487	COSTNERS FURNITURE	704	4823876	G	000000050	N	A	0352228	0812900
0123491	BESS GROCERY	704	4356310	G	000000025	N	A	0352328	0812717
0123493	EARLS GROCERY	704	4352613	G	000000025	N	A	0352142	0812550
0123514	BOBS GULF & GRO	704	5383236	G	000000075	N	A	0352515	0813700
0123515	PANTRY STORE		0000000	G	000000400	N	A	0352510	0813154
0123516	PEELER AUTOMOTIVE	704	5387290	G	000000050	N	A	0352452	0813425
0123517	FARM SUPPLY	704	4876929	G	000000025	N	A	0352310	0813000
0123521	RAMSEUR GROCERY	704	4825833	G	000000075	N	A	0352114	0813700
0123522	RAMSEUR WASHERETTE	704	4822721	G	000000025	N	A	0352133	0813646
0123533	MARTIN GEN MDSE	704	4346231	G	000000100	N	A	0351908	0813946
0123538	BRANCH SEV STA	704	5389940	G	000000100	N	A	0352459	0813835
0123543	MARTIN GROCERY	704	5388144	G	000000050	N	A	0352439	0813837
0123548	DEDMON FARM STORE	704	4874023	G	000000025	N	A	0351930	0813046
0123552	N & W GRO & SER STA	704	4822367	G	000000050	N	A	0352325	0813000
0123563	ROLLERAMA SKATING RK	704	5388261	G	000000050	N	A	0352400	0813738
0123568	ZEBS QUICK STOP	704	4874471	G	000000100	N	A	0352410	0813811
0123569	BRACKETT SHELL	704	4879449	G	000000100	N	A	0352254	0813549
0123570	DONS GRO	704	4822317	G	000000200	N	A	0352150	0813445
0123577	VEST INCORPORATED	704	5383118	G	000000050	P	A	0352415	0813016
0123696	CREST JR HI SCHOOL	704	4879087	G	000000369	P	A	0352244	0813444
0123697	CREST SR HI SCHOOL	704	4879087	G	000000497	P	A	0352459	0813514
0136010	GASTONIA WTR TRTMT FAC	704	8666827	S	000072000	C	A	0351913	0810739
0136020	MOUNT HOLLY WTR TRTMT PLT	704	8270730	S	000009000	C	A	0352004	0805922
0136030	CHERRYVILLE WTR TRTMT PLT	704	4354181	S	000004750	C	A	0352515	0812205
0136035	STANLEY WTR TRTMT PLT	704	2632581	S	000003010	C	A	0352058	0810804
0136040	CRAMERTON CITY OF	704	8244337	P	000001842	C	A	0351920	0810750
0136060	LOWELL, CITY OF	704	8243518	P	000003288	C	A	0351920	0810750
0136065	DALLAS WTR TRTMT PLT	704	9221309	S	000005100	C	A	0351953	0810803
0136075	HIGH SHOALS WTR TRTMT PLT	704	7352910	S	000000690	C	A	0352414	0811254
0136103	ALLEN MHP		0000000	G	000000114	C	A	0352346	0812000
0136111	CHAPEL GROVE MHP	704	8647493	G	000000068	C	A	0352015	0811215
0136115	CHAPELWOOD ACRES S/D	704	8242879	G	000000056	C	A	0352020	0811240
0136116	CHARLESTON PARK	704	4782785	G	000000288	C	A	0352030	0811235
0136124	DONNA-LYNN MHP		0000000	G	000000060	C	A	0351950	0811700
0136127	STOWE MILL--EAGLE PLANT	704	8255314	G	000000260	C	A	0351940	0810400
0136139	GREEN RD WS	800	2225607	G	000000052	C	A	0352300	0810645
0136141	HARDEN MFG COMPANY	704	8652391	G	000000090	C	A	0352200	0811200
0136147	HOLLANDALE S/D	803	6314100	G	000000108	C	A	0352210	0811210
0136150	HOUIS RD W.S.	800	2225607	G	000000064	C	A	0352305	0810645

PWID	PWMANAME	PWMAARCO	PWMAPNUM	PWPLSOC1	PWPLPOPL	PWPLTYPE	PWPLACTV	PWPLLAT1	PWPLLON1
0136159	NEIGHBORHOOD WATER CORP		0000000	G	000000076	C	A	0352424	0812222
0136166	MURPHY MHP		0000000	G	000000099	C	A	0352130	0810700
0136203	WINNINGFIELD S/D	704	4782785	G	000000052	C	A	0352323	0811557
0136213	HESTER PARK	704	9228715	G	000000044	C	A	0352045	0811230
0136216	MAUNEY (COY) MHP	704	4353455	G	000000070	C	A	0351910	0811210
0136222	MAR-LYNN FOREST S/D		0000000	G	000000144	C	A	0352000	0810615
0136223	LITTLE MOUNTAIN ROAD WTR SYST	704	5883200	P	000000460	C	A	0351913	0810739
0136227	HOLLY FAYE MHP	704	8270167	G	000000101	C	A	0352401	0811632
0136232	DUNN'S MHP	704	2632323	G	000000054	C	A	0352000	0810500
0136237	GOOD WILL ACRES		0000000	G	000000080	C	A	0352345	0811400
0136239	HELMS WATER SYSTEM	704	4782785	G	000000120	C	A	0352310	0810805
0136244	GALLAGHER TRAILS S/D	704	5960655	G	000000160	C	A	0352400	0811310
0136250	CEDAR VALLEY		0000000	G	000000072	C	A	0352050	0810945
0136252	TRYON MHP	704	6295388	G	000000090	C	A	0352115	0811830
0136292	BALLAD APARTMENTS	704	2632538	G	000000063	C	A	0351950	0810900
0136293	WELLS MCCONNELL WATER SYSTEM	704	9220159	G	000000126	C	A	0351940	0810910
0136305	OAK RIDGE MOBILE HOME PARK		0000000	G	000000026	C	A	0352121	0810500
0136313	WIMBLETON S/D	704	9227050	G	000000138	C	A	0352130	0811330
0136320	EAST CHESTNUT ST EXT	704	2634243	G	000000320	C	A	0352140	0810510
0136347	WATTS S/D	704	2634243	G	000000051	C	A	0352100	0811300
0136359	FOREST HILL MHP	704	7355140	G	000000105	C	A	0352200	0810712
0136362	CREEKSIDE ESTATE	704	6293943	G	000000480	C	A	0352015	0811920
0136363	MAGNOLIA SPRING-SOUTHFORK S/D	704	2634243	G	000000222	C	A	0351940	0810510
0136368	LANDAU MHP	704	2638772	G	000000111	C	A	0352300	0810701
0136378	OLD WILLIS SCHOOL RD MHP	704	2632823	G	000000053	C	A	0352100	0810830
0136388	BENT CREEK MH S/D	704	8666756	G	000000028	C	A	0352116	0811526
0136436	ALEXIS BAPTIST CHURCH	704	2362301	G	000000435	N	A	0352345	0810730
0136437	ALEXIS FISH CAMP	704	2362622	G	000000075	N	A	0352345	0810730
0136448	CASTANEA PRESBYTERIAN CHURCH	704	8273551	G	000000100	N	A	0352345	0810115
0136449	CLARK (MILES) TP	704	9224249	G	000000108	C	A	0352045	0811459
0136453	GRAIG MEMORIAL BAPTIST CHURCH	704	2638321	G	000000100	N	A	0352345	0810500
0136519	WINDY HILL MHP	704	8270221	G	000000055	C	A	0352000	0810500
0136521	ANTHONY GROVE BAPTIST CHURCH	704	4355619	G	000000150	N	A	0352345	0811730
0136524	CHERRYVILLE COUNTRY CLUB	704	4356597	G	000000100	N	A	0352315	0812000
0136525	CLUB CAROLINA	704	4356090	G	000000250	N	A	0352315	0812000
0136526	KNIGHTS OF PYTHIAS	704	4356811	G	000000050	N	A	0352115	0812045
0136528	MT ZION BAPTIST CHURCH	704	4359636	G	000000200	N	A	0352345	0812145
0136530	ST MARK'S LUTHERAN CHURCH	704	4359731	G	000000100	N	A	0352230	0811845
0136531	SHADY GROVE BAPTIST CHURCH	704	4359605	G	000000480	N	A	0352115	0812045
0136537	EAST GASTON HIGH SCHOOL	704	8666100	G	000001025	P	A	0352000	0810345
0136545	PINEWOOD ELEM SCHOOL	704	8666100	G	000000640	P	A	0352115	0810000
0136550	TRYON ELEM & HIGH SCHOOLS	704	8666100	G	000000575	P	A	0352000	0812000
0136588	STATION SUPPORT DUKE POWER	704	8277256	G	000000040	N	A	0352000	0810000
0136590	GREEN MEADOWS GOLF CLUB	704	8279264	G	000000200	N	A	0352000	0810345
0136598	YOUTH MISSIONARY BAPTIST CH	704	8647245	G	000000100	N	A	0352000	0810500
0136630	BESSMER CITY LANDFIELD	704	8663006	G	000000100	N	A	0352000	0811730
0136641	PUETT UNITED METHODIST CHURCH	704	6292614	G	000000300	N	A	0352115	0811500
0136643	CONCORD UNITED METHODIST CHURC	704	6293571	G	000000100	N	A	0352000	0811845
0136644	TRYOWATA VFD		0000000	G	000000035	N	A	0352000	0811845
0136646	WALNUT GROVE BAPTIST CHURCH	704	9225306	G	000000100	N	A	0352115	0811500
0136651	ARROWOOD BAPTIST CHURCH	704	4359650	G	000000700	N	A	0352115	0811845
0136653	INDEPENDENT BAPTIST TABERNACLE	704	9227763	G	000000100	N	A	0352000	0811345
0136654	PLAINVIEW MISSIONARY BAPTIST	704	9228272	G	000000150	N	A	0352000	0811230
0136659	MT BEULAH BAPTIST CHURCH	704	4353328	G	000000200	N	A	0352115	0811730

PWID	PWMANAME	PWMAARCO	PWMAPNUM	PWPLSOC1	PWPLPOPL	PWPLTYPE	PWPLACTV	PWPLLAT1	PWPLLON1
0136661	ANTIOCH LUTHERAN CHURCH	704	9223574	G	000000140	N	A	0352000	0811345
0136662	ARC ENTERPRISE	704	6295351	G	000000030	P	A	0352115	0811500
0136666	COMMUNITY BAPTIST CHURCH	704	9223426	G	000000125	N	A	0352000	0810845
0136667	RIVERSIDE SEAFOOD	704	9224054	G	000000100	N	A	0352000	0810845
0136669	GIBSON MACHINE	704	9223155	G	000000040	P	A	0352000	0811230
0136670	GRAY'S GRILL	704	9223305	G	000000025	N	A	0352000	0811230
0136674	LITTLE BIG HORN	704	2632298	G	000000100	N	A	0352000	0810845
0136678	SHERRILL INDUSTRIES	704	9227871	G	000000125	P	A	0352115	0811645
0136716	JACK'S 76 GRILL	704	9227256	G	000000050	N	A	0352000	0811115
0136729	COUNTRY MARKET #1	704	9228726	G	000000125	N	A	0352000	0811000
0136731	COUNTRY PALACE	704	6299138	G	000000100	N	A	0352000	0811500
0136738	HEPHSIBAH PRESBYTERIAN	704	4353921	G	000000100	N	A	0352115	0811645
0136752	NEW HEIGHTS BAPTIST	704	9228161	G	000000200	N	A	0352230	0811230
0136754	PHILADELPHIA LUTHERAN CHURCH	704	9225334	G	000000100	N	A	0352115	0810845
0136761	SNOWHILL METHODIST CHURCH	704	8274468	G	000000200	N	A	0352230	0810115
0136763	SOUTH FORK FISH CAMP	704	9223474	G	000000150	N	A	0352115	0810845
0136766	ST PAUL'S LUTHERAN	704	9224387	G	000000300	N	A	0352230	0811115
0136769	TATER'S COUNTRY SANDWICH	704	9225611	G	000000050	N	A	0352115	0811500
0136780	CAROL'S MINI MART	704	9223694	G	000000050	N	A	0352115	0811645
0136782	EAKER COUNTRY STORE		0000000	G	000000050	N	A	0352230	0812010
0136784	HARDIN BAPTIST CH	704	9228778	G	000000025	N	A	0352230	0811115
0136791	BURGESS DAY NURSERY	704	4356015	G	000000025	P	A	0352345	0812500
0136794	COUNTRY PARK AT TRYON	704	8663104	G	000000200	N	A	0352115	0812045
0136795	GALLAGHER TRAIL GOLF COURSE	704	9224208	G	000000025	N	A	0352345	0811115
0136798	INTERNATIONAL TEXLILE	704	2638941	G	000000025	P	A	0352230	0810500
0136801	POTT'S COMPLEX	704	2634321	G	000000025	N	A	0352230	0810604
0136804	UNIVERSAL MACHINE COMPANY	704	9229877	G	000000025	P	A	0352000	0810730
0136805	I M C, LITHIUM DIVISION	704	6292872	G	000000025	P	A	0352013	0812010
A0145010	HENDERSONVILLE WTR TRTMT PLT	704	8917779	S	000045100	C	A	0352331	0823404
B0145030	LAUREL PARK, TOWN OF	704	6934840	P	000001925	C	A	0352330	0823410
C0145101	~~ACORN MANOR CLUB M H P~~	704	6933330	G	000000094	N	A	0351930	0822030
D0145105	BRIGHTWATER I & II	704	8914742	G	000000224	C	A	0352030	0823115
E0145113	FLETCHER ACADEMY INC	704	6848501	G	000000400	C	A	0352350	0822905
F0145127	HOOPERS CREEK WTR SYSTEM	704	6844987	P	000000195	C	A	0352330	0823410
G0145135	~~GRAHAMS MHP~~	704	2985152	G	000000050	C	A	0352615	0823100
H0145138	GREEN ACRES COMM WTR SYSTEM	704	6924668	G	000000088	C	A	0351940	0823030
I0145142	~~INDIAN SPRINGS MHP~~	704	6858117	G	000000095	C	A	0352230	0822230
J0145143	~~EDNEYVILLE ACRES I & II~~	704	6857863	G	000000130	C	A	0352410	0822035
0145145	TWIN OAKS MOBILE HOME PARK	704	6845417	G	000000035	C	A	0352555	0822735
0145146	BRIGHTWATER III	704	8914742	G	000000100	C	A	0352030	0823115
0145149	FAIRFIELD APARTMENTS	704	6842294	G	000000110	C	A	0352400	0823100
~~0145156~~	~~FRUITLAND MHP~~		0000000	G	000000075	C	A	0352245	0822415
0145157	HOLLY TREE S/D	704	6936062	G	000000042	C	A	0352200	0822615
~~0145161~~	~~JAY MAR TRAILER PARK~~	704	6853771	G	000000300	C	A	0352225	0822415
~~0145163~~	~~CANDOR S/D~~	704	6871161	G	000000040	C	A	0352555	0822640
0145401	SOUTHERN AIRE MOTEL	704	6857711	G	000000100	N	A	0352145	0822435
0145409	NORTH STATE ORCHARDS	704	6857851	G	000000025	N	A	0352235	0822135
0145412	EDNEYVILLE APPLE PACKERS	704	6853548	G	000000050	N	A	0352330	0822030
0145413	J & W APPLE PACKERS	704	6857831	G	000000050	N	A	0352035	0822405
0145414	LAMB FRUIT CO INC	704	6921201	G	000000045	N	A	0352030	0822450
0145415	CAMP JUDEA		0000000	G	000000500	N	A	0352230	0822145
0145418	~~FRUITLAND BAPT BIBLE INST~~	704	6858886	G	000000175	P	A	0352325	0822335
0145419	~~EDNEYVILLE HIGH SCH~~	704	6857868	G	000000494	P	A	0352350	0822030
K0145420	MOUNTAIN VIEW REST HOME	704	6929960	G	000000044	C	A	0352300	0822800

Telecommunication

To: File

From: Holly Spires
Hydrogeologist
NC Superfund Section

Re: Spann Property NCD 986180917
Hendersonville, Henderson County

Date: March 4, 1992

Contact: Monica Swihart
Wildlife Conservation
(704) 452 0422

I spoke with Monica about the classification of the Mud Creek where it crosses US 25. She explained from where the road crossed Mud Creek until the French Broad River is a class C. Class C is used for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. From the point where Mud Creek enters French Broad River is a classified as a class WSIII. WSIII is a water supply segment with no categorical restrictions on watershed development or discharges; suitable for all Class C uses.

PWID	PWMANAME	PWMAARCO	PWMAPNUM	PWPLSOC1	PWPLPOPL	PWPLTYPE	PWPLACTV	PWPLLAT1	PWPLLON1
0136661	ANTIOCH LUTHERAN CHURCH	704	9223574	G	000000140	N	A	0352000	0811345
0136662	ARC ENTERPRISE	704	6295351	G	000000030	P	A	0352115	0811500
0136666	COMMUNITY BAPTIST CHURCH	704	9223426	G	000000125	N	A	0352000	0810845
0136667	RIVERSIDE SEAFOOD	704	9224054	G	000000100	N	A	0352000	0810845
0136669	GIBSON MACHINE	704	9223155	G	000000040	P	A	0352000	0811230
0136670	GRAY'S GRILL	704	9223305	G	000000025	N	A	0352000	0811230
0136674	LITTLE BIG HORN	704	2632298	G	000000100	N	A	0352000	0810845
0136678	SHERRILL INDUSTRIES	704	9227871	G	000000125	P	A	0352115	0811645
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0136731	COUNTRY PALACE	704	6299138	G	000000100	N	A	0352000	0811500
0136738	HEPHSIBAH PRESBYTERIAN	704	4353921	G	000000100	N	A	0352115	0811645
0136752	NEW HEIGHTS BAPTIST	704	9228161	G	000000200	N	A	0352230	0811230
0136754	PHILADELPHIA LUTHERAN CHURCH	704	9225334	G	000000100	N	A	0352115	0810845
0136761	SNOWHILL METHODIST CHURCH	704	8274468	G	000000200	N	A	0352230	0810115
0136763	SOUTH FORK FISH CAMP	704	9223474	G	000000150	N	A	0352115	0810845
0136766	ST PAUL'S LUTHERAN	704	9224387	G	000000300	N	A	0352230	0811115
0136769	TATER'S COUNTRY SANDWICH	704	9225611	G	000000050	N	A	0352115	0811500
0136780	CAROL'S MINI MART	704	9223694	G	000000050	N	A	0352115	0811645
0136782	EAKER COUNTRY STORE		0000000	G	000000050	N	A	0352230	0812010
0136784	HARDIN BAPTIST CH	704	9228778	G	000000025	N	A	0352230	0811115
0136791	BURGESS DAY NURSERY	704	4356015	G	000000025	P	A	0352345	0812500
0136794	COUNTRY PARK AT TRYON	704	8663104	G	000000200	N	A	0352115	0812045
0136795	GALLAGHER TRAIL GOLF COURSE	704	9224208	G	000000025	N	A	0352345	0811115
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0136801	POTT'S COMPLEX	704	2634321	G	000000025	N	A	0352230	0810604
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0136805	I M C, LITHIUM DIVISION	704	6292872	G	000000025	P	A	0352013	0812010
X0145010	HENDERSONVILLE WTR TRTMT PLT	704	8917779	S	000045100	C	A	0352331	0823404
B0145030	LAUREL PARK, TOWN OF	704	6934840	P	000001925	C	A	0352330	0823410
0145101	~~ACORN MANOR CLUB M H P~~	704	6933330	G	000000094	N	A	0351930	0822030
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B0145113	FLETCHER ACADEMY INC	704	6848501	G	000000400	C	A	0352350	0822905
B0145127	HOOPERS CREEK WTR SYSTEM	704	6844987	P	000000195	C	A	0352330	0823410
0145135	~~GRAHAMS MHP~~	704	2985152	G	000000050	C	A	0352615	0823100
F0145138	GREEN ACRES COMM WTR SYSTEM	704	6924668	G	000000088	C	A	0351940	0823030
0145142	~~INDIAN SPRINGS MHP~~	704	6858117	G	000000095	C	A	0352230	0822230
0145143	~~EDNEYVILLE ACRES I & II~~	704	6857863	G	000000130	C	A	0352410	0822035
G0145145	TWIN OAKS MOBILE HOME PARK	704	6845417	G	000000035	C	A	0352555	0822735
H0145146	BRIGHTWATER III	704	8914742	G	000000100	C	A	0352030	0823115
I0145149	FAIRFIELD APARTMENTS	704	6842294	G	000000110	C	A	0352400	0823100
0145156	~~FRUITLAND MHP~~		0000000	G	000000075	C	A	0352245	0822415
J0145157	HOLLY TREE S/D	704	6936062	G	000000042	C	A	0352200	0822615
0145161	~~JAY MAR TRAILER PARK~~	704	6853771	G	000000300	C	A	0352225	0822415
0145163	~~CANDOR S/D~~	704	6871161	G	000000040	C	A	0352555	0822640
0145401	SOUTHERN AIRE MOTEL	704	6857711	G	000000100	N	A	0352145	0822435
0145409	NORTH STATE ORCHARDS	704	6857851	G	000000025	N	A	0352235	0822135
0145412	EDNEYVILLE APPLE PACKERS	704	6853548	G	000000050	N	A	0352330	0822030
0145413	J & W APPLE PACKERS	704	6857831	G	000000050	N	A	0352035	0822405
0145414	LAMB FRUIT CO INC	704	6921201	G	000000045	N	A	0352030	0822450
0145415	CAMP JUDEA		0000000	G	000000500	N	A	0352230	0822145
0145418	~~FRUITLAND BAPT BIBLE INST~~	704	6858886	G	000000175	P	A	0352325	0822335
0145419	~~EDNEYVILLE HIGH SCH~~	704	6857868	G	000000494	P	A	0352350	0822030
K0145420	MOUNTAIN VIEW REST HOME	704	6929960	G	000000044	C	A	0352300	0822800

Ref. 20

January 30, 1991

To: File

From: D. Mark Durway

Re: Information from Gene Sheppard regarding waste he disposed of at the Spann property in Hendersonville

In a telephone conversation on 1-30-91, Gene Sheppard (693-0559) explained to me that, 15 to 20 years ago, he dumped waste on the John Spann property, which is located on U.S. Highway 25 across from Sheppard Memorial Park. He was contract hauling for General Electric at the time, and 95 percent of the waste he hauled to the Spann property was cardboard. The waste was dumped into a swampy area on the Spann property, and then covered with dirt using a bulldozer. Sheppard incinerated some of the waste, but quit after encountering opposition to this.

dmd\pa\info.spn

Ref. 10

STATE OF
NORTH CAROLINA
DEPARTMENT OF
ENVIRONMENT, HEALTH,
AND NATURAL RESOURCES

Classifications and Water Quality Standards Assigned to The Waters of the French Broad River Basin

10

Division of Environmental Management
Raleigh, North Carolina

Reprint from North Carolina Administrative Code: 15A NCAC 2B .0304
Current through: November 1, 1991

.0304 FRENCH BROAD RIVER BASIN

Name of Stream	Description	Classification Class	Date	Index No.
Elrath Lake)				
Sitton Creek	From source to Seniard Creek	WS-III Tr	2/1/86	6-54-2-11-1
Davie Branch	From source to North Fork Mills River	WS-III Tr	2/1/86	6-54-2-12
McCall Branch (Stuart Creek)	From source to North Fork Mills River	WS-III Tr	2/1/86	6-54-2-13
South Fork Mills River	From source to the upstream side of mouth of Queen Creek	WS-III Tr ORW	3/1/89	6-54-3
Pigeon Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-1
Bearwallow Brook	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-2
Barnett Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-3
Poplar Creek	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-4
Thompson Creek	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-5
Billy Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-6
West Ridge Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-7
Clawhammer Creek	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-8
Glady Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-9
Bearpen Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-10
Laurel Brook	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-11
Sweetwater Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-12
Brushy Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-13
Cantrell Creek	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-14
Jumping Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-15
Poundingmill Branch	From source to South Fork Mills River	WS-III Tr ORW	3/1/89	6-54-3-16
Bradley Creek	From source to South Fork Mills River	WS-I ORW	3/1/89	6-54-3-17
Darb Branch	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-1
Little Darb Branch	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-2
Slate Rock Creek	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-3
Yellow Gap Creek	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-4
Laurel Creek	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-5
House Branch	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-6
Long Branch	From source to House Branch	WS-I ORW	3/1/89	6-54-3-17-6-1
Thad Branch	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-7
Case Branch	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-8
Pea Branch	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-9
Hammett Branch	From source to Bradley Creek	WS-I ORW	3/1/89	6-54-3-17-10
South Fork Mills River	From the upstream side of mouth of Queen Creek to Mills River	WS-III Tr	2/1/86	6-54-3-(17.5)
Queen Creek	From source to South Fork Mills River	WS-III Tr	2/1/86	6-54-3-18
Pounding Mill Branch	From source to Queen Creek	WS-III Tr	2/1/86	6-54-3-18-1
Pierce Lake	Entire lake and connecting stream to Queen Creek	WS-III Tr	2/1/86	6-54-3-18-2
Silver Lake	Entire lake and connecting stream to South Fork Mills River	WS-III Tr	2/1/86	6-54-3-19
Foster Creek	From source to Mills River	WS-III Tr	2/1/86	6-54-4
Mills River	From a point 500 feet below N.C. Highway 191 to French Broad River	C	7/1/73	6-54-(5)
Brandy Branch	From source to Mills River	C	7/1/73	6-54-6
FRENCH BROAD RIVER	From mouth of Mud Creek to I-26 bridge	WS-III	2/1/86	6-(54.5)
Mud Creek	From source to French Broad River	C	8/1/85	6-55

code - 33597

2FF-
655-6740

Ref. 34

12-14-90
Vol. 55 No. 241

federal register

Friday
December 14, 1990

PATHWAYS

Book 2

Groundwater	51594
Surface	51607
Soil	51646
AIR	51649

RESOLUTIONS

SEPT. 1991

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TABLE 3-6.—HYDRAULIC CONDUCTIVITY OF GEOLOGIC MATERIALS

Type of material	Assigned hydraulic conductivity [a] (cm/sec)
Clay; low permeability till (compact unfractured till); shale; unfractured metamorphic and igneous rocks	10^{-8}
Silt; losses; silty clays; sediments that are predominantly silts; moderately permeable till (fine-grained, unconsolidated till, or compact till with some fractures); low permeability limestones and dolomites (no karst); low permeability sandstone; low permeability fractured igneous and metamorphic rocks	10^{-6}
Sands; sandy silts; sediments that are predominantly sand; highly permeable till (coarse-grained, unconsolidated or compact and highly fractured); peat; moderately permeable limestones and dolomites (no karst); moderately permeable sandstone; moderately permeable fractured igneous and metamorphic rocks	10^{-4}
Gravel; clean sand; highly permeable fractured igneous and metamorphic rocks; permeable basalt; karst limestones and dolomites	10^{-2}

[a] Do not round to nearest integer.

TABLE 3-7.—TRAVEL TIME FACTOR VALUES [a]

Hydraulic conductivity (cm/sec)	Thickness of lowest hydraulic conductivity layer(s) [b] (feet)			
	Greater than 3 to 5	Greater than 5 to 100	Greater than 100 to 500	Greater than 500
Greater than or equal to 10^{-3}	35	35	35	25
Less than 10^{-3} to 10^{-5}	35	25	15	15
Less than 10^{-5} to 10^{-7}	15	15	5	5
Less than 10^{-7}	5	5	1	1

[a] If depth to aquifer is 10 feet or less or if, for the interval being evaluated, all layers that underlie a portion of the sources at the site are karst, assign a value of 35.

[b] Consider only layers at least 3 feet thick. Do not consider layers or portions of layers within the first 10 feet of the depth to the aquifer.

Determine travel time only at locations within 2 miles of the sources at the site, except: if observed ground water contamination attributable to sources at the site extends more than 2 miles beyond these sources, use any location within the limits of this observed ground water contamination when evaluating the travel time factor for any aquifer that does not have an observed release. If the necessary subsurface geologic information is available at multiple locations, evaluate the travel time factor at each location. Use the location having the highest travel time factor value to assign the factor value for the aquifer. Enter this value in Table 3-1.

3.1.2.5 *Calculation of potential to release factor value.* Sum the factor values for net precipitation, depth to aquifer, and travel time, and multiply this sum by the factor value for containment. Assign this product as the potential to release factor value for the aquifer. Enter this value in Table 3-1.

3.1.3 *Calculation of likelihood of release factor category value.* If an observed release is established for an aquifer, assign the observed release factor value of 550 as the likelihood of release factor category value for that aquifer. Otherwise, assign the potential to release factor value for that aquifer as the likelihood of release value. Enter the value assigned in Table 3-1.

3.2 *Waste characteristics.* Evaluate the waste characteristics factor category for an aquifer based on two factors: toxicity/mobility and hazardous waste quantity. Evaluate only those hazardous substances available to migrate from the sources at the site to ground water. Such hazardous substances include:

- Hazardous substances that meet the criteria for an observed release to ground water.
- All hazardous substances associated with a source that has a ground water containment factor value greater than 0 (see sections 2.2.2, 2.2.3, and 3.1.2.1).

3.2.1 *Toxicity/mobility.* For each hazardous substance, assign a toxicity factor value, a mobility factor value, and a combined toxicity/mobility factor value as specified in the following sections. Select the toxicity/mobility factor value for the aquifer being evaluated as specified in section 3.2.1.3.

3.2.1.1 *Toxicity.* Assign a toxicity factor value to each hazardous substance as specified in Section 2.4.1.1.

3.2.1.2 *Mobility.* Assign a mobility factor value to each hazardous substance for the aquifer being evaluated as follows:

- For any hazardous substance that meets the criteria for an observed release by chemical analysis to one or more aquifers underlying the sources at the site, regardless of the aquifer being evaluated, assign a mobility factor value of 1.
- For any hazardous substance that does not meet the criteria for an observed release by chemical analysis to at least one of the aquifers, assign that hazardous substance a mobility factor value from Table 3-8 for the aquifer being evaluated, based on its water solubility and distribution coefficient (K_d).
- If the hazardous substance cannot be assigned a mobility factor value because data on its water solubility or distribution coefficient are not available, use other hazardous substances for which information is available in evaluating the pathway.

TABLE 3-8.—GROUND WATER MOBILITY FACTOR VALUES [a]

Water solubility (mg/l)	Distribution coefficient (K_d) (ml/g)			
	Karst [c]	≤10	>10 to 1,000	>1,000
Present as liquid [b]	1	1	0.01	0.0001
Greater than 100	1	1	0.01	0.0001
Greater than 1 to 100	0.2	0.2	0.002	2×10^{-5}
Greater than 0.01 to 1	0.002	0.002	2×10^{-6}	2×10^{-7}
Less than or equal to 0.01	2×10^{-6}	2×10^{-6}	2×10^{-7}	2×10^{-8}

[a] Do not round to nearest integer.

[b] Use if the hazardous substance is present or deposited as a liquid.

[c] Use if the entire interval from the source to the aquifer being evaluated is karst.

Ref. 15

May 8, 1991

To: File

From: D. Mark Durway

Re: Spann property site visit on 2-20-91

On 2-20-91, Jerry Curry and I met John Goolsby of the Henderson County Health Department, who accompanied us to the former Spann property, located about 5 miles north of downtown Hendersonville on U.S. Highway 25. The Spann property is comprised of about 3.5 acres, and is located on Mud Creek. Its current owners are Mary Beck and her sisters, who are the daughters of the now-deceased John J. Spann. Mary Beck and her sisters currently rent the property to Herbert Hodge.

The Spann property is currently the site of a junkyard operated by Naples Auto Disposal and Salvage Corporation. The junkyard has operation permit #045004863 from the N.C. Department of Revenue, and also has a permit with Henderson County. During the site visit, the following waste types were observed:

- wrecked cars and miscellaneous automobile parts, such as tires
- approximately 40 full and empty drums containing what the junkyard manager's wife thought was tar (no identifying labels could be found; no leakage appeared to have occurred)
- coal cinders
- x-ray tables manufactured by Picker Corporation
- stoves and refrigerators
- sheet metal
- house gutters

About 15 to 20 years ago, Gene Sheppard of East Flat Rock used the Spann property for disposal and incineration of waste cardboard and other material. This waste came, in part, from General Electric in East Flatrock. During the site visit, there were no signs of past disposal or incineration of waste cardboard on the property, primarily because the property was covered with junkyard waste. It was not determined whether leachate was flowing from the Spann property to Mud Creek.

Depth to the water table at the Spann property is probably about 5 feet, based on the site elevation relative to that of the creek. Hand augering to the water table prior to installing temporary well points, should a site investigation be performed, could be difficult since there is much metal and other impenetrable debris on the site. Soil and stream sampling could be easily done, though a fence and debris impede access to the creek in some areas.

Names, addresses, and telephone numbers of persons who have information on, or who are known or thought to be associated with the site are:

John Goolsby, Sanitarian
Henderson County Health Department
704-692-4228

Wade Carpenter, Sanitarian (also enforces county junkyard permitting ordinance)
Henderson County Health Department
704-692-4228

Naples Auto Disposal and Salvage Corporation
Route 8, Box 156 A
U.S. Highway 25 North
Hendersonville, NC 28792
704-693-8946

Herbert Hodge, manages Naples Auto Disposal and rents property from the Beck sisters
704-693-8946, after 6:00 PM

Claude Creasman, owns Naples Auto Disposal and Salvage Corporation (?)
Asheville, NC (?)
unlisted telephone number

Mary Beck (widow of Quay Beck)
Route 8, Box 124
Hendersonville, NC 28792
704-693-7557

Gene Sheppard
East Flat Rock
704-693-0559

dmd/pa/visit.1

Ref. 8

Date: March 20, 1991

To: Superfund Staff

From: Mary Ganley

Subject: Well Head Protection Areas in North Carolina
Sole Source Aquifers

I spoke with Perry Nelson, 733-3221, Groundwater Section Chief, regarding well head protection areas in the state. There is currently a pilot study in progress in Gaston County. In addition, there are no sole source aquifers designated in the state.

SITE HEALTH AND SAFETY PLAN

A. General Information

Site Name Spann Property ID # NCD TBA

Location On Route 25, approximately 1 mile south of the intersection of Routes 25 and 26, near Hendersonville, Henderson County, NC 28726 Date January 31, 1991

Proposed Date of Investigation February 20, 1991

Date of Briefing February 18, 1991

Date of Debriefing February 21, 1991

Nature of Visit (check one):

On-Site Reconnaissance (PA)	X
On-Site Reconnaissance (SI)	
Site Investigation	

Health Department Official Contacted Mr. Robert K. Smith

Date of Contact Januray 31, 1991

Site Investigation Team: All site personnel have read the Site Health and Safety Plan and are familiar with its provisions.

	Personnel	Responsibilities	Signature
Team 1	Mark Durway	team leader	Mark Durway
Team 1	Jerry Curry	reconnaissance	Jerry Curry

Plan Preparation:

Prepared By: David Lilley, Industrial Hygienist David Lilley

Reviewed By: Jack Butler, Environmental Engineer Jack Butler

B. SITE/WASTE CHARACTERISTICS

Waste Type(s) __X__ Liquid _____ Solid _____ Sludge _____ Gas

Characteristics _____ Corrosive __X__ Ignitable _____ Radioactive

__X__ Volatile __X__ Toxic _____ Reactive _____ Other

List Known or Suspected Hazards (physical, chemical biological or radioactive)

on Site and their toxicological effects. Also, if known, list chemical amounts

HAZARD	WARNING PROPERTIES	TLV
PCBs	Odor Threshold (OT) = no data	0.5 mg/m^3
1,1,1-Trichloroethane	OT = 20 - 400 ppm	350 ppm
Toluene	OT = 0.17 - 40 ppm	100 ppm
1,2-Dichloroethane	OT = 100 ppm	1 ppm
Trichloroethylene	OT = 0.2 - 400 ppm	50 ppm
Tetrachloroethylene	OT = 4.68 - 50 ppm	25 ppm

ID # NCD TBA

Facility Description: Size unknown Buildings unknown

Disposal Methods Being Investigated Burial of potentially hazardous waste.

Unusual Features on Site (dike integrity, power lines, terrain, etc.):
none known

History of the Site: During a telephone conversation, Mr. Sheppard acknowledged that he disposed of GE wastes at the Spann Property site. These disposals occurred over a three year period about 15 to 20 years ago. Mr. Sheppard said that the wastes were dumped from the top of a small hill on the site into a swampy area, then covered. He said the wastes were identical to those taken to the Sheppard Farm site. Mr. Sheppard estimated the wastes consisted of 95% wood and cardboard and some plastic.

C. HAZARD EVALUATION

The site can be toured in level D protection. No sampling will be conducted at this time. Steel toed work boots will be worn while touring the site.

D. WORK PLAN INSTRUCTION

Map or Sketch Attached? yes

Perimeter Identified? no

Command Post Identified? no

Zones of Contamination Identified? no

Personal Protective Equipment/Level of Protection: ____ C ___X___ D

Modifications

ID # NCD TBA

Surveillance Equipment:

_____	HNU	_____	Detector Tubes and Pumps
_____	OVA	_____	02 Meter
_____	Explosimeter	_____	Radiation Monitor

Decontamination Procedures

_____ Level C Respirator wash, respirator removal, suit wash (if needed), suit removal, boot wash, boot removal and glove removal.

__X__ Level D Boot wash and rinse and boot removal, suit removal, glove and goggle removal.

Modifications Dispose of trash properly, on-site if possible.

Work Schedule/Visit Objectives The purpose of this visit is to determine if the site poses a threat to the public health or environment because of releases of contaminants to soil, surface water, groundwater, or air. No sampling will be conducted at this time, sampling may take place on a later date.

EMERGENCY PRECAUTIONS

Route of Exposure	First Aid
Eyes	irrigate immediately
Skin	soap and water wash
Inhalation	fresh air and artificial respiration
Ingestion	get medical attention immediately

ID # NCD TBA

Location of Nearest Phone: unknown (nearby residences?)

Hospital (Address and Phone Number)

Park Ridge Hospital, PO Box 1569, Fletcher, NC 28732 (704) 684-8501

can handle chemically contaminated patients

Emergency Transportation Systems (Phone Numbers)

Fire 911

Ambulance 911

Rescue Squad 911

Emergency Route to Hospital Take a right onto route 25 (Old Asheville Road) and travel north. Cross route 26 and follow the signs to the hospital. According to a hospital employee, you should take the first left (Naples Road) and the hospital will be straight ahead.

PREVAILING WEATHER CONDITIONS AND FORECAST Chance of rain (30 - 40%) with highs in the 60s.

EQUIPMENT CHECKLIST

____	Air purifying respirator	X	First Aid Kit
____	Cartridges for respirator	X	3 gal. Deionized H20
____	Dust Mask	X	Rainsuit
____	O_2 Indicator	____	Gloves (PE/PVC/nitrile/cloth)
____	Eye Wash Unit	X	Boots/Boot Covers
____	H NU	____	Coveralls (tyvek/saranex)
____	OVA	____	Eye Protection
____	Explosimeter	X	Hard Hat
____	Radioactive Monitor	X	Decontamination Materials.
____	Detector Tubes and Pump		

Poison Control Center - State Coordinator
Duke University Medical Center
Telephone: 1-800-672-1697
Box 3024
Durham, NC 27710

ASHEVILLE 704-255-4490	Western NC Poison Control Center Memorial Mission Hosp. 509 Biltmore Ave. 28801	HENDERSONVILLE 704-693-6522 Ext. 555,556	Margaret R. Pardee Memorial Hospital Fleming St., 28739
CHARLOTTE 704-379-5827	Mercy Hospital 2001 Vail Ave, 28207	HICKORY 704-322-6649	Catawba Mem. Hosp. Fairgrove Chur. Rd 28601
DURHAM 1-800-672-1697	Duke Univ. Med. Center Box 3007, 27710	JACKSONVILLE 919-577-2555	Onslow Mem. Hospital Western Blvd. 28540
GREENSBORO 919-379-4105	Moses Cone Hospital 1200 N. Elm St. 27420	WILMINGTON 919-343-7046	New Hanover Mem. Hospital 2131 S. 17th St. 28401

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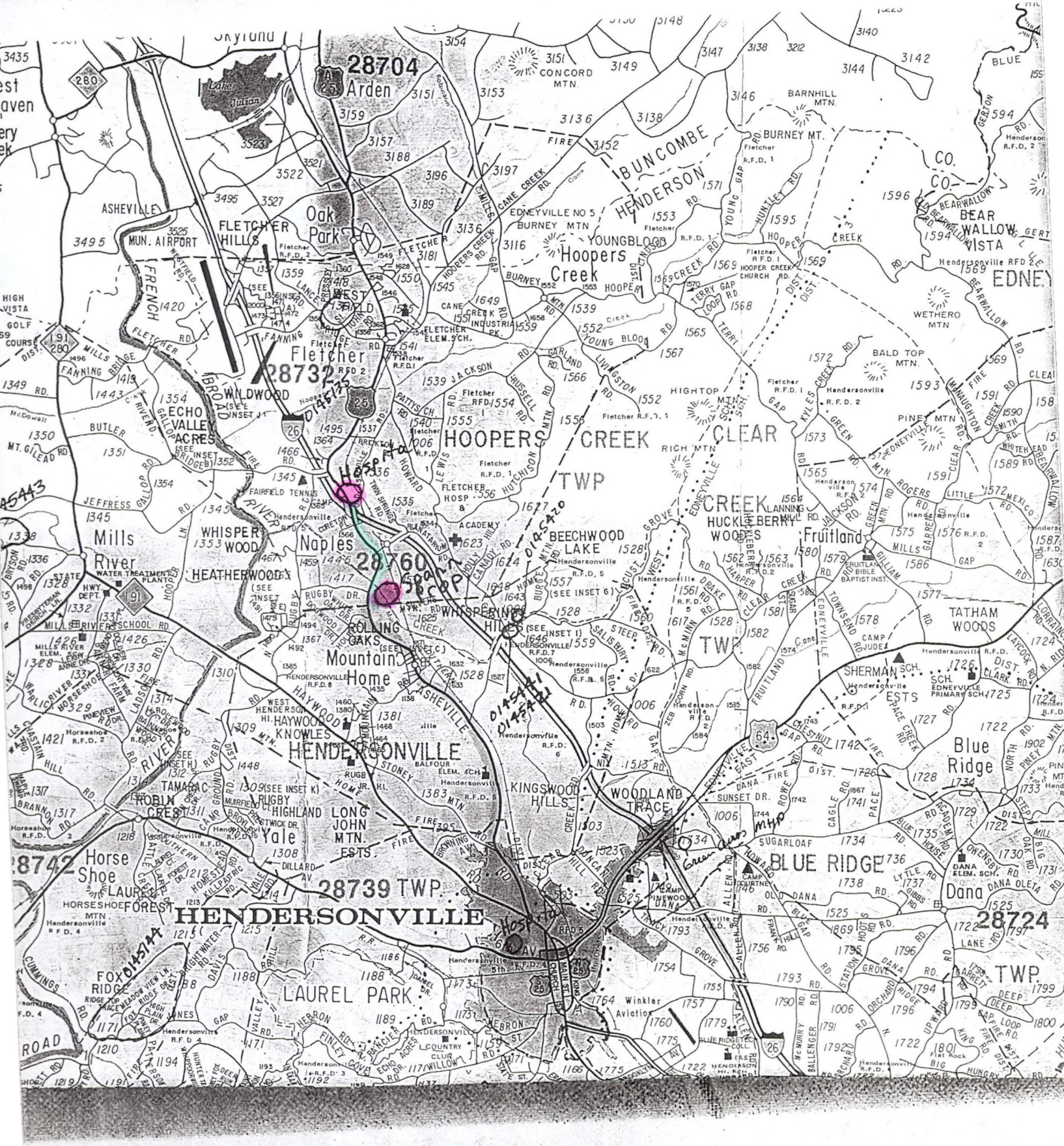

28704
Arden
Lake Julian
ASHEVILLE
MUN. AIRPORT
FLETCHER HILLS
Oak Park
FRENCH
Fletcher
28732
WILDWOOD
ECHO VALLEY ACRES
Mills River
Naples
28760
WHISPERING WOOD
HEATHERWOODS
ROLLING OAKS
Mountain Home
HENDERSONVILLE
TAMARAC
ROBIN CREST
HIGHLAND
LONG JOHN MTN. ESTS.
Yale
Horse Shoe
LAUREL FOREST
28739 TWP.
HENDERSONVILLE
LAUREL PARK
FOX RIDGE
Hoopers Creek
HOOPERS CREEK TWP
CLEAR CREEK
BEECHWOOD LAKE
WHISPERING HILLS
KINGSWOOD HILLS
WOODLAND TRACE
BLUE RIDGE
Dana
28724 TWP.
Fruitland
TATHAM WOODS
SHERMAN ESTS
Blue Ridge
BUNCOMBE
HENDERSON
CO.
CONCORD MTN.
BARNHILL MTN.
BURNEY MT.
BEAR WALLOW
VISTA
EDNEY
WETHERO MTN
BALD TOP MTN.
HIGHTOP MTN.
PINEY MTN.
CANE CREEK
EDNEYVILLE NO 5
BURNEY MTN
YOUNGBLOOD
HUCKLEBERRY WOODS
Winkler Aviation
Hospital
Great Lake MHP

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: PCB'S (polychlorinated biphenyls) 42% & 54% chlorine

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula C12H7C13 (42%) & C12H7C15 (54%)	1-3
Natural Physical State at 25°C liquid	1-3
Vapor Pressure 0.001 mm Hg at 20°C	1-3
Melting Point -19-10 °F/°C Boiling Point 325-390 °F/°C	1-3
Flash Point (open or closed cup) 349-432 °C/°F	1
Solubility - H_2O insoluble	1-3
Other	

Physical Features: (odor, color, etc.) colorless to dark brown liquid with a mild hydrocarbon odor.

II. TOXICOLOGICAL DATA

	1 mg/m^3 (42%)		1 mg/m^3 (42%)		potential human
Standards:	0.5 mg/m^3 (54%) (4)	TLV	0.5 mg/m^3 (54%) (5)	PEL	carcinogin (6) IDLH

Routes of Exposure: Inhalation, skin and ingestion

Acute/Chronic Symptoms: Irritates the eyes, nose, and skin. Can cause chloracne. Liver injury is possible. May cause jaundice and dark urine. (6)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: PCB's

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility (Instability w/very high heat) — 1,3

Toxic by-products HCl & CO gases may be realeased — 1,3

B. Flammability LEL N/A UEL _____ — _____

C. Reactivity Hazard contact with strong oxidizers may cause fire or explosion. — 1,3

D. Corrosivity Hazard yes/no pH: _____ — _____

Neutralizing agent: _____ — _____

E. Radioactive Hazard — Exposure Rate

Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

1. Chemical Safety Data Guide, BNA - 1985.
2. Pocket Guide to Chemical Hazards, NIOSH - 1985.
3. PA Chemical Emergency Preparedness Program - Chemical Profiles - 1985
4. Threshold Limit Values and Biological Exposure Indices for 1990-1991, ACGIH
5. 29 CFR 1910.1000.
6. NIOSH Pocket Guide to Chemical Hazards, 1987

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: 1,1,1 Trichloroethane (Methyl Chloroform)

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula $C_2H_3Cl_3$	1
Natural Physical State at 25°C liquid	1
Vapor Pressure 100 mm Hg at 20°C	2
Melting Point -36 °F/°C Boiling Point 165 °F/°C	2
Flash Point (open or closed cup) autoignition °C/°F	3
Solubility - H_2O 0.07% temperature = 500°C	2
Other Soluble in acetone, benzene, carbon tetrachloride, methanol, ether	1

Physical Features: (odor, color, etc.) Colorless liquid with a mild chloroform-like odor (2) IP = 11.5 eV

II. TOXICOLOGICAL DATA

Standards: 350 ppm (4) TLV 350 ppm (5) PEL 1000 ppm (2) IDLH

Routes of Exposure: Inhalation, Ingestion, and skin and/or eye contact.

Acute/Chronic Symptoms: Headaches, lassitude, central nervous system depression, poor equilibrium, eye irritation, dermatitis, cardiac arrhythmias (irregular heart-beat) (2)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: 1,1,1 Trichlorethane

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes X No ____ — 2

Toxic by-products _____

B. Flammability LEL 8% UEL 10.5% — 3

C. Reactivity Hazard Incompatible with strong caustics, strong oxidizers, chemically active metals, such as aluminum, magnesium, powders, sodium, potassium. — 2

D. Corrosivity Hazard yes/no pH: _____

Neutralizing agent: _____

E. Radioactive Hazard — Exposure Rate

Background	yes/no	
Alpha particles	yes/no	
Beta particles	yes/no	
Gamma radiation	yes/no	

IV. REFERENCES

1. The Merck Index, 11th Edition, 1989
2. Pocket Guide to Chemical Hazards, NIOSH, 1987
3. Chemical and Engineering News, December 12, 1988.
4. Threshold Limit Values and Biological Exposure Indices for 1988-1989, ACGIH
5. CFR 1910.1000, 1989

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Toluene (Methyl benzene, toluol)

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula C7H8	1,2,3,4
Natural Physical State at 25°C liquid	1,2,3,4
Vapor Pressure 2 mm Hg at 20°C	4
Melting Point -95 °F/°C Boiling Point 110.6 °F/°C	1,3,4
Flash Point (open or closed cup) 40 °C/°F	1,2,3,4
Solubility - H_2O slightly soluble	1,3,4
Other miscible with alcohol, chloroform, ether, acetone, glacial acetic acid, carbon disulfide	1,3,4

Physical Features: (odor, color, etc.) colorless liquid with an aromatic odor, IP 8.82 eV, derived from coal tar oil or petroleum Relative response on HNU = 10

II. TOXICOLOGICAL DATA

Standards: 100 ppm (5) TLV 100 ppm (6) PEL 2000 ppm IDLH 4

Routes of Exposure: inhalation; ingestion, skin contact, eye contact

Acute/Chronic Symptoms: Narcotic in high concentrations, headache, lassitude, and nausea. Chronic: anemia and dermatitis.

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Toluene

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes X No ____ — 4

Toxic by-products _____ — _____

_____ — _____

B. Flammability LEL 1.0% UEL 7.0% — 4

C. Reactivity Hazard strong oxidizers — 3

D. Corrosivity Hazard yes/no pH: _____ — _____

Neutralizing agent: _____ — _____

E. Radioactive Hazard — Exposure Rate

Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989

(2) Documentation of the TLV, 4th Edition, 1980

(3) NIOSH Pocket Guide for Chemical Hazards, 1987

(4) NEPA, Protection Guide on Hazardous Materials, 8th Edition, 1984

(5) Threshold Limit Values and Biological Exposure Indices for 1990-1991.

(6) 1910.1000, 1989.

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: 1,2-dichloroethane

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula $C_2H_4Cl_2$	1
Natural Physical State at 25°C liquid	2
Vapor Pressure 62 mm Hg at 20°C	2
Melting Point -32 °F/°C Boiling Point 183 °F/°C	2
Flash Point (open or closed cup) 55 °C/°F	2
Solubility - H_2O 0.8%	2
Other alcohol, chlorform, ether	1

Physical Features: (odor, color, etc.) clear liquid with a sweet odor like chlorofrom(2) 1P=11.12 eV, HNU sensitivity=12.9 with 11.7 eV probe.

II. TOXICOLOGICAL DATA REL = 1 ppm for 10 hour TWA (2)

Standards: 10 ppm(3) TLV 1 ppm(4) PEL suspect carcinogen IDLH 2

Routes of Exposure: Inhalation, Ingestion, Skin absorption, eye contact

Acute/Chronic Symptoms: Central nervous system depression, nausea, vomiting, dermititis, eye irritation, corneal opacity, suspect carcinogen(2).

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: 1,2-dichloroethane

III. HAZARDOUS CHARACTERISTICS | Reference

A. Combustibility Yes X No ____ | 1

Toxic by-products _____ | _____

_____ | _____

B. Flammability LEL 6.2% UEL 16% | 2

C. Reactivity Hazard strong oxidizers and caustics, chemically active metals such as aluminum or magnesium powder, sodium, potassium. | 2

D. Corrosivity Hazard yes/no pH: _____ | _____

Neutralizing agent: _____ | _____

E. Radioactive Hazard

		Exposure Rate	
Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

1. The Merck Index, 11th Edition, 1989.
2. NIOSH Pocket Guide to Chemical Hazards, 1987.
3. Threshold Limit Values and Biological Exposure Indices for 1990-1991.
4. 29 CFR 1910.1000.

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Trichloroethylene

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula C_2HCl_3	1
Natural Physical State at 25°C liquid	1
Vapor Pressure 58 mm Hg at 20°C	2
Melting Point -123 °F/°C Boiling Point 188 °F/°C	2
Flash Point (open or closed cup) 32 °C/°F	3
Solubility - H_2O 0.1%	2
Other Ether, alcohol, chloroform	1

Physical Features: (odor, color, etc.) Colorless liquid (unless dyed) with a sweet odor like chloroform 1P = 9.47 eV (2) OVA Relative Response = 70%

II. TOXICOLOGICAL DATA

Standards: 50 ppm (4) TLV 50 ppm (5) PEL potential human carcinogen(2) IDLH

Routes of Exposure: Inhalation, ingestion, skin and/or eye contact (2)

Acute/Chronic Symptoms: Acute: Headache, vertigo, visual disturbance, tremors, drowsiness, nausea, vomiting, eye irritation, dermititis, irregular heartbeat, skin irritation; chronic: carcinogenic (2)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Trichloreothylene

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes X No ____ — 2

Toxic by-products _____

B. Flammability LEL 12.5% UEL 90% — 3

C. Reactivity Hazard Incompatible with strong caustics: when acidic reacts with aluminum, chemically active metals, barium, lithium, sodium, magnesium, titanium. — 2

D. Corrosivity Hazard yes/no pH: _____

Neutralizing agent: _____

E. Radioactive Hazard — Exposure Rate

Background	yes/no	
Alpha particles	yes/no	
Beta particles	yes/no	
Gamma radiation	yes/no	

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989

(2) Pocket Guide to Chemical Hazards, NIOSH, 1987

(3) Chemical and Engineering News, December 12, 1988.

(4) Threshold Limit Values and Biological Exposure Indices for 1990-1991, ACGIH

(5) 29 CFR 1910.1000

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Perchloroethylene

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula C_2Cl_4	1
Natural Physical State at 25°C liquid	2
Vapor Pressure 14 mm Hg at 20°C	2
Melting Point -8 °F/°C Boiling Point 250 °F/°C	2
Flash Point (open or closed cup) N/A °C/°F	2
Solubility - H_2O 0.015%	2
Other misc with alcohol, ether, chloroform, benzene	1

Physical Features: (odor, color, etc.) colorless liquid with an odor like ether or chloroform IP=9.32 eV (2) OVA Relative Response = 70%

II. TOXICOLOGICAL DATA

Standards: 50 ppm(3) TLV 25 ppm (4) PEL suspect human carcinogen IDLH 2

Routes of Exposure: Inhalation, Ingestion, Skin and/or Eye Contact (2)

Acute/Chronic Symptoms: Irritation of eyes, nose, and throat, nausea, flushed face and neck, vertigo, dizziness, incoordination, headache, carcinogen (2)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Perchloroethylene

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes ___ No X — 2

Toxic by-products _____

B. Flammability LEL none UEL none — 2

C. Reactivity Hazard Incompatible with strong oxidizers, chemically active metals, such as barium, lithium, and beryllium — 2

D. Corrosivity Hazard yes/no pH: _____

Neutralizing agent: _____

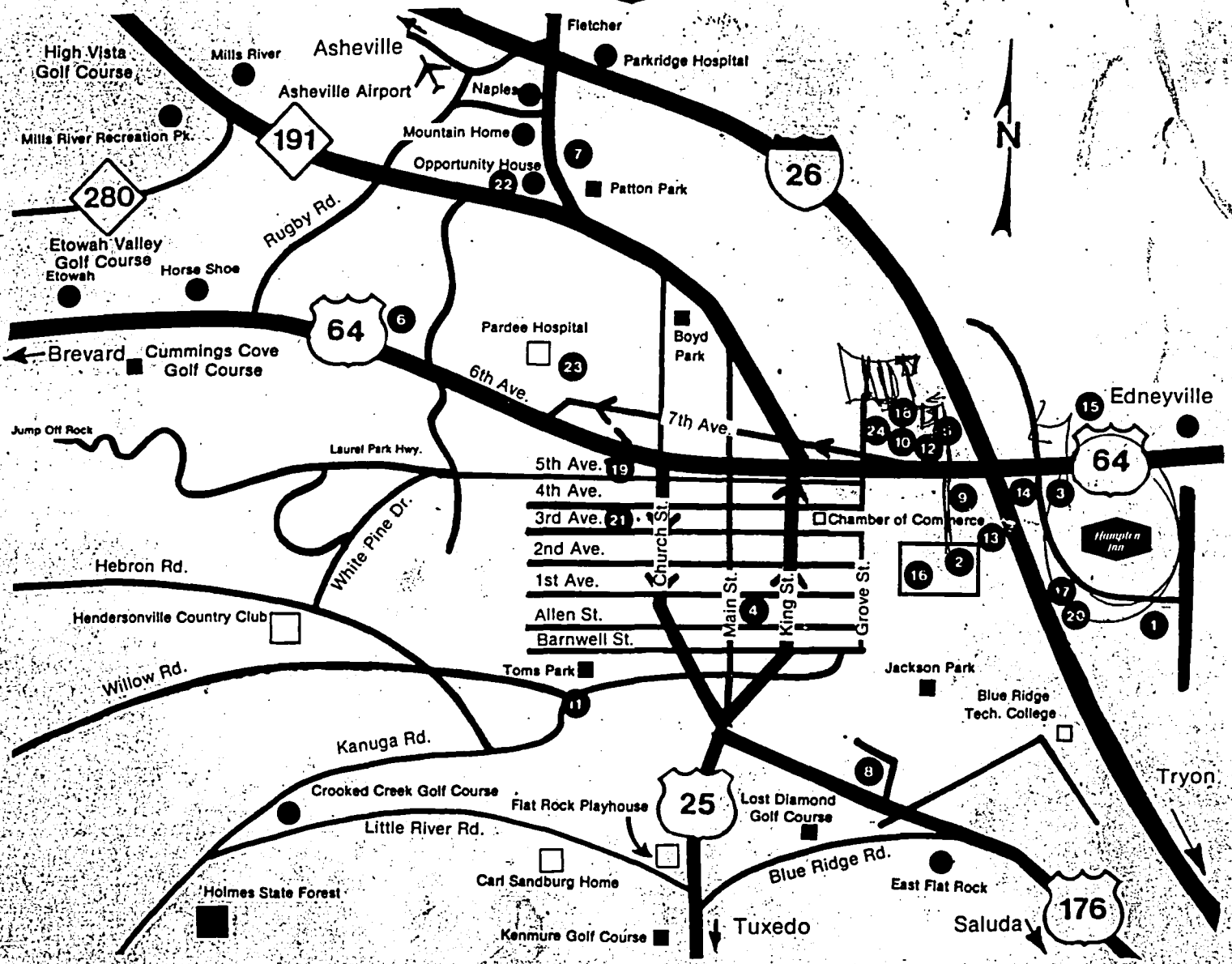
E. Radioactive Hazard — Exposure Rate

Background	yes/no	
Alpha particles	yes/no	
Beta particles	yes/no	
Gamma radiation	yes/no	

IV. REFERENCES

1. The Merck Index, 11th Edition, 1989
2. NIOSH Pocket Guide to Chemical Hazards, 1987
3. Threshold Limit Values and Biological Exposure Indices for 1990-91, ACGIH.
4. CFR 1910.1000.

Hampton Inn



EMERGENCY NUMBERS

911 Ambulance
911 Fire
911 Police

RESTAURANTS

1. Holiday Inn
2. McGuffeys
3. Waffle House (24 hr.)
4. Expressions
5. Bojangles
6. Huberts
7. Quarter House
8. Magic Wok (Chinese)
9. Pizza Hut
10. Western Sizzlin
11. Dominos Pizza (Free Delivery)
12. Arby's (24 hr.)

SERVICE STATIONS

13. Dermids Exxon 692-1621
14. Shell / Norms
15. Triangle Texaco

SHOPPING

16. Blue Ridge Mall
17. World of Clothing
18. Four Seasons Mall

GENERAL SERVICES

19. Post Office
20. Headlines Beauty Salon
21. Public Library
22. Opportunity House
23. John Fox Florist 693-4286
24. Four Seasons Cinema 693-8989

CHURCHES

Lutheran
Immaculate Conception
First Baptist
First United Methodist
First Presbyterian
St. James Episcopal
Agudas Israel Congregation

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor
William W. Cobey, Jr., Secretary

William L. Meyer
Director

January 31, 1991

Mr. Robert K. Smith
Environmental Health Supervisor
Henderson County Health Department
1347 Spartanburg Highway
Hendersonville, North Carolina 28739

RE: Preliminary Assessment
On-Site Reconnaissance
Spann Property
NCD TBA

Dear Mr. Smith:

David Lilley of the North Carolina Superfund Section spoke with you today to notify you that the North Carolina Superfund Section will conduct an on-site reconnaissance of the subject site located in Henderson County, North Carolina. The reconnaissance will be conducted on February 20, 1991 by Mark Durway of the North Carolina Superfund Section.

The purpose of the reconnaissance is to determine if the site poses a hazard to public health or the environment because of releases of contaminants to soil, surface water, groundwater, or air. The reconnaissance team will locate all nearby water supplies (surface and groundwater, community and private) and any close sensitive environments, schools, and day care centers.

This reconnaissance is not an emergency situation but is a normal step in the evaluation of all uncontrolled and unregulated potential hazardous waste sites in North Carolina. You may want to have your representative meet the reconnaissance team at the site. If so, please contact Mark Durway at (919) 733-2801 and he will coordinate a meeting. I am enclosing background data on the site for your information.

If the reconnaissance indicates the need for future study of the site, we will contact your office to advise. If you have any questions, please don't hesitate to call David Lilley or me at (919) 733-2801.

Sincerely,

Dave Lilley for

Pat DeRosa, Head
CERCLA Branch
Superfund Section

Enclosures

cc: Jim Coffey
Doug Holyfield
Steve Reid
Patricia Bowden
Ann Rudd
David Lilley
File

Federal
Trip Notification & Authorization

Prepared by: M. DURWAY

Today's Date: 1-29-91

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only.

Site Trip

Date of Trip: 2-20-91

If trip date changed or cancelled note below:
Trip Date Changed To: _____ Cancelled: ____

NCD#: TBA Site Name: SPANN PROPERTY
City: HENDERSONVILLE County: HENDERSON

Reason for Trip: Preliminary Assessment
On-site Reconnaissance

Name of Hotel (Overnight Trip): — Hotel Telephone Number: ( ) ___ - _____

Authorized by: David Bailey
Industrial Hygienist

Project Team Leader: M. DURWAY

Assistants: J. CURRY, _____, _____

Attach To Notification Form: 1 copy each:
Submit to the Industrial Hygienist

- Preliminary Assessment Form (First page only)
- Site Map
- PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)

Environmental Supervisor or Health Director to call: Mr. Robert K. Smith Title: Supervisor Env. Health
(Note if Dr., M.P., etc.)

Telephone Number: (704) 692 - 4228

Notes: Health Department Official Contacted: Mr. Robert Smith
Back Up Letter Required: Yes ✓ No ____

Notified Mr. Smith on 1-31-91 (DBL)

Note: Signed original to Data Manager

SITE HEALTH AND SAFETY PLAN

A. General Information

Site Name Spann Property ID # NCD TBA

Location On Route 25, approximately 1 mile south of the intersection of Routes 25 and 26, near Hendersonville, Henderson County, NC 28726

Date January 31, 1991

Proposed Date of Investigation February 20, 1991

Date of Briefing February 18, 1991

Date of Debriefing February 21, 1991

Nature of Visit (check one):

On-Site Reconnaissance (PA)	X
On-Site Reconnaissance (SI)	
Site Investigation	

Health Department Official Contacted Mr. Robert K. Smith

Date of Contact Januray 31, 1991

Site Investigation Team: All site personnel have read the Site Health and Safety Plan and are familiar with its provisions.

	Personnel	Responsibilities	Signature
Team 1	Mark Durway	team leader	
Team 1	Jerry Curry	reconnaissance	

Plan Preparation:

Prepared By: David Lilley, Industrial Hygienist David Lilley

Reviewed By: Jack Butler, Environmental Engineer Jack Butler

B. SITE/WASTE CHARACTERISTICS

Waste Type(s) __X__ Liquid _____ Solid _____ Sludge _____ Gas

Characteristics _____ Corrosive __X__ Ignitable _____ Radioactive

__X__ Volatile __X__ Toxic _____ Reactive _____ Other

List Known or Suspected Hazards (physical, chemical biological or radioactive)

on Site and their toxicological effects. Also, if known, list chemical amounts

HAZARD	WARNING PROPERTIES	TLV
PCBs	Odor Threshold (OT) = no data	0.5 mg/m^3
1,1,1-Trichloroethane	OT = 20 - 400 ppm	350 ppm
Toluene	OT = 0.17 - 40 ppm	100 ppm
1,2-Dichloroethane	OT = 100 ppm	1 ppm
Trichloroethylene	OT = 0.2 - 400 ppm	50 ppm
Tetrachloroethylene	OT = 4.68 - 50 ppm	25 ppm

ID # NCD TBA

Facility Description: Size unknown Buildings unknown

Disposal Methods Being Investigated Burial of potentially hazardous waste.

Unusual Features on Site (dike integrity, power lines, terrain, etc.):

none known

History of the Site: During a telephone conversation, Mr. Sheppard acknowledged that he disposed of GE wastes at the Spann Property site. These disposals occurred over a three year period about 15 to 20 years ago. Mr. Sheppard said that the wastes were dumped from the top of a small hill on the site into a swampy area, then covered. He said the wastes were identical to those taken to the Sheppard Farm site. Mr. Sheppard estimated the wastes consisted of 95% wood and cardboard and some plastic.

C. HAZARD EVALUATION

The site can be toured in level D protection. No sampling will be conducted at this time. Steel toed work boots will be worn while touring the site.

D. WORK PLAN INSTRUCTION

Map or Sketch Attached? yes

Perimeter Identified? no

Command Post Identified? no

Zones of Contamination Identified? no

Personal Protective Equipment/Level of Protection: ____ C _X_ D

Modifications

ID # NCD TBA

Surveillance Equipment:

_____	HNU	_____	Detector Tubes and Pumps
_____	OVA	_____	02 Meter
_____	Explosimeter	_____	Radiation Monitor

Decontamination Procedures

_____ Level C Respirator wash, respirator removal, suit wash (if needed), suit removal, boot wash, boot removal and glove removal.

X Level D Boot wash and rinse and boot removal, suit removal, glove and goggle removal.

Modifications Dispose of trash properly, on-site if possible.

Work Schedule/Visit Objectives The purpose of this visit is to determine if the site poses a threat to the public health or environment because of releases of contaminants to soil, surface water, groundwater, or air. No sampling will be conducted at this time, sampling may take place on a later date.

EMERGENCY PRECAUTIONS

Route of Exposure	First Aid
Eyes	irrigate immediately
Skin	soap and water wash
Inhalation	fresh air and artificial respiration
Ingestion	get medical attention immediately

ID # NCD TBA

Location of Nearest Phone: unknown (nearby residences?)

Hospital (Address and Phone Number)

Park Ridge Hospital, PO Box 1569, Fletcher, NC 28732 (704) 684-8501

can handle chemically contaminated patients

Emergency Transportation Systems (Phone Numbers)

Fire 911

Ambulance 911

Rescue Squad 911

Emergency Route to Hospital Take a right onto route 25 (Old Asheville Road) and travel north. Cross route 26 and follow the signs to the hospital. According to a hospital employee, you should take the first left (Naples Road) and the hospital will be straight ahead.

PREVAILING WEATHER CONDITIONS AND FORECAST Chance of rain (30 - 40%) with highs in the 60s.

EQUIPMENT CHECKLIST

____	Air purifying respirator	X	First Aid Kit
____	Cartridges for respirator	X	3 gal. Deionized H20
____	Dust Mask	X	Rainsuit
____	O_2 Indicator	____	Gloves (PE/PVC/nitrile/cloth)
____	Eye Wash Unit	X	Boots/Boot Covers
____	H NU	____	Coveralls (tyvek/saranex)
____	OVA	____	Eye Protection
____	Explosimeter	X	Hard Hat
____	Radioactive Monitor	X	Decontamination Materials.
____	Detector Tubes and Pump		

Poison Control Center - State Coordinator
Duke University Medical Center
Telephone: 1-800-672-1697
Box 3024
Durham, NC 27710

ASHEVILLE 704-255-4490	Western NC Poison Control Center Memorial Mission Hosp. 509 Biltmore Ave. 28801	HENDERSONVILLE 704-693-6522 Ext. 555,556	Margaret R. Pardee Memorial Hospital Fleming St., 28739
CHARLOTTE 704-379-5827	Mercy Hospital 2001 Vail Ave, 28207	HICKORY 704-322-6649	Catawba Mem. Hosp. Fairgrove Chur. Rd 28601
DURHAM -800-672-1697	Duke Univ. Med. Center Box 3007, 27710	JACKSONVILLE 919-577-2555	Onslow Mem. Hospital Western Blvd. 28540
REENSBORO 19-379-4105	Moses Cone Hospital 1200 N. Elm St. 27420	WILMINGTON 919-343-7046	New Hanover Mem. Hospital 2131 S. 17th St. 28401

afeform.082

TO BE COMPLETED BY PROJECT MANAGER

PROJECT MANAGER: Mark Durway PROJECT: Spann Property
INVESTIGATION DATE: February 19, 1991

Materials Used (Please insert a number in the blank)

_____ Air Purifying respirator cartridges
_____ Detector tubes
_____ Eye Wash Units
_____ First Aid Kit
_____ Gloves (polyethylene)
_____ Gloves(PVC)
_____ Gloves (nitrile)
_____ Gloves (cloth)
_____ Boot covers
_____ Coveralls (tyvek)
_____ Coveralls (saranex)
_____ Auger Brushes

Respirator Worn By	Approximate Time in Respirator

Air Monitoring Data (Include Calibration Reading)

HNU: _____

OVA: _____

Explosimter: _____

Radiation Meter: _____

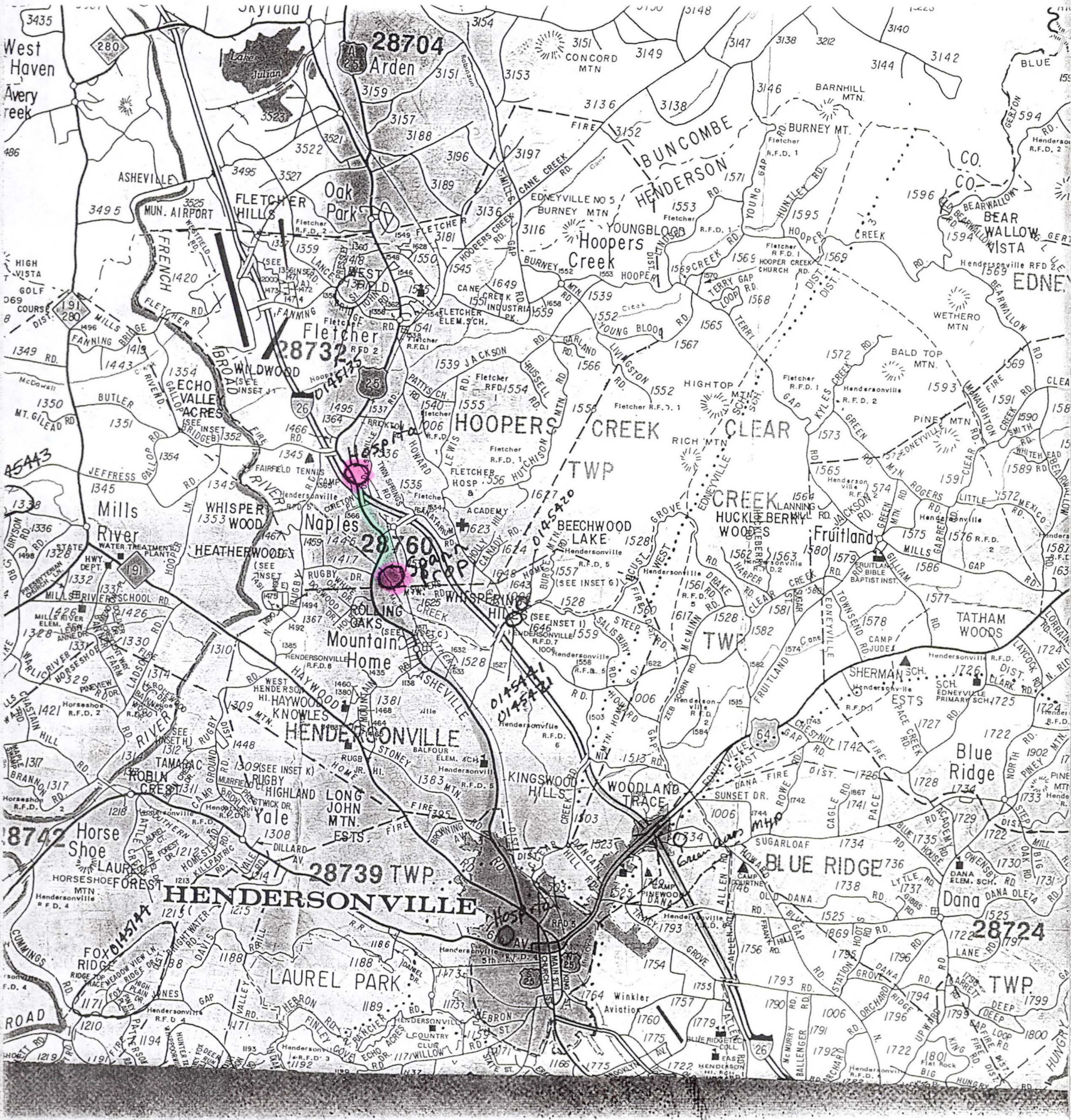
If the maximum personal protective equipment as outlined in the Hazard Evaluation Section was not used, please justify:

_____

Visitors Present	Organization Represented

_____
Signature

L/ds/Revised 11-88



Skyland
West Haven
Avery Creek
Lake Julian
28704
Arden
Concord Mtn
Barnhill Mtn
Burney Mt.
Blue
Asheville Mun. Airport
Fletcher Hills
Oak Park
Buncombe
Henderson
Co.
Co.
Bear Wallow Vista
Edney
High Vista Golf Course
French Broad River
Hoopers Creek
Youngblood
Fletcher
28732
Wildwood
Echo Valley Acres
Mills River
Fletcher Elem. Sch.
Hoopers Creek
Clear Creek
Twp
Wethero Mtn
Bald Top Mtn.
Hightop Mtn.
Rich Mtn
Piney Mtn
Naples
28760
Whisper Wood
Heatherwood
Beechwood Lake
Huckleberry Woods
Fruitland
Whispering Hill
Rolling Oaks
Mountain Home
Tatham Woods
Sherman Sch.
Edneyville Primary Sch.
Hendersonville
Haywood Knowles
Kingswood Hills
Woodland Trace
Blue Ridge
Robin Crest
Yale
Long John Mtn. Ests
Horse Shoe
Laurel Forest
Horseshoe Mtn
28742
28739 Twp.
Blue Ridge
Dana
28724
Fox Ridge
Laurel Park
Winkler Aviation
Blue Ridge Tech. Coll.
Twp.
Hospital
0145133
A5443
0145420
0145421
0145421
0145144
Green Acres MHP

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: PCB'S (polychlorinated biphenyls) 42% & 54% chlorine

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula C12H7C13 (42%) & C12H7C15 (54%)	1-3
Natural Physical State at 25°C liquid	1-3
Vapor Pressure 0.001 mm Hg at 20°C	1-3
Melting Point -19-10 °F/°C Boiling Point 325-390 °F/°C	1-3
Flash Point (open or closed cup) 349-432 °C/°F	1
Solubility - H_2O insoluble	1-3
Other	

Physical Features: (odor, color, etc.) colorless to dark brown liquid with a mild hydrocarbon odor.

II. TOXICOLOGICAL DATA

	1 mg/m^3 (42%)		1 mg/m^3 (42%)		potential human
Standards:	0.5 mg/m^3 (54%) (4)	TLV	0.5 mg/m^3 (54%) (5)	PEL	carcinogin (6) IDLH

Routes of Exposure: Inhalation, skin and ingestion

Acute/Chronic Symptoms: Irritates the eyes, nose, and skin. Can cause chloracne. Liver injury is possible. May cause jaundice and dark urine. (6)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: PCB's

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility (Instability w/very high heat) — 1,3

Toxic by-products HCl & CO gases may be realeased — 1,3

B. Flammability LEL N/A UEL _____ — _____

C. Reactivity Hazard contact with strong oxidizers may cause fire or explosion. — 1,3

D. Corrosivity Hazard yes/no pH: _____ — _____

Neutralizing agent: _____ — _____

E. Radioactive Hazard — Exposure Rate

Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

1. Chemical Safety Data Guide, BNA - 1985.
2. Pocket Guide to Chemical Hazards, NIOSH - 1985.
3. PA Chemical Emergency Preparedness Program - Chemical Profiles - 1985
4. Threshold Limit Values and Biological Exposure Indices for 1990-1991, ACGIH
5. 29 CFR 1910.1000.
6. NIOSH Pocket Guide to Chemical Hazards, 1987

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: 1,1,1 Trichloroethane (Methyl Chloroform)

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula $C_2H_3Cl_3$	1
Natural Physical State at 25°C liquid	1
Vapor Pressure 100 mm Hg at 20°C	2
Melting Point -36 °F/°C Boiling Point 165 °F/°C	2
Flash Point (open or closed cup) autoignition °C/°F	3
Solubility - H_2O 0.07% temperature = 500°C	2
Other Soluble in acetone, benzene, carbon tetrachloride, methanol, ether	1

Physical Features: (odor, color, etc.) Colorless liquid with a mild chloroform-like odor (2) IP = 11.5 eV

II. TOXICOLOGICAL DATA

Standards: 350 ppm (4) TLV 350 ppm (5) PEL 1000 ppm (2) IDLH

Routes of Exposure: Inhalation, Ingestion, and skin and/or eye contact.

Acute/Chronic Symptoms: Headaches, lassitude, central nervous system depression, poor equilibrium, eye irritation, dermatitis, cardiac arrhythmias (irregular heart beat) (2)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: 1,1,1 Trichlorethane

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes X No ____ — 2

Toxic by-products _____ — _____

_____ — _____

B. Flammability LEL 8% UEL 10.5% — 3

C. Reactivity Hazard Incompatible with strong caustics, strong oxidizers, chemically active metals, such as aluminum, magnesium, powders, sodium, potassium. — 2

D. Corrosivity Hazard yes/no pH: _____ — _____

Neutralizing agent: _____ — _____

E. Radioactive Hazard — Exposure Rate

Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

1. The Merck Index, 11th Edition, 1989
2. Pocket Guide to Chemical Hazards, NIOSH, 1987
3. Chemical and Engineering News, December 12, 1988.
4. Threshold Limit Values and Biological Exposure Indices for 1988-1989, ACGIH
5. CFR 1910.1000, 1989

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Toluene (Methyl benzene, toluol)

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula C7H8	1,2,3,4
Natural Physical State at 25°C liquid	1,2,3,4
Vapor Pressure 2 mm Hg at 20°C	4
Melting Point -95 °F/°C Boiling Point 110.6 °F/°C	1,3,4
Flash Point (open or closed cup) 40 °C/°F	1,2,3,4
Solubility - H_2O slightly soluble	1,3,4
Other miscible with alcohol, chloroform, ether, acetone, glacial acetic acid, carbon disulfide	1,3,4

Physical Features: (odor, color, etc.) colorless liquid with an aromatic odor, IP 8.82 eV, derived from coal tar oil or petroleum Relative response on HNU = 10

II. TOXICOLOGICAL DATA

Standards: 100 ppm (5) TLV 100 ppm (6) PEL 2000 ppm IDLH 4

Routes of Exposure: inhalation; ingestion, skin contact, eye contact

Acute/Chronic Symptoms: Narcotic in high concentrations, headache, lassitude, and nausea. Chronic: anemia and dermatitis.

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Toluene

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes X No ____ — 4

Toxic by-products _____

B. Flammability LEL 1.0% UEL 7.0% — 4

C. Reactivity Hazard strong oxidizers — 3

D. Corrosivity Hazard yes/no pH: _____

Neutralizing agent: _____

E. Radioactive Hazard — Exposure Rate

Background	yes/no		
Alpha particles	yes/no		
Beta particles	yes/no		
Gamma radiation	yes/no		

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989

(2) Documentation of the TLV, 4th Edition, 1980

(3) NIOSH Pocket Guide for Chemical Hazards, 1987

(4) NEPA, Protection Guide on Hazardous Materials, 8th Edition, 1984

(5) Threshold Limit Values and Biological Exposure Indices for 1990-1991.

(6) 1910.1000, 1989.

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: 1,2-dichloroethane

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula $C_2H_4Cl_2$	1
Natural Physical State at 25°C liquid	2
Vapor Pressure 62 mm Hg at 20°C	2
Melting Point -32 °F/°C Boiling Point 183 °F/°C	2
Flash Point (open or closed cup) 55 °C/°F	2
Solubility - H_2O 0.8%	2
Other alcohol, chlorform, ether	1

Physical Features: (odor, color, etc.) clear liquid with a sweet odor like chlorofrom(2) 1P=11.12 eV, HNU sensitivity=12.9 with 11.7 eV probe.

II. TOXICOLOGICAL DATA REL = 1 ppm for 10 hour TWA (2)

Standards: 10 ppm(3) TLV 1 ppm(4) PEL suspect carcinogen IDLH 2

Routes of Exposure: Inhalation, Ingestion, Skin absorption, eye contact

Acute/Chronic Symptoms: Central nervous system depression, nausea, vomiting, dermititis, eye irritation, corneal opacity, suspect carcinogen(2).

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: 1,2-dichloroethane

III. HAZARDOUS CHARACTERISTICS | Reference

A. Combustibility Yes X No ____ | 1

Toxic by-products _____ | _____

_____ | _____

B. Flammability LEL 6.2% UEL 16% | 2

C. Reactivity Hazard strong oxidizers and caustics, chemically active metals such as aluminum or magnesium powder, sodium, potassium. | 2

D. Corrosivity Hazard yes/no pH: _____ | _____

Neutralizing agent: _____ | _____

E. Radioactive Hazard | Exposure Rate

Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

1. The Merck Index, 11th Edition, 1989.
2. NIOSH Pocket Guide to Chemical Hazards, 1987.
3. Threshold Limit Values and Biological Exposure Indices for 1990-1991.
4. 29 CFR 1910.1000.

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Trichloroethylene

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula C_2HCl_3	1
Natural Physical State at 25°C liquid	1
Vapor Pressure 58 mm Hg at 20°C	2
Melting Point -123 °F/°C Boiling Point 188 °F/°C	2
Flash Point (open or closed cup) 32 °C/°F	3
Solubility - H_2O 0.1%	2
Other Ether, alcohol, chloroform	1

Physical Features: (odor, color, etc.) Colorless liquid (unless dyed) with a sweet odor like chloroform IP = 9.47 eV (2)
OVA Relative Response = 70%

II. TOXICOLOGICAL DATA

Standards: 50 ppm (4) TLV 50 ppm (5) PEL potential human carcinogen(2) IDLH

Routes of Exposure: Inhalation, ingestion, skin and/or eye contact (2)

Acute/Chronic Symptoms: Acute: Headache, vertigo, visual disturbance, tremors, drowsiness, nausea, vomiting, eye irritation, dermititis, irregular heartbeat, skin irritation; chronic: carcinogenic (2)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Trichloreothylene

III. HAZARDOUS CHARACTERISTICS — Reference

A. Combustibility Yes X No ____ — 2

Toxic by-products _____

B. Flammability LEL 12.5% UEL 90% — 3

C. Reactivity Hazard Incompatible with strong caustics: when acidic reacts with aluminum, chemically active metals, barium, lithium, sodium, magnesium, titanium. — 2

D. Corrosivity Hazard yes/no pH: _____

Neutralizing agent: _____

E. Radioactive Hazard

		Exposure Rate	
Background	yes/no		
Alpha particles	yes/no		
Beta particles	yes/no		
Gamma radiation	yes/no		

IV. REFERENCES

(1) The Merck Index, 11th Edition, 1989

(2) Pocket Guide to Chemical Hazards, NIOSH, 1987

(3) Chemical and Engineering News, December 12, 1988.

(4) Threshold Limit Values and Biological Exposure Indices for 1990-1991, ACGIH

(5) 29 CFR 1910.1000

HAZARDOUS SUBSTANCE INFORMATION FORM

Chemical Name: Perchloroethylene

I. PHYSICAL/CHEMICAL PROPERTIES

	Reference
Chemical Formula C_2Cl_4	1
Natural Physical State at 25°C liquid	2
Vapor Pressure 14 mm Hg at 20°C	2
Melting Point -8 °F/°C Boiling Point 250 °F/°C	2
Flash Point (open or closed cup) N/A °C/°F	2
Solubility - H_2O 0.015%	2
Other misc with alcohol, ether, chloroform, benzene	1

Physical Features: (odor, color, etc.) colorless liquid with an odor like ether or chloroform IP=9.32 eV (2) OVA Relative Response = 70%

II. TOXICOLOGICAL DATA

Standards: 50 ppm(3) TLV 25 ppm (4) PEL suspect human carcinogen IDLH 2

Routes of Exposure: Inhalation, Ingestion, Skin and/or Eye Contact (2)

Acute/Chronic Symptoms: Irritation of eyes, nose, and throat, nausea, flushed face and neck, vertigo, dizziness, incoordination, headache, carcinogen (2)

First Aid: Inhalation: artificial respiration; Ingestion: get medical attention immediately; Eye contact: irrigate immediately; Skin contact: soap and water wash immediately

Chemical Name: Perchloroethylene

III. HAZARDOUS CHARACTERISTICS | Reference

A. Combustibility Yes ___ No X | 2

Toxic by-products _____ | _____

_____ | _____

B. Flammability LEL none UEL none | 2

C. Reactivity Hazard Incompatible with strong oxidizers, chemically active metals, such as barium, lithium, and beryllium | 2

D. Corrosivity Hazard yes/no pH: _____ | _____

Neutralizing agent: _____ | _____

E. Radioactive Hazard | Exposure Rate

Background	yes/no	_____	_____
Alpha particles	yes/no	_____	_____
Beta particles	yes/no	_____	_____
Gamma radiation	yes/no	_____	_____

IV. REFERENCES

1. The Merck Index, 11th Edition, 1989
2. NIOSH Pocket Guide to Chemical Hazards, 1987
3. Threshold Limit Values and Biological Exposure Indices for 1990-91, ACGIH.
4. CFR 1910.1000.

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor
William W. Cobey, Jr., Secretary

William L. Meyer
Director

January 11, 1991

Ms. Deborah A. Vaughn-Wright
EPA N.C. CERCLA Project Officer
U.S. EPA Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

Subject: Review of the Draft Report for the Limited Scope Listing Site Inspection, Phase II

Site: Shepherd Farm
NCD 986170686
Flat Rock, Henderson County, NC

Dear Ms. Wright:

I have reviewed the draft report for the Phase II Limited Scope Listing Site Inspection, and would like to make the following suggestions regarding the electromagnetic conductivity survey and interpretation of results (pp. 11-13, 15, 16, 19; Appendix B):

1) Make and model of the survey instrument used should be noted in the report. As I recall, a Geonics EM-31 was used to conduct the electromagnetic survey.

2) The report should indicate whether the EM-31 was operated in the quad-phase or in-phase mode. Likewise, the data set presented should indicate which mode was used during its collection. According to Simon Boniwell of Geonics Ltd. (tel. 416-670-9580), the in-phase mode is more sensitive to buried ferrous objects than the quad-phase mode, and might have aided in the investigation of this site, assuming that it was not used.

3) To delineate buried ferrous drums with an EM-31, it is often helpful to take two readings at each anomalous area, the second reading after the instrument has been rotated 90°. When the instrument is oriented perpendicular to the length of a drum, a zero or below background reading is likely to occur. When parallel to a drum, an above background reading is likely. 90° rotation over bedrock or undisturbed soil does not typically produce significant variations in readings, except where steeply dipping bedding or dikes are present.

4) Regarding the interpretation of conductivity values, it cannot be concluded that the 0 values represent nonconductive subsurface void spaces, since some orientations of the instrument relative to the buried ferrous object(s) can also result in 0 readings. Secondly, to have concluded from the values that bedrock is of low permeability is not necessarily a correct interpretation of the data, since low conductivity does not always indicate low permeability. Finally, to have concluded in one part of the report that 0 conductivity indicates void space, and in another part of the report that 0 to 6 conductivity indicates low permeability is confusing, since a high volume of subsurface void space would likely result in high permeability.

Thank you for providing us with the opportunity to review and comment on this document.

Sincerely,

D. Mark Durway

D. Mark Durway, Hydrogeologist
Superfund Section

DMD/shepherd.lsi

REGION IV

REVIEW CLEARANCE FORM

Route To: See List Below

Date Transmitted: 12-17-90

Return To: Deborah A. Vaughn-Wright

Date Returned:

Peer Review Originator (Panel Member): Deborah Vaughn-Wright, WMD/WPB/SAS

Project Title: Shepherd Farm, East Flat Rock, N.C.
NCD 986170686

RECEIVED
DEC 14 1990
SUPERFUND SECTION

Project Manager: Deborah V-W., FTS 257-5065

Originator's Instructions: Please review and comment on attached Listing Site Inspection (LSI) report. Return comments to me by C.O.B. January 11, 1990.

Information Copies Sent To:

Signature (Panel Member)	Date Received	Date Cleared	Concur	Non-concur

Reviewing Officials	Date Received	Date Review Completed	Reviewer's Signature
1. Curt Fehn			
2. Bernie Hayes (WD)			
3. Bill Bokey (Athens, ESD)			
4. Pat DeRosa (NCDEHNR)			
5. Robert Morris			

Reviewing Panel Member's Comments:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4WD-WPB

OCT 15 1990

RECEIVED
OCT 17 1990
SUPERFUND SECTION

Ms. Pat DeRosa
North Carolina Department of Environment
Health and Natural Resources
Division of Solid Waste Management
P.O. Box 27687
Raleigh, North Carolina 27611

Dear Ms. DeRosa:

The following is a list of North Carolina site reports received by me in the fourth quarter of FY90. The list also includes my disposition on what, if any, further action is presently needed at the sites.

Site Name	EPA ID #	Disposition
Baker, Maggie Property	NCD986166155	NFRAP
CCFC Pesticide Disposal	NCD986180883	PA
Durham Coal Gasification Plant	NCD986173938	PA
Fawn Plastics Co., Inc. Middlesex	NCD067178707	SSI PHASE II
Fieldcrest Mills, Inc. Smithfield	NCD003528825	SSI PHASE II
Hope Mills Landfill	NCD980502983	SSI PHASE II
Ideal Basic Ind/Plant Marl	NCD980557839	SSI PHASE II
Masonite Corp. Fiberboard Div.	NCD055359079	SSI PHASE II
Spann Property	NCD986180917	PA
Triangle Pacific Corp.	NCD000648451	SSI PHASE II
Union Carbide Corp. Greenville	NCD003184249	SSI PHASE II
Western N.C. Fairgrounds, Old	TBA	SSI PHASE II
Carochem	NCD991278714	LSIE
Carolina Galvinizing Corp.	NCD048181218	LSIE
Creek Bridge Landfill	NCD980502892	NFRAP
Georgia Pacific Corp. Richmond	NCD000616219	NFRAP
Gen Elec Med Steam Turbine Prod	NCD072018252	LSIE
GTE Sylvania, Inc. Johnston Co.	NCD009305699	SSI PHASE II
Intern'l Paper Richmond Gravure	NCD003186004	NFRAP
Red Cap Dog Food	NCD986167104	Incomplete
Union Carbide Corp. Asheboro Plant 1	NCD003216462	NFRAP
Union Carbide Corp. Asheboro Plant 2	NCD000822957	NFRAP

Printed on Recycled Paper

I have also attached copies of the lists of sites in North Carolina that I have reviewed.

If you have any questions about the above, please call me at (404) 347-5065.

Sincerely,

Robert Morris

Robert Morris

Attachment

cc: Kelly Cain
Harvey Allen, NCDEHNR

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor
William W. Cobey, Jr., Secretary

William L. Meyer
Director

19 September 1990

Ms. Kelly Cain
NC CERCLA Project Manager
Waste Management Division
Environmental Protection Agency, Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

SUBJECT: CERCLIS Site Addition
(John) Spann Property
Hendersonville, NC 28726

GENE SHEPPARD

Dear Ms. Cain:

Please add the subject site to CERCLIS. Preliminary data gathering has established the following about the site.

1. The site is located just northwest of Hendersonville to the east of US 25, across the highway from Sheppard Memorial Park. The latitude is 35° 23' 05" and the longitude is 82° 30' 11". This site has also been called "Sheppard Memorial Park". The property owner during the disposal years was John Spann, however, and "Spann Property" seems to be a more appropriate name. This site also is probably the same site as the one reported to us as "Grandview Memorial Gardens" on Tracy Grove Road. Mr. Sheppard is reported to have dumped wastes there, but in a discussion with him today, he said he had no knowledge of the site on Tracy Grove Road. GENE full name + tel # ?

2. During a telephone conversation today, Mr. Sheppard acknowledged that he disposed of General Electric Company wastes at the Spann Property site. These disposals occurred ~~during a period of three years~~ over a three year period about 15 to 20 years ago. Mr. Sheppard said that the wastes were dumped from the top of a small hill on the site, into a swampy area, and then covered. He said that the wastes were identical to those taken to the Sheppard Farm site. Mr.

Sheppard estimated that the wastes consisted of 95% wood and cardboard and some plastic.

3. There is significant groundwater usage around the site. In addition, the site borders Mud Creek which flows into the French Broad River.

Attached is a CERCLIS site addition form and location map. I recommend that this site be addressed during the investigation of the General Electric facility, the nearby plant which probably produced the wastes.

If you have any questions, please call Grover Nicholson or me at (919) 733-2801.

Sincerely,

Lee Crosby

Lee Crosby, Chief
NC Superfund Section

attachment

LC/ef

Needed for SSI

EM survey
stream sampling
"swamp" "
leachate "
nearby wells
on-site well points

2/27/90

Hendersonville City Clerk 704 697-3002

O Jackson Funeral ~~Home~~ Service → 704 693-4261

Now called Forest Lawn

Paul Duncan - 603 ~~Trinity~~ Grove Farms 693-5509 Apple Orchard

Mr. Dwight Bennett - Lives on west side Retired
Ray Bennett at Police Dept.

On east side ? Allen Johnson
Pete Johnson → 693-6547

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor
William W. Cobey, Jr., Secretary

William L. Meyer
Director

26 February 1990

Mr. Robert Morris
NC Project Officer
EPA Region IV Waste Division
345 Courtland St., NE
Atlanta, GA 30365

SUBJECT: General Electric Company and related sites
Herdersonville, North Carolina

Dear Mr. Morris:

As we discussed last week, there have been several sites in the Hendersonville area reported to us as possible old disposal sites for GE wastes. I want to make you aware of these sites since it may be more efficient to investigate all of them during the LSIE of Shepherd Farm, another GE related site. These three sites have not yet been evaluated nor have they been added to CERCLIS, but they will need to be looked into either by EPA or by us. I will attached all information that I have about the sites, as well as a map showing the described locations. The sites are:

(1) Seldon Clark's land in the northeast quadrant of the intersection of US 176 and Tabor Road:

(2) The site near Grandview Memorial Gardens on Tracy Grove Road: AKA Sheppard Memorial Park — probable SPANN PROPERTY

(3) The Old Western NC Fairgrounds.

If you have any question, please call me at (919) 733-2801.

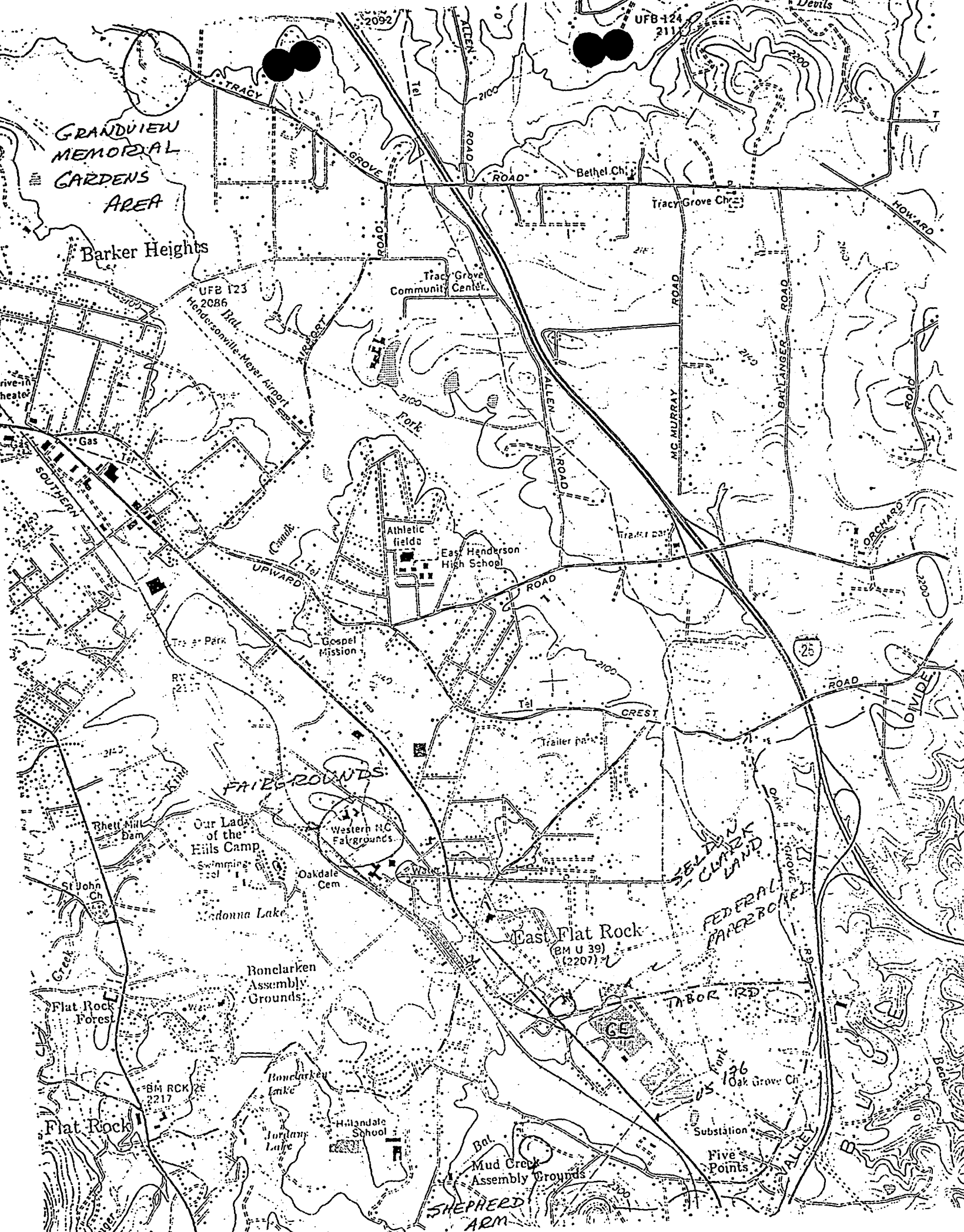
Sincerely,

Grover Nicholson

Grover Nicholson, Head
CERCLIS Branch
Superfund Section

Attachments

GN/db/GEHender:gn


GRANDVIEW MEMORIAL GARDENS AREA
Barker Heights
TRACY GROVE ROAD
Bethel Ch
Tracy Grove Ch
HOWARD
Tracy Grove Community Center
UFB 123
2086
Henderssonville-Meyer Airport
AIRPORT
ALLEN ROAD
MC MURRAY ROAD
BALLANGER ROAD
ORCHARD ROAD
Fork
Gas
SOUTHERN
Athletic fields
East Henderson High School
Creek
UPWARD ROAD
Gospel Mission
Trailer park
CREST ROAD
DIVIDE
FAIRGROUNDS
Rhett Mill Dam
Our Lady of the Hills Camp
Western NC Fairgrounds
Oakdale Cem
St John Ch
Madonna Lake
East Flat Rock
(BM U 39)
(2207)
SELDOM CLEAR LAND
FEDERAL PAPERBOARD
Bonclarken Assembly Grounds
Flat Rock Forest
TABOR RD
GE
Bonclarken Lake
BM RCK 26
2217
Flat Rock
Jordan Lake
Hillandale School
Oak Grove Ch
Substation
Mud Creek Assembly Grounds
Five Points
SHEPHERD ARM
VALLEY
BLUE RIDGE

SITE DISCOVERY FORM

Part I: Information necessary to add a site to CERCLIS

ACTION: A

EPA ID:

SITE NAME: Spann Property SOURCE: T (R=EPA, T=STATE).

STREET: US 25 CONG DIST: 11 (optional)

CITY: Hendersonville ZIP: 28726

CNTY NAME: Henderson CNTY CODE: 45 (optional)

LATITUDE:35/23/05 LONGITUDE:082/30/11 (optional)

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N

RPM NAME: RPM PHONE: - - (EPA Project Officer)

SITE DESCRIPTION: (optional)

This site is a former swampy area along Mud Creek. Reportedly, part of the site is now a junkyard.

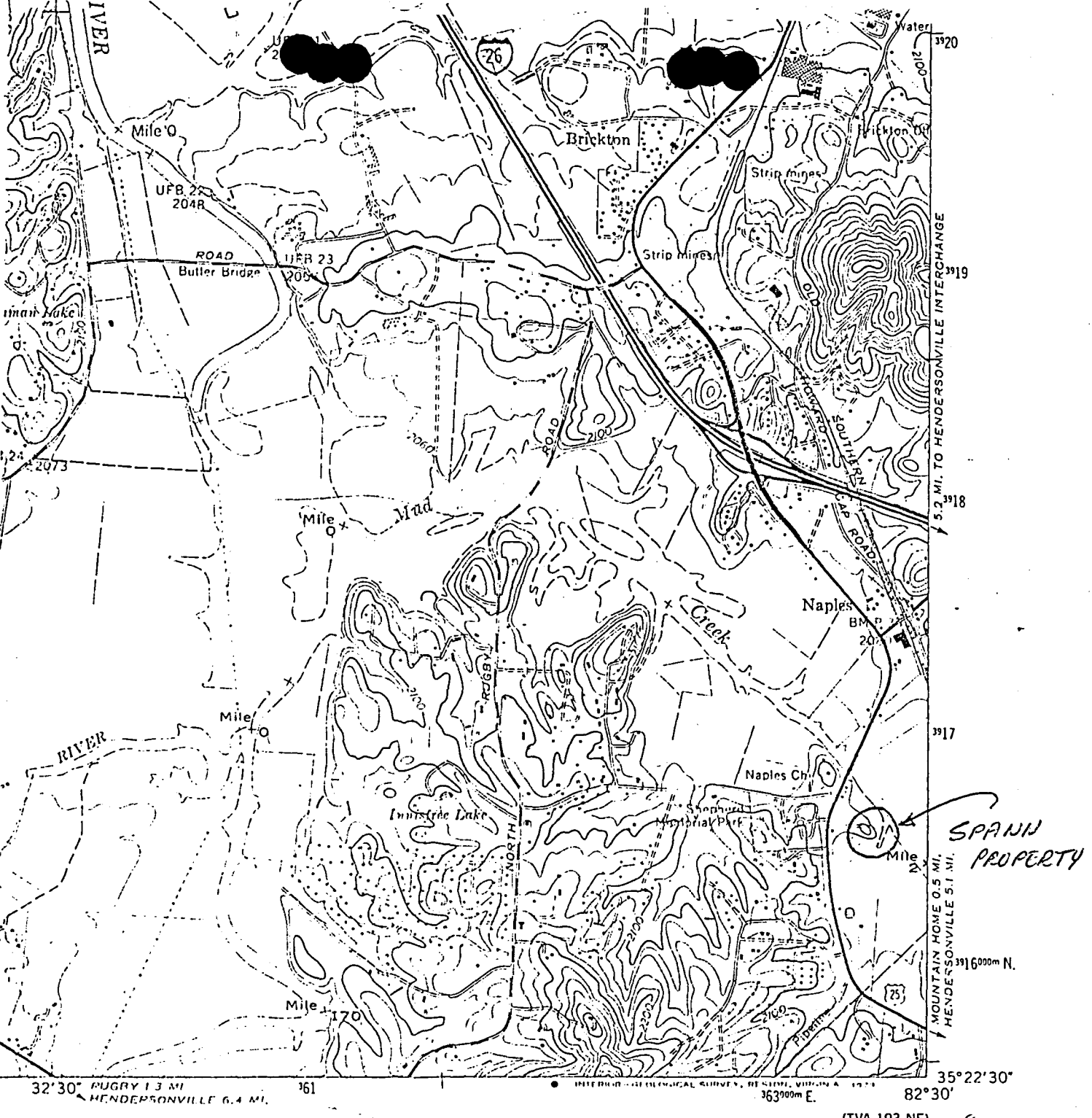
Part 2: Other site information

DATE SITE FIRST

REPORTED: - /01/90 REPORTED BY: NC Superfund Section

REASON FOR LISTING:

It has been reported by Mr. Gene Sheppard that wastes from the General Electric plant in East Flat Rock were buried on the site. Mr. Sheppard reports that the dumping took place during a three year period abount 15 to 20 years ago. He also contends that 95% of the wastes consisted of wood and cardboard with some plastic.

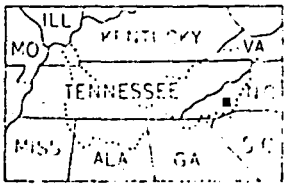


ROAD CLASSIFICATION

Heavy-duty		Poor motor road	
Medium-duty		Wagon and jeep track	
Light-duty		Foot trail	

Interstate Route · U. S. Route · State Route

In developed areas, only through roads are classified



QUADRANGLE LOCATION

7902

SKYLAND, N.C.

N3522.5—W8230/7.5

1965

PHOTOREVISED 1978

AMS 4454 I NE-SERIES V842

Table 6. Household, Family, and Group Quarters Characteristics: 1990

[For definitions of terms and meanings of symbols, see text]

State County Place and [In Selected States] County Subdivision	Persons in households	All households	Family households: Total	Family households: Married-couple family	Family households: Female householder, no husband present	Nonfamily households: Total	Householder living alone: Total	Householder living alone, 65 years and over: Total	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
The State	6 404 167	2 517 026	1 812 053	1 424 208	309 876	704 973	596 969	228 384	182 329	2.54	3.03	224 470	83 400	141 070
COUNTY														
Alamance County	105 327	42 652	30 745	24 295	5 130	11 907	10 467	4 598	3 748	2.47	2.94	2 886	1 173	1 713
Alexander County	27 245	10 331	8 049	6 715	952	2 282	2 022	839	651	2.64	3.02	299	299	–
Alleghany County	9 381	3 894	2 829	2 421	303	1 065	990	539	433	2.41	2.86	209	193	16
Anson County	23 117	8 531	6 359	4 552	1 475	2 172	2 042	1 075	860	2.71	3.23	357	344	13
Ashe County	21 965	8 848	6 748	5 643	816	2 100	1 935	1 014	809	2.48	2.89	244	220	24
Avery County	13 918	5 520	4 162	3 500	480	1 358	1 229	549	420	2.52	2.95	949	320	629
Beaufort County	41 704	16 157	11 840	9 140	2 186	4 317	3 915	1 974	1 605	2.58	3.07	579	441	138
Bertie County	20 321	7 412	5 501	3 831	1 419	1 911	1 797	957	755	2.74	3.29	67	67	–
Bladen County	28 150	10 760	8 017	5 854	1 762	2 743	2 579	1 243	1 000	2.62	3.11	513	509	4
Brunswick County	50 407	20 069	15 291	12 636	2 031	4 778	4 227	1 640	1 194	2.52	2.91	488	307	181
Buncombe County	169 713	70 802	49 335	39 637	7 684	21 467	18 868	8 174	6 642	2.40	2.90	5 108	2 966	2 142
Burke County	73 281	29 184	21 711	17 462	3 148	7 473	6 580	2 706	2 228	2.51	2.93	2 463	2 410	53
Cabarrus County	97 255	37 515	28 367	23 279	3 972	9 148	8 038	3 509	2 971	2.59	3.02	1 680	1 223	457
Caldwell County	69 917	27 172	20 656	16 653	2 944	6 516	5 860	2 287	1 846	2.57	2.97	792	735	57
Camden County	5 875	2 180	1 692	1 365	225	488	437	234	189	2.69	3.11	29	–	29
Carteret County	51 554	21 238	15 276	12 681	2 021	5 962	5 081	1 901	1 431	2.43	2.88	1 002	750	252
Caswell County	20 053	7 468	5 781	4 454	1 024	1 687	1 583	727	573	2.69	3.13	640	624	16
Catawba County	116 367	45 700	33 773	27 418	4 841	11 927	10 270	3 844	3 115	2.55	2.90	2 025	1 134	891
Chatham County	38 315	15 293	11 227	9 115	1 805	4 066	3 445	1 412	1 141	2.51	2.95	444	377	67
Cherokee County	19 899	7 966	6 059	5 065	765	1 907	1 764	975	759	2.50	2.81	271	196	75
Chowan County	13 233	5 113	3 775	2 842	787	1 338	1 238	641	499	2.59	3.07	273	273	–
Clay County	7 150	2 928	2 177	1 894	203	751	699	418	314	2.44	2.90	5	4	1
Cleveland County	83 012	32 037	24 282	19 011	4 164	7 755	7 011	3 202	2 624	2.59	3.02	1 702	915	787
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
Craven County	78 014	29 542	22 481	18 189	3 511	7 061	6 121	2 436	1 930	2.64	3.07	3 599	811	2 788
Cumberland County	253 362	91 500	69 966	54 433	12 863	21 534	17 718	4 724	3 752	2.77	3.19	21 204	1 499	19 705
Currituck County	13 486	5 038	3 854	3 272	407	1 184	984	419	312	2.68	3.08	250	217	33
Dare County	22 542	9 349	6 425	5 498	682	2 924	2 264	714	522	2.41	2.88	204	140	64
Davidson County	125 358	48 944	37 176	30 410	5 120	11 768	10 262	4 189	3 319	2.56	2.96	1 319	1 277	42
Davie County	27 541	10 785	8 270	6 990	953	2 515	2 246	1 025	817	2.55	2.95	318	288	30
Duplin County	39 368	14 925	11 036	8 378	2 099	3 889	3 553	1 779	1 430	2.64	3.12	627	560	67
Durham County	173 310	72 237	45 085	33 814	10 321	27 152	20 809	5 553	4 471	2.40	2.90	8 525	2 175	6 350
Edgecombe County	55 856	20 319	15 085	10 000	4 293	5 234	4 703	2 124	1 717	2.75	3.25	702	657	45
Forsyth County	257 466	107 419	72 621	55 715	14 052	34 798	29 870	9 779	7 975	2.40	2.94	8 412	3 493	4 919
Franklin County	35 237	13 503	10 047	7 640	1 865	3 456	3 120	1 384	1 126	2.61	3.07	1 177	568	609
Gaston County	172 781	65 347	49 754	38 905	8 439	15 593	13 580	5 720	4 720	2.64	3.07	2 302	1 458	844
Gates County	9 232	3 352	2 593	2 040	404	759	705	394	288	2.75	3.19	103	102	1
Graham County	7 176	2 772	2 166	1 839	246	606	562	294	225	2.59	2.98	20	18	2
Granville County	35 191	13 134	9 883	7 501	1 857	3 251	2 869	1 236	978	2.68	3.13	3 154	3 079	75
Greene County	14 665	5 395	4 066	3 003	875	1 329	1 189	574	481	2.72	3.18	719	704	15
Guilford County	335 348	137 706	92 891	71 195	17 570	44 815	36 578	12 180	9 951	2.44	2.97	12 072	3 094	8 978
Halifax County	54 122	20 335	14 874	10 092	4 018	5 461	5 005	2 398	1 897	2.66	3.18	1 394	1 356	38
Harnett County	65 340	25 150	18 529	14 469	3 154	6 621	5 773	2 438	1 962	2.60	3.06	2 482	1 240	1 242
Haywood County	46 152	19 211	14 120	11 831	1 774	5 091	4 601	2 337	1 866	2.40	2.83	790	751	39
Henderson County	68 206	28 709	21 169	18 113	2 344	7 540	6 838	3 531	2 859	2.38	2.80	1 079	967	112
Hertford County	21 612	8 150	5 921	4 164	1 473	2 229	2 063	977	764	2.65	3.19	911	279	632
Hoke County	21 612	7 405	5 794	3 847	1 605	1 611	1 419	523	420	2.92	3.34	1 244	1 244	–
Hyde County	5 383	2 094	1 533	1 151	321	561	516	269	191	2.57	3.07	28	19	9
Iredell County	92 082	35 573	26 869	21 726	4 023	8 704	7 646	3 271	2 682	2.59	3.02	849	814	35
Jackson County	23 834	9 683	6 970	5 749	961	2 713	2 242	964	745	2.46	2.91	3 012	280	2 732
Johnston County	80 341	31 566	23 217	18 566	3 834	8 349	7 441	3 380	2 730	2.55	3.01	965	893	72
Jones County	9 412	3 492	2 639	2 034	482	853	774	406	311	2.70	3.17	2	2	–
Lee County	40 651	15 689	11 739	9 087	2 135	3 950	3 482	1 389	1 107	2.59	3.03	723	672	51
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
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	–
McDowell County	35 064	13 680	10 366	8 578	1 363	3 314	2 996	1 399	1 135	2.56	2.99	617	416	201
Macon County	22 902	9 834	7 235	6 236	773	2 599	2 399	1 307	1 021	2.34	2.76	507	233	274
Madison County	16 104	6 488	4 806	4 058	516	1 682	1 510	769	581	2.48	2.92	849	104	745
Martin County	24 913	9 317	6 900	5 087	1 518	2 417	2 213	1 100	906	2.66	3.17	265	257	8
Mecklenburg County	499 886	200 219	134 361	103 211	25 013	65 858	52 037	12 990	10 610	2.50	3.05	11 547	3 578	7 969
Mitchell County	14 288	5 779	4 420	3 777	478	1 359	1 265	669	539	2.47	2.88	145	130	15
Montgomery County	22 279	8 290	6 274	4 823	1 119	2 016	1 838	876	690	2.69	3.14	1 067	997	70
Moore County	58 010	23 827	17 483	14 312	2 473	6 344	5 662	2 744	2 201	2.43	2.87	1 003	970	33
Nash County	75 450	29 041	21 224	16 322	3 968	7 817	6 926	2 880	2 316	2.60	3.09	1 227	807	420
New Hanover County	116 909	48 139	32 409	24 723	6 383	15 730	12 434	4 372	3 512	2.43	2.95	3 285	1 321	1 964
Northampton County	20 055	7 591	5 644	3 958	1 436	1 947	1 816	968	704	2.64	3.13	743	742	1
Onslow County	115 274	40 658	32 971	28 037	3 843	7 687	6 271	1 752	1 384	2.84	3.16	34 564	954	33 610
Orange County	84 627	36 104	21 123	16 854	3 380	14 981	10 110	2 257	1 839	2.34	2.93	9 224	770	8 454
Pamlico County	11 247	4 523	3 382	2 717	547	1 141	1 055	528	410	2.49	2.93	125	112	13
Pasquotank County	29 884	11 384	8 326	6 356	1 681	3 058	2 725	1 342	1 065	2.63	3.13	1 414	383	1 031
Pender County	28 407	11 112	8 420	6 707	1 371	2 692	2 388	1 055	796	2.56	2.98	358	348	10
Perquimans County	10 303	3 988	3 038	2 444	468	950	862	443	342	2.58	3.02	144	144	–
Person County	29 830	11 423	8 570	6 607	1 547	2 853	2 608	1 205	994	2.61	3.07	350	304	46
Pitt County	102 400	40 491	26 434	19 369	5 857	14 057	10 412	3 104	2 511	2.53	3.10	5 524	946	4 578
Polk County	14 187	6 110	4 346	3 693	511	1 764	1 599	952	768	2.32	2.79	229	227	2
Randolph County	105 440	41 096	31 363	26 135	3 957	9 733	8 590	3 435	2 780	2.57	2.97	1 106	1 050	56
Richmond County	43 534	16 793	12 270	9 128	2 551	4 523	4 174	2 011	1 600	2.59	3.11	984	875	109
Robeson County	103 186	36 154	27 429	18 451	7 353	8 725	7 891	3 355	2 651	2.85	3.34	1 993	1 280	713
Rockingham County	85 242	33 446	24 671	19 351	4 193	8 775	7 959	3 600	2 982	2.55	3.02	822	781	41
Rowan County	107 079	42 512	31 055	25 100	4 618	11 457	10 236	4 748	3 815	2.52	2.99	3 526	2 408	1 118
Rutherford County	56 197	22 198	16 480	13 191	2 531	5 718	5 255	2 556	2 050	2.53	2.96	721	721	–
Sampson County	46 754	17 526	13 191	10 058	2 525	4 335	3 975	2 032	1 610	2.67	3.14	543	490	53
Scotland County	32 679	11 837	8 971	6 225	2 339	2 866	2 618	1 173	935	2.76	3.25	1 075	401	674
Stanly County	50 734	19 747	14 967	12 451	1 975	4 780	4 396	2 164	1 785	2.57	3.01	1 031	470	561
Stokes County	36 862	14 123	11 022	9 341	1 273	3 101	2 825	1 246	1 016	2.61	3.00	361	361	–
Surry County	60 950	24 252	18 252	15 253	2 341	6 000	5 474	2 732	2 256	2.51	2.94	754	650	104
Swain County	10 653	4 173	3 083	2 382	550	1 090	985	467	369	2.55	3.01	615	215	400
Transylvania County	24 283	9 924	7 496	6 442	797	2 428	2 224	1 131	912	2.45	2.86	1 237	181	1 056
Tyrrell County	3 852	1 471	1 078	810	213	393	350	208	148	2.62	3.13	4	4	–
Union County	82 633	29 307	23 530	19 607	3 063	5 777	5 010	2 148	1 755	2.82	3.18	1 579	456	1 123

TPSX [POSTSCRIPT] CPH137 CENSUS90 72580800 04/22/91 5:06 PM MACHINE: C DATA:CENSUS90°PH1TP6DAT37, 04/23/91 16:51:04 OUTPUT:ONSITE-PS100 PAGE: 105
TSF:CENSUS90°82, 04/23/91 16:51:23 UTF:CENSUS90°83, 04/23/91 16:51:23 META:CENSUS90°PH1TABLE637, 04/23/91 17:02:14

NOTE: The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 15, 1991.

November 7, 1989

MEMORANDUM

TO: Grover Nicholson

FR: Martin Richmond MR

RE: Site Screening, Henderson County

I spoke today with Mrs. Evelyn Nichols about the reports of buried waste in Henderson County. These reports came to this office via letter from Diane Eskanasy, DEM/Asheville. Mrs. Nichols reported hearing of three different burial sites. All these reports are unsubstantiated, and appear to be based on "what she heard".

One site is located at the Old Western NC Fairgrounds in Hendersonville, NC. Mrs. Nichols heard of this site from Mrs. Betty Edwards, who lives next to the fairgrounds and reports seeing trucks from General Electric unloading drums into open ravines at the fairgrounds and burying them. Mrs. Edwards reportedly obtained a drum from GE workers to use for burning materials in her yard. There is no report as to what GE may have been burying at the Fairgrounds. This property has since been bought by the Henderson County School Board and is the future site of new school construction. This property is approximately one mile from the GE Facility. It is assumed that any dumping by GE in this area would ~~be~~ have been unauthorized.

Another site is located on Tracy Grove Road, next to the Grandview Memorial Gardens. This location is approximately 5 miles from the GE Facility. Mrs. Nichols claims to have heard that Mr. Gene Shepard used to dump waste from the GE plant in a field in this area. She believes an engineer from GE told her about this site.

A third site is reportedly located across the road from the GE Facility, on property owned by Mr. Seldon Clark. She reports that Mr. Clark used to work at GE and allowed the plant to dump waste in a gully along this vacant lot. Any waste disposed of on this lot has since been buried. She did not know what types of waste or how Mr. Clark could be contacted.

MR/screen1.doc

11

Ref. 29

18 May 1989

TO: File

FROM: Ed Wallingford, NC Superfund Branch

RE: Telecon with Eugene Shepherd (704/362-7445)

Mr. Shepherd provided the following additional information to the Shepherd Farm site (NCD 968170686):

- the original property was about 33 acres

- 22 acres which included the trailer park were sold in 1972 to Wayne Dickerson (address unknown) and Max Burt (9 Springhaven Dr., East Flat Rock, NC ; 704/697-1191)

- the disposal area remained on the approximately 9 acres that Mr. Shepherd retained

- burning was carried out in a roughly 1/4 to 1/2 acre dry pond

- 95% of the waste was cardboard

- the buffing compound had the consistency of sludge

- no transformers were taken to the site

- electrical insulators were brought from the GE plant to the site, and were broken open to salvage the copper

- Mr. Shepherd was not sure if solvents were ever taken to the site

- paint was sometimes picked up at GE, however this material was given away and not disposed of

- Mr. Shepherd did not maintain any disposal permits

17 November 1988

TO: File

FROM: Grover Nicholson Grover Nicholson

RE: Potential CERCLIS site in Hendersonville, NC
Henderson County

Today I contacted Gene Shepherd by telephone. He gave me the following information about his garbage collection activities.

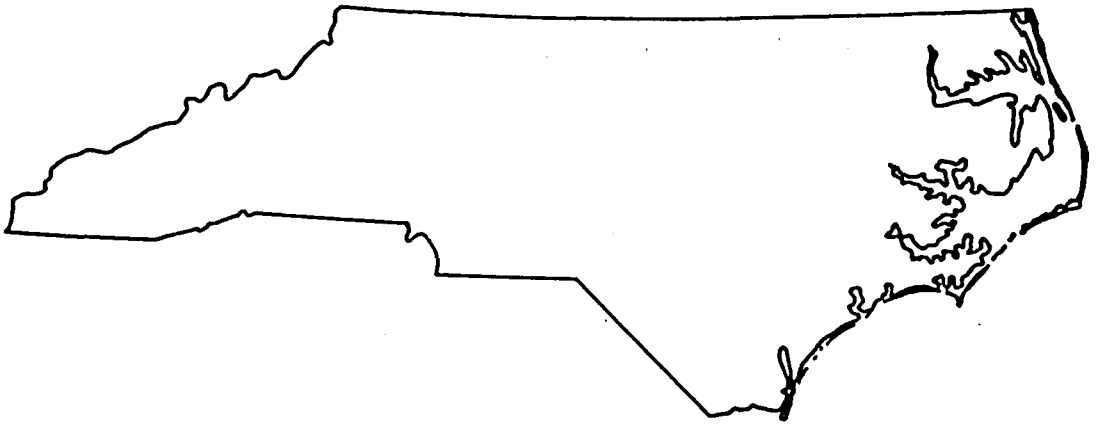
From 1955 until about 1970, Mr. Shepherd hauled wood, cardboard, office paper, and buffing compound residue from the GE plant in East Flat Rock to his farm about 1/2 mile away. Mr. Shepherd estimates that during those years he hauled off about 50 cubic yards of cardboard per day, about two truckloads of wood per week, and about two barrels of buffing compound residue per week. The buffing compound was used to machine buff aluminum light shades and was flammable. Shepherd took the waste to his farm, put it on a dry pond bed, poured the buffing compound residue on it, and set it afire. He did not haul off any oils or other petroleum products from GE.

In about 1976, Mr. Shepherd built a trailer park on part of the property and sold that park in about 1980. He helped me locate his farm on the topographic map. The farm is located on Roper Road in East Flat Rock, but his mailing address is Box 255, East Flat Rock, NC, 28726. To reach the farm, turn west onto Roper Road from US 176. Turn left off Roper Road at the Spring Haven Trailer Park sign. His house is located on the first driveway to the right.

GCN/pb/3

Ref. 2

Water Resources Data North Carolina Water Year 1988



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NC-88-1
Prepared in cooperation with the North Carolina Department of Natural Resources and Community Development, and with other State, municipal, and Federal agencies

03446000 MILLS RIVER NEAR MILLS RIVER, NC

LOCATION.--Lat 35°23'55", long 82°35'42", Henderson County, Hydrologic Unit 06010105, on right bank 1.5 mi downstream from confluence of North and South Forks, 1.8 mi northwest of Mills River, 4.2 mi northwest of Horseshoe, and at mile 4.6.

DRAINAGE AREA.--66.7 mi^2.

PERIOD OF RECORD.--September 1924 to September 1926, October 1933 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 923: 1935, 1937, 1939. WSP 1003: 1938, 1940-42. WSP 1143: 1940(P). WSP 1276: 1926.

GAGE.--Water-stage recorder. Datum of gage is 2,088.47 ft above National Geodetic Vertical Datum of 1929 (levels by Tennessee Valley Authority). Prior to Oct. 1, 1926, nonrecording gage at site 500 ft upstream at datum 2.97 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. City of Hendersonville diverted about 7.3 ft^3/s from North Fork and Bradley Creek for municipal water supply. Maximum discharge, 13,400 ft^3/s, from rating curve extended above 6,200 ft^3/s on basis of slope-area measurement of peak flow. Minimum discharge, 16 ft^3/s, result of freezeup. Minimum discharge for current year, 25 ft^3/s, occurred several days in July and August.

EXTREMES OUTSIDE PERIOD OF RECORD.--The greatest flood since 1876 is probably that of Aug. 30, 1940.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988, DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	59	125	117	143	90	82	99	50	49	35	37
2	66	58	111	119	143	89	87	96	48	34	30	31
3	64	57	103	112	160	89	115	93	45	35	29	30
4	63	57	102	121	168	94	344	100	45	44	30	110
5	63	57	93	109	150	89	207	104	44	41	138	93
6	63	55	89	104	138	87	170	92	43	36	84	51
7	63	55	86	e85	e108	89	149	88	42	33	74	41
8	62	56	84	e145	e123	85	138	84	41	29	51	35
9	61	56	96	121	124	89	127	82	41	28	43	36
10	62	142	107	e116	120	96	120	84	41	29	43	39
11	60	88	98	e123	117	89	119	82	39	45	78	35
12	61	64	90	e130	115	85	218	78	38	39	66	39
13	61	62	85	e108	e91	109	198	76	36	34	47	34
14	59	60	84	e108	e108	92	196	77	35	33	41	31
15	63	59	222	e97	126	86	177	78	34	30	41	32
16	63	59	183	e97	128	84	162	82	33	27	60	32
17	63	289	144	118	112	83	149	95	42	28	49	56
18	63	185	128	188	109	84	151	81	44	34	39	71
19	62	119	120	278	118	90	164	71	51	50	32	48
20	63	103	124	800	121	82	147	71	46	39	46	43
21	64	90	118	425	111	81	136	67	52	38	41	37
22	62	84	112	292	106	78	130	64	41	73	33	34
23	62	81	105	237	106	77	126	65	48	57	33	31
24	60	78	104	206	105	76	130	64	37	46	34	30
25	60	75	124	193	99	88	119	63	53	32	31	30
26	59	76	115	e150	96	116	116	57	45	31	28	29
27	61	132	123	e137	97	90	112	56	35	36	26	28
28	62	153	139	164	94	84	105	55	32	49	27	29
29	59	177	133	148	92	82	103	54	30	37	41	27
30	60	146	121	141	---	80	101	53	41	40	45	26
31	59	---	117	138	---	80	---	52	---	41	40	---
MEAN	62.1	94.4	116	175	118	87.5	147	76.2	41.7	38.6	46.3	40.8
MAX	71	289	222	800	168	116	344	104	53	73	138	110
MIN	59	55	84	85	91	76	82	52	30	27	26	26
IN.	1.07	1.58	2.00	3.03	1.91	1.51	2.45	1.32	.70	.67	.80	.68

e Estimated

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	124.2	143.3	165.5	193.8	218.9	243.5	242.0	191.2	149.1	118.7	128.7	115.0
MAX	464.7	510.2	338.1	534.1	448.2	519.6	467.9	412.0	326.3	298.1	505.5	353.7
(WY)	1965	1980	1962	1937	1939	1979	1957	1973	1967	1949	1940	1979
MIN	24.8	35.2	40.7	43.5	88.9	87.5	79.7	76.2	41.7	38.6	43.7	23.7
(WY)	1955	1955	1940	1956	1941	1988	1986	1988	1988	1988	1986	1954

SUMMARY STATISTICS	FOR 1988 WATER YEAR		FOR PERIOD OF RECORD	
AVERAGE FLOW	86.8		169.3	
HIGHEST ANNUAL MEAN			271.8	1949
LOWEST ANNUAL MEAN			86.8	1988
HIGHEST DAILY MEAN	800	Jan 20	4470	Aug 13 1940
LOWEST DAILY MEAN	26	Aug 27	18	Sep 30 1954
INSTANTANEOUS PEAK FLOW	1160	Jan 20	13400*	Aug 30 1940
INSTANTANEOUS PEAK STAGE	4.12	Jan 20	13.62	Aug 30 1940
INSTANTANEOUS LOW FLOW	25*	Jul 16	16*	Dec 24 1943
ANNUAL RUNOFF (INCHES)	17.7		34.5	
10 PERCENTILE	144		301	
50 PERCENTILE	79		137	
95 PERCENTILE	30		47	

* See REMARKS.

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25	60	75	124	193	99	88	119	63	53	32	31	30
26	59	76	115	e150	96	116	116	57	45	31	28	29
27	61	132	123	e137	97	90	112	56	35	36	26	28
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29	59	177	133	148	92	82	103	54	30	37	41	27
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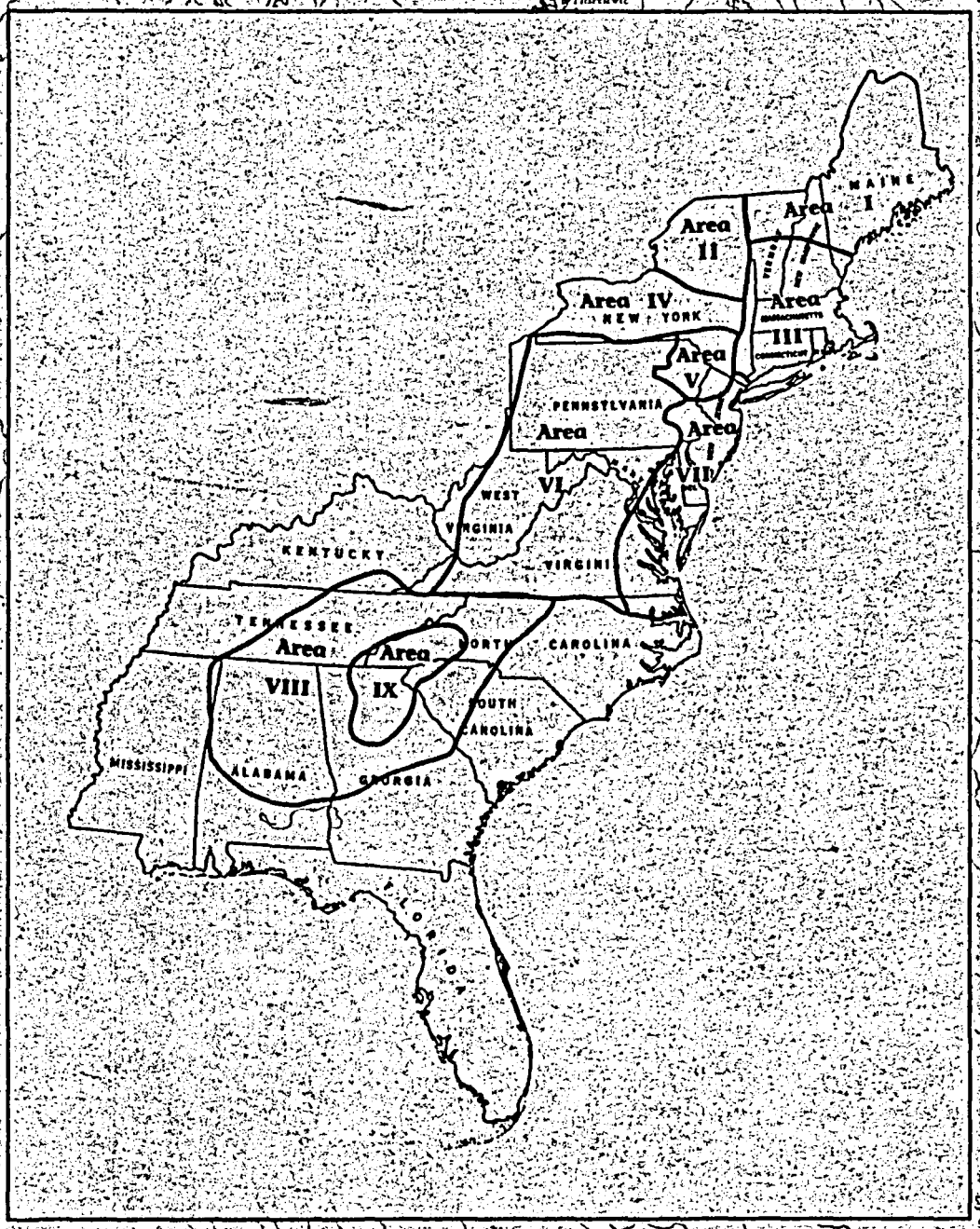
* See REMARKS.

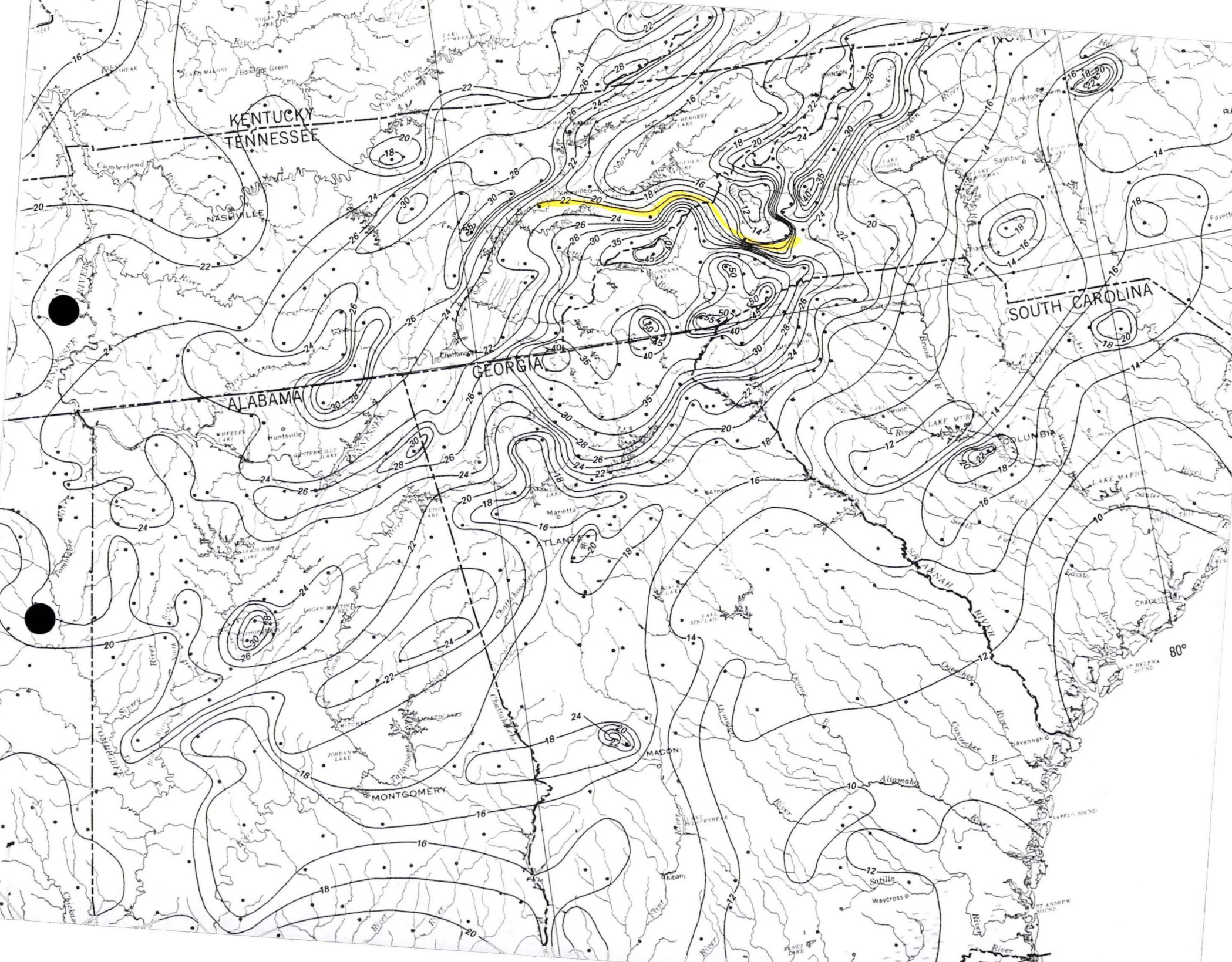
U.S. Geological Survey Water-Resources Investigations Report 88-4094

Ref. 18

MAP OF MEAN ANNUAL RUNOFF FOR THE NORTHEASTERN, SOUTHEASTERN, AND MID-ATLANTIC UNITED STATES, WATER YEARS 1951-80



Prepared in cooperation with the
U.S. Environmental Protection Agency


KENTUCKY
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Savannah
Albany
Waycross
Huntsville
Chattanooga
Marietta
Bowling Green
Knoxville
Salisbury
Winston-Salem
Cumberland River
Tennessee River
Chattahoochee River
Altamaha River
Satilla River
Ocmulgee River
Savannah River
Broad River
Yadkin River
Tallapoosa River
Coosa River
Flint River
Tombigbee River
Pearl River
Chickasawhatchee Creek
Lake Marion
Lake Martin
Lake Sinclair
Lake Blackshear
Lake Oconee
Lake Allatoona
Lake Weiss
Lake Wheeler
Lake Guntersville
Lake Douglas
Lake Cherokee
Lake Jordan
Lake Mitchell
Lake Tallapoosa
Lake Harding
Lake Hartwell
Lake Russell
Lake Clarks Hill
Lake Thurmond
St. Helena Sound
St. Andrew Sound
St. Simons Sound
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Ref. 12

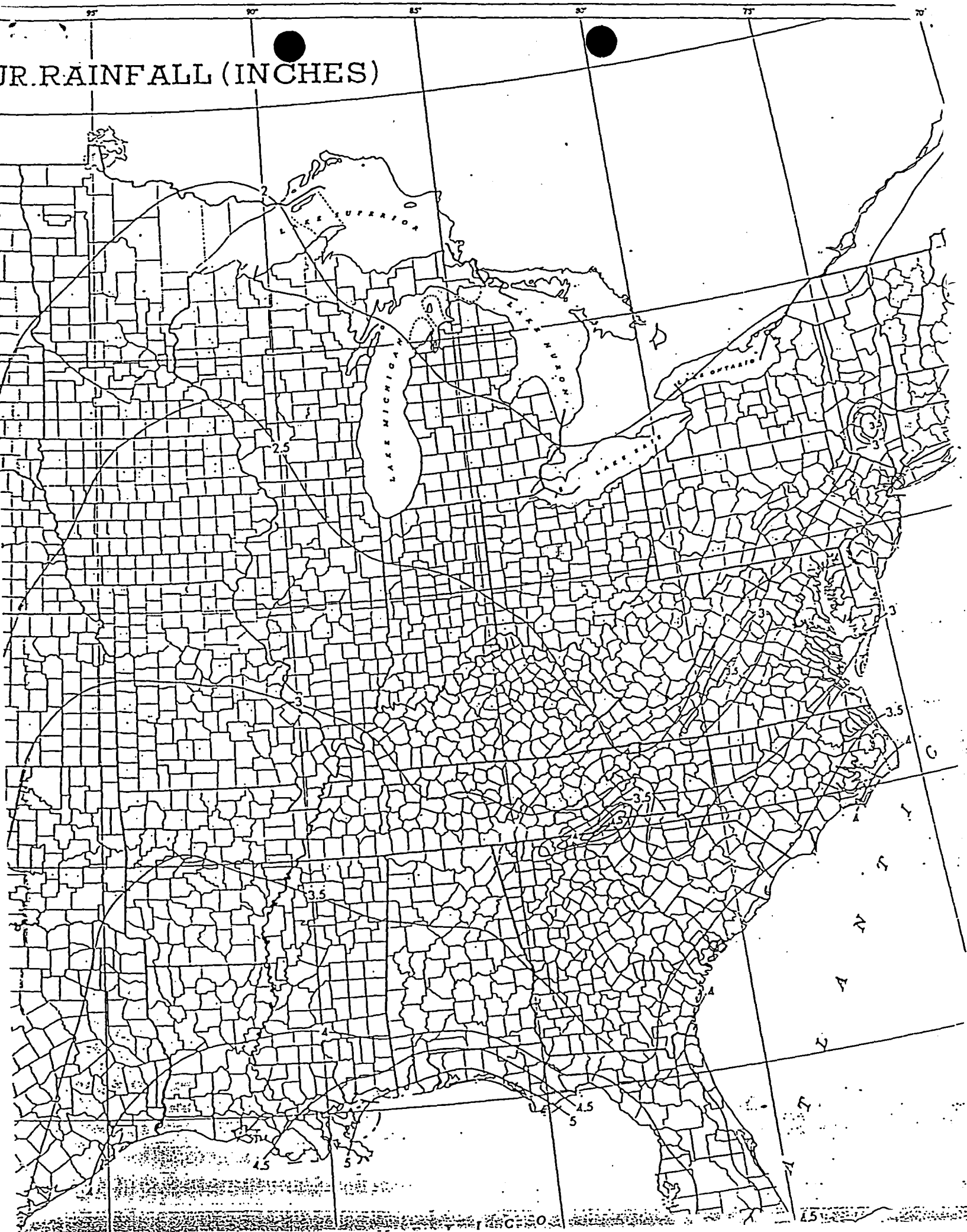
U.S. DEPARTMENT OF COMMERCE
C. R. Smith, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
Robert M. White, Administrator

ENVIRONMENTAL DATA SERVICE
Woodrow C. Jacobs, Director

JUNE 1968

REPRINTED BY THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
1983


JR.RAINFALL (INCHES)
95°
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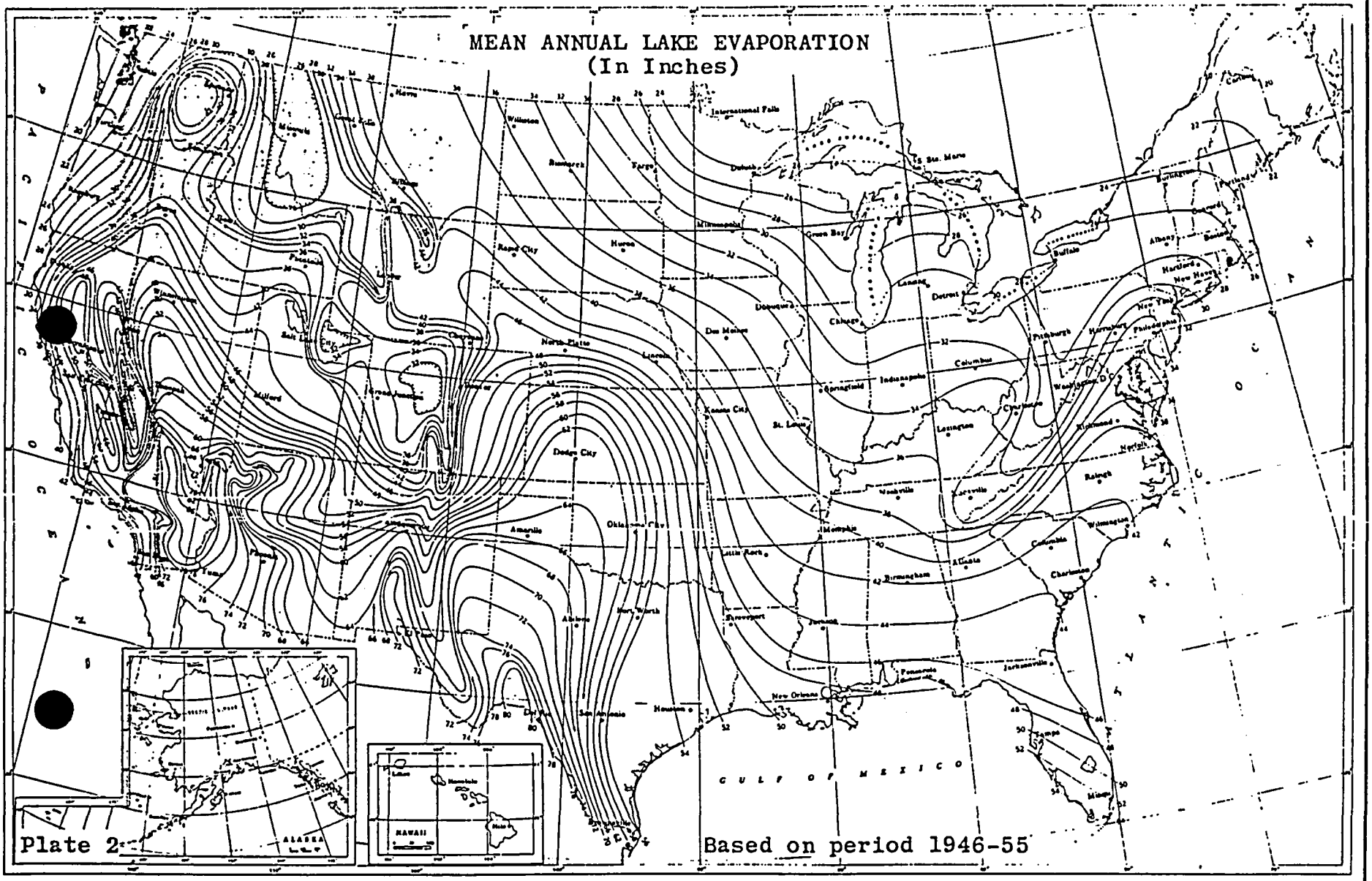
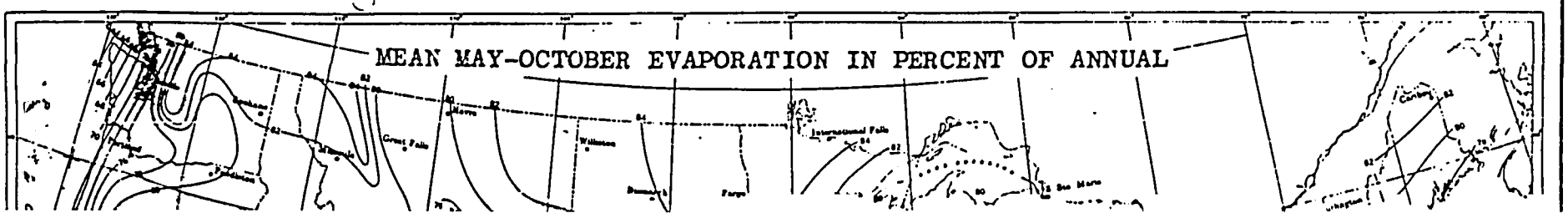
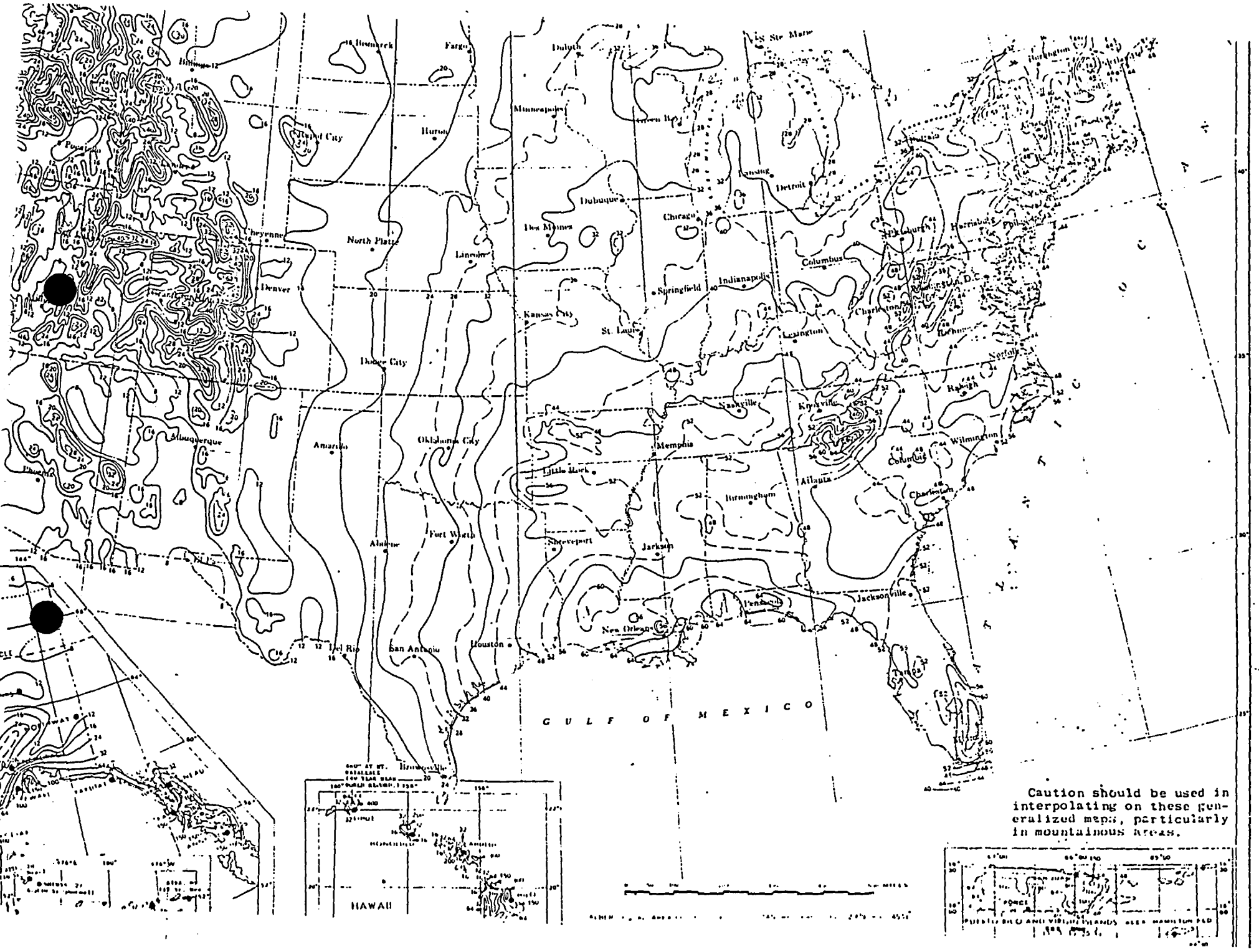
AKE EVAPORATION





NORMAL ANNUAL TOTAL PRECIPITATION (INCHES)



Caution should be used in interpolating on these generalized maps, particularly in mountainous areas.

Ref. 17

[illegible]

OPEN-FILE REPORT 86-[illegible]

DRAINAGE AREAS OF SELECTED SITES ON STREAMS IN NORTH CAROLINA

[illegible]

[illegible]

[illegible]

STATION NUMBER	STATION NAME	DRAINAGE AREA (SQ MI)	SITE TYPE	LAT	LONG	QUAD NAME	COUNTY CODE
0344632755	DEVILS F AT MTH NR HENDERSONVILLE	9.31	20	351935	822707	MILTON (VA.)	089
0344632850	MUD C AT SR 1503 NR BALFOUR	48.4	20	352003	822747	MILTON (VA.)	089
0344633260	BRITTON C AT SRR AT BALFOUR	3.18	20	352006	822808	MILTON (VA.)	089
0344636300	MUD C AT BALFOUR	52.2	11	352030	822804	MILTON (VA.)	089
0344638055	MUD C AB CLEAR C AT BALFOUR	52.7	20	352100	822747	MILTON (VA.)	089
0344640815	LAUREL F AT MTH NR EDNEYVILLE	2.71	20	352547	822012	BAT CAVE	089
0344640820	CLEAR C NR EDNEYVILLE	4.92	20	352546	822013	BAT CAVE	089
0344640825	COX C AT MTH NR CLEAR CREEK	2.89	20	352505	822132	BAT CAVE	089
0344640839	PUNCHEON CAMP C AT MTH AT CLEAR CREEK	1.68	20	352439	822202	BAT CAVE	089
0344640855	CLEAR C AT CLEAR CREEK	14.0	20	352411	822221	BAT CAVE	089
0344640870	MILL C AT MTH AT FRUITLAND	1.59	20	352322	822309	MILTON (VA.)	089
0344640901	KYLES C HEADWATERS NR FRUITLAND	0.80	20	352506	822420	MILTON (VA.)	089
0344640940	LANNING MILL C AT MTH NR FRUITLAND	1.13	20	352414	822429	MILTON (VA.)	089
0344640988	KYLES C AT MTH AT FRUITLAND	4.46	20	352305	822337	MILTON (VA.)	089
0344640996	HENDERSON C AT MTH NR FRUITLAND	4.10	20	352303	822339	MILTON (VA.)	089
0344641010	CLEAR C NR FRUITLAND	32.6	20	352248	822358	MILTON (VA.)	089
0344642075	CLEAR C AT FRUITLAND RD NR FRUITLAND	34.0	20	352232	822449	MILTON (VA.)	089
0344643086	HARPER C AT MTH NR FRUITLAND	2.25	20	352233	822459	MILTON (VA.)	089
0344649995	WOLFPEN C AT US 64 NR OAK HILL	2.04	20	352122	822530	MILTON (VA.)	089
0344650000	CLEAR C NR HENDERSONVILLE	42.2	01	352113	822640	MILTON (VA.)	089
0344654550	ALLEN B AT MTH NR BALFOUR	1.22	20	352056	822710	MILTON (VA.)	089
0344656555	CLEAR C AT I 26 AT BALFOUR	43.9	20	352057	822711	MILTON (VA.)	089
0344677000	FEATHERSTONE C NR HENDERSONVILLE	1.85	20	352308	822658	MILTON (VA.)	089
0344677105	FEATHERSTONE C AT I 26 NR MOUNTAIN HOME	4.12	20	352220	822824	MILTON (VA.)	089
0344696050	BYERS C AT MTH NR HENDERSONVILLE	2.90	20	352252	822953	MILTON (VA.)	089
0344700000	MUD C AT US 25 AT NAPLES	110.	20	352314	823013	SKYLAND	089
0344700250	MUD C AT MTH NR NAPLES	113.	20	352347	823139	SKYLAND	089
0344705000	BROAD R TRIB NR HENDERSONVILLE	1.49	20	352357	823202	SKYLAND	089
0344722910	CANE C HEADWATERS NR FAIRVIEW	2.22	20	353221	822131	BLACK MOUNTAIN	021
0344722925	ROCKY C HEADWATERS NR FAIRVIEW	1.82	20	353315	822219	BLACK MOUNTAIN	021
0344722950	ROCKY F C AT MTH NR FAIRVIEW	3.45	20	353233	822302	OTEEN	021
0344722975	CANE C AB GARREN C AT FAIRVIEW	8.64	20	353207	822334	OTEEN	021
0344722985	GARREN C HEADWATERS NR FAIRVIEW	2.69	20	353125	822148	BLACK MOUNTAIN	021
0344722995	GARREN C NR FAIRVIEW	4.12	20	353203	822325	OTEEN	021
0344722998	TRANTHAM C AT MTH NR FAIRVIEW	2.22	20	353221	822424	OTEEN	021
0344723000	CANE C AB FAIRVIEW	16.8	20	353212	822436	OTEEN	021
0344725600	CANE C AT US 74 AT FAIRVIEW	18.5	02	353102	822408	OTEEN	021
0344725650	REED C AT MTH NR FAIRVIEW	1.17	20	353208	822558	OTEEN	021
0344725675	ASHWORTH C HEADWATERS NR FAIRVIEW	3.25	20	353021	822228	BLACK MOUNTAIN	021
0344725725	ASHWORTH C AT MTH AT FAIRVIEW	6.91	20	353049	822351	OTEEN	021
0344725850	SHOAL C AT MTH NR FAIRVIEW	1.61	20	353011	822502	OTEEN	021
0344733401	BRUSH C HEADWATERS NR FAIRVIEW	2.27	20	352857	822356	FRUITLAND	021
0344733502	BRUSH C AT MTH NR FAIRVIEW	3.79	20	352950	822521	MILTON (VA.)	021
0344733510	GAP C HEADWATERS NR FAIRVIEW	3.67	20	353112	822612	OTEEN	021
0344733525	WEBB C AT MTH NR FAIRVIEW	1.96	20	353105	822615	OTEEN	021
0344733535	GAP C TRIB AT MTH NR FAIRVIEW	0.94	20	353012	822545	OTEEN	021
0344733552	CANE C NR FAIRVIEW	40.6	20	352946	822531	MILTON (VA.)	021
0344734000	CANE C AT BUSH C RD NR FAIRVIEW	42.7	20	352851	822606	MILTON (VA.)	021
0344735000	GRAVELLY C AT MTH NR FAIRVIEW	1.54	20	352831	822622	MILTON (VA.)	021
0344737000	TWEED C AT MTH NR LIMESTONE	1.31	20	352808	822715	MILTON (VA.)	021
0344741100	CANE C NR LIMESTONE	47.5	20	352752	822731	MILTON (VA.)	021
0344741125	MERRILL COVE C HEADWATERS NR FAIRVIEW	1.96	20	353034	822803	OTEEN	021
0344741150	MERRILL COVE C HEADWATERS NR LIMESTONE	3.42	20	352937	822830	MILTON (VA.)	021
0344741200	MERRILL COVE C AT MTH NR LIMESTONE	5.78	20	352734	822757	MILTON (VA.)	021
0344741210	ROBINSON C NR LIMESTONE	2.96	20	352904	822934	MILTON (VA.)	021
0344741600	ROBINSON C NR FLETCHER	5.47	02	352705	822845	MILTON (VA.)	021
0344743055	BENT C HEADWATERS NR CANDLER	2.28	20	352816	823841	DUNSMORE MOUNTAIN	021
0344744050	LAUREL B AT MTH NR CANDLER	1.13	20	352830	823826	DUNSMORE MOUNTAIN	021
0344744950	BENT C AB LAKE POWHATAN NR CANDLER	5.40	20	352902	823744	DUNSMORE MOUNTAIN	021
0344748618	PINNER C NR FLETCHER	1.42	20	352654	822358	MILTON (VA.)	021
0344750000	CANE C AT FLETCHER	63.1	01	352608	822922	MILTON (VA.)	089
0344752010	HOOPERS C AT DAM NR EDNEYVILLE	2.55	20	352745	822440	MILTON (VA.)	089
0344753011	HOOPERS C TRIB AT MTH NR GOODLUCK	1.77	20	352703	822516	MILTON (VA.)	089
0344754012	HOOPERS C NR GOODLUCK	6.33	20	352659	822549	MILTON (VA.)	089
0344755013	HOOPERS C AT CONFLUENCE WITH S F HOOPERS C NR HOOP	8.02	20	352613	822627	FRUITLAND	089
0344756014	S F HOOPERS C AT MTH NR GOODLUCK	1.88	20	352613	822627	FRUITLAND	089
0344757900	DUNCAN C AT MTH NR FLETCHER	2.04	20	352548	822747	MILTON (VA.)	089
0344758000	HOOPERS C NR FLETCHER	15.5	02	352554	822833	MILTON (VA.)	089
0344760000	HOOPERS C AT MTH NR FLETCHER	16.3	20	352538	822931	MILTON (VA.)	089
0344765601	CUSHION B AT MTH NR FLETCHER	0.89	20	352519	823007	SKYLAND	089
0344766600	CANE C AT US 25 AT FLETCHER	82.1	11	352519	823015	SKYLAND	089
0344766628	CANE C TRIB AT MTH NR FLETCHER	1.00	20	352506	823103	SKYLAND	089
0344766875	KIMSEY C I 26 NR FLETCHER	2.49	20	352513	823134	SKYLAND	089
0344766901	CANE C AT MTH NR FLETCHER	87.2	20	352443	823219	SKYLAND	089
0344767750	MCDOWELL C ON NC 191 FLETCHER	3.12	20	352500	823427	SKYLAND	089
0344767804	MCDOWELL C AT MTH NR FLETCHER	4.89	20	352531	823252	SKYLAND	089
0344768700	FRENCH BROAD R NR FLETCHER	640.	11	352543	823311	SKYLAND	089
0344770875	LINE C AT MTH NR FLETCHER	1.55	20	352638	823332	SKYLAND	021
0344774000	AVERY C HEADWATERS NR WEST HAVEN	3.14	20	352714	823624	SKYLAND	021
0344775000	AVERY C AT SR 3492 NR WEST HAVEN	4.85	20	352720	823542	SKYLAND	021
0344776000	AVERY C AT NC 191 NR WEST HAVEN	7.15	20	352707	823425	SKYLAND	021
0344776600	AVERY C AT MTH NR FLETCHER	8.60	02	352705	823325	SKYLAND	021
0344776625	FRENCH BROAD R NR FLETCHER	652.	20	352711	823300	SKYLAND	021
0344776675	FRENCH BROAD R TRIB AT MTH NR FLETCHER	0.74	20	352718	823249	SKYLAND	021
0344783400	POWELL C NR SKYLAND	4.96	02	352826	823311	SKYLAND	021

STATION NUMBER	STATION NAME	DRAINAGE AREA (SQ MI)	SITE TYPE	LAT	LONG	QUAD NAME	COUNTY CODE
0344150000	LITTLE R NR PENROSE	41.4	01	351323	823807	BREVARD	175
0344151125	HART B NR LITTLE RIVER	1.49	20	351350	823832	BREVARD	175
0344151130	CRAB C HEADWATERS NR JETER MTN TERRACE	4.5	20	351423	823431	STANDINGSTONE MOUNTA	089
0344151135	LITTLE C AT MTH NR JETER MTN TERRACE	1.00	20	351421	823557	STANDINGSTONE MOUNTA	089
0344151145	SHOAL C AT MTH NR JETER MTN TERRACE	2.42	20	351406	823556	STANDINGSTONE MOUNTA	089
0344151150	CRAB C NR LITTLE RIVER	12.4	20	351427	823810	BREVARD	175
0344250000	LITTLE R AT CALHOUN	60.1	02	351516	823835	PISGAH FOREST	175
0344265200	FRENCH BROAD R AT PENROSE	291.	02	351616	823814	PISGAH FOREST	175
0344267150	GASH C AT MTH NR BLANTYRE	1.57	20	351746	823726	HORSE SHOE	175
0344300000	FRENCH BROAD R AT BLANTYRE	296.	01	351756	823726	HORSE SHOE	175
0344300950	BRYSON C AT MTH NR BLANTYRE	1.69	20	351814	823711	HORSE SHOE	089
0344301250	BLYTHE MILL C AT MTH NR BLANTYRE	1.80	20	351810	823659	HORSE SHOE	089
0344301755	FOLLEY C AT MTH NR BOWMAN BLUFF	1.83	20	351708	823541	HORSE SHOE	089
0344301805	L WILLOW C AT MTH NR ETOWAH	4.57	20	351748	823458	HORSE SHOE	089
0344325105	S F BIG WILLOW C AT HEADWATERS NR BOWMAN BLUFF	1.80	20	351653	823213	HORSE SHOE	089
0344325250	SENTELL C AT MTH NR BOWMAN BLUFF	2.31	20	351707	823248	HORSE SHOE	089
0344326575	N F BIG WILLOW C AT MTH NR BOWMAN BLUFF	2.68	20	351746	823320	HORSE SHOE	089
0344326585	BIG WILLOW C TRIB AT DAM NR BOWMAN BLUFF	0.47	20	351742	823351	HORSE SHOE	089
0344326600	BIG WILLOW C NR BLANTYRE	9.11	02	351754	823346	HORSE SHOE	089
0344330015	GASH C AT US 64 AT ETOWAH	1.14	20	351900	823600	HORSE SHOE	089
0344332510	GASH C AT MTH NR ETOWAH	2.41	20	351835	823420	HORSE SHOE	089
0344336600	FRENCH BROAD R AT US 64 NR ETOWAH	321.	11	351941	823432	HORSE SHOE	089
0344336675	BROCK C AT MTH NR HOLLY SPRINGS	0.80	20	352023	823510	HORSE SHOE	089
0344350000	FRENCH BROAD R AT HORSESHOE	326.	02	352041	823138	HORSE SHOE	089
0344352050	MARSTON C AT MTH NR HORSESHOE	0.86	20	352148	823156	HORSE SHOE	089
0344352250	MILL POND C AT MTH NR HORSESHOE	3.62	20	352208	823227	HORSE SHOE	089
0344376425	BRIGHTWATER B AT MTH NR BRIGHTWATER	0.93	20	351938	823114	HORSE SHOE	089
0344376500	SHAW C AT HORSESHOE	5.36	02	352035	823303	HORSE SHOE	089
0344376550	BATTLE C AT SRR AB MTH AT HORSESHOE	1.86	20	352034	823311	HORSE SHOE	089
0344385050	BOYLSTON C AT SR 1323 NR PISGAH FOREST	5.20	20	351926	823908	PISGAH FOREST	089
0344385120	SUTTON C NR PISGAH FOREST	1.56	20	351835	824002	PISGAH FOREST	175
0344385125	BOYLSTON C AT PISGAH FOREST	3.84	20	351850	823930	PISGAH FOREST	175
0344385150	BOYLSTON C AT SR 1316 NR HOLLY SPRINGS	11.5	20	352115	823529	HORSE SHOE	089
0344397155	SWEETWATER B AT MTH NR HOLLY SPRINGS	1.16	20	352200	823449	HORSE SHOE	089
0344400000	BOYLSTON C NR HORSESHOE	14.8	01	352210	823350	HORSE SHOE	089
0344411100	FRENCH BROAD R NR MILLS RIVER	355.	11	352227	823221	HORSE SHOE	089
0344449305	THOMPSON C HEADWATERS NR THE PINK BEDS	1.06	20	352253	824437	DUNSMORE MOUNTAIN	175
0344450000	S F MILLS R AT THE PINK BEDS	9.99	01	352159	824420	PISGAH FOREST	175
0344452750	S F MILLS R AT WOLF FORD	13.3	20	352029	824339	PISGAH FOREST	175
0344452950	S F MILLS R BL CANTRELL C NR PISGAH FOREST	18.6	20	352033	824141	PISGAH FOREST	175
0344475000	S F MILLS R NR PISGAH FOREST	21.3	02	352034	823951	PISGAH FOREST	175
0344480750	S F MILLS R NR VINEYARD GAP	22.7	20	352118	823835	PISGAH FOREST	089
0344495045	BRADLEY C HEADWATERS THE PINK BEDS	2.01	20	352258	824253	DUNSMORE MOUNTAIN	175
0344495059	SLATE ROCK C AT MTH NR MILLS RIVER	2.76	20	352304	824132	DUNSMORE MOUNTAIN	089
0344495075	BRADLEY C BL LONG B NR PISGAH FOREST	10.3	20	352153	823951	PISGAH FOREST	089
0344495150	BRADLEY C AT CONFLUENCE WITH S F MILLS R NR PISGAH	12.0	20	352119	823834	PISGAH FOREST	089
0344495200	QUEEN C HEADWATERS NR THE PINK BEDS	1.32	20	352242	823847	DUNSMORE MOUNTAIN	089
0344495300	QUEEN C NR PISGAH FOREST	1.79	20	352220	823831	PISGAH FOREST	089
0344501550	BIG C HEADWATERS NR MILLS RIVER	3.75	20	352512	824213	DUNSMORE MOUNTAIN	089
0344521050	FLETCHER C HEADWATERS NR MILLS RIVER	2.05	20	352603	824105	DUNSMORE MOUNTAIN	089
0344521320	S F MILLS R AT MTH NR MILLS RIVER	41.5	20	352333	823637	SKYLAND	089
0344525050	MIDDLE F AT MTH NR MILLS RIVER	1.69	20	352539	824050	DUNSMORE MOUNTAIN	089
0344525600	FLETCHERS C NR MILLS RIVER	4.35	02	352511	824036	DUNSMORE MOUNTAIN	089
0344525650	N F MILLS R AT DAM NR MILLS RIVER	10.5	20	352510	824032	DUNSMORE MOUNTAIN	089
0344525700	BAD F AT MTH NR MILLS RIVER	0.91	20	352555	823923	DUNSMORE MOUNTAIN	089
0344526500	WASH C AB BEAR B NR MILLS RIVER	2.84	20	352532	823911	DUNSMORE MOUNTAIN	089
0344526550	WASH C AT MTH NR MILLS RIVER	4.33	20	352437	823902	DUNSMORE MOUNTAIN	089
0344535500	ROCKY F AB MILLS RIVER	1.73	20	352422	823859	DUNSMORE MOUNTAIN	089
0344537600	N F MILLS R AB MILLS RIVER	16.8	20	352424	823858	DUNSMORE MOUNTAIN	089
0344537705	SENIARD C AT MTH NR MILLS RIVER	1.32	20	352433	823739	DUNSMORE MOUNTAIN	089
0344550000	N F MILLS R AT THE PINK BEDS	23.1	01	352338	823730	DUNSMORE MOUNTAIN	089
0344555000	N F MILLS R NR MILLS RIVER	24.0	11	352338	823700	SKYLAND	089
0344600000	MILLS R NR MILLS RIVER	66.7	01	352355	823542	SKYLAND	089
0344600880	FOSTER C AT MTH NR MILLS RIVER	2.16	20	352348	823458	SKYLAND	089
0344600999	BRANDY B AT MTH NR MILLS RIVER	0.63	20	352315	823324	SKYLAND	089
0344604350	L MUD C AT DAM NR LAUREL PARK	1.55	20	351545	823058	HORSE SHOE	089
0344604450	L MUD C AT WOLF LAKE DAM NR KANUGA PINES	2.61	20	351557	822948	MILTON (VA.)	089
0344604475	GREER C AT MTH NR KANUGA PINES	2.67	20	351552	822910	MILTON (VA.)	089
0344604510	MUD C NR KANUGA PINES	12.4	20	351628	822838	MILTON (VA.)	089
0344604550	MUD C TRIB AT MTH NR FLAT ROCK	1.15	20	351640	822808	MILTON (VA.)	089
0344607910	FINLEY C AT MTH AT VALLEY HILL	2.21	20	351732	822856	MILTON (VA.)	089
0344607950	SHEPHERD C AT DAM AT VALLEY HILL	4.65	20	351752	822823	MILTON (VA.)	089
0344608150	WASH C AT MTH AT HENDERSONVILLE	2.13	20	351829	822734	MILTON (VA.)	089
0344608275	MUD C AT SRR AT HENDERSONVILLE	23.3	20	351907	822706	MILTON (VA.)	089
0344610350	BAT F AT SRR NR E FLAT ROCK	0.64	20	351617	822453	MILTON (VA.)	089
0344610625	DUNN C AT MTH NR E FLAT ROCK	3.06	20	351735	822440	MILTON (VA.)	089
0344610850	MILL R AT MTH NR HENDERSONVILLE	73.8	20	352319	823156	SKYLAND	089
0344614555	BAT F AT SR 1779 NR BARKER HEIGHTS	6.22	20	351826	822547	MILTON (VA.)	089
0344616050	KING C AT US 25 NR FLAT ROCK	1.91	20	351520	822612	MILTON (VA.)	089
0344616066	KING C AT RHETT MILL DAM NR FLAT ROCK	3.68	20	351707	822623	MILTON (VA.)	089
0344616410	MEMINGER C AT MTH NR E FLAT ROCK	1.33	20	351710	822625	MILTON (VA.)	089
0344628775	KING C AT MTH NR BARKER HEIGHTS	7.58	20	351832	822601	MILTON (VA.)	089
0344632515	DEVILS F HEADWATERS NR DANA	1.92	20	351928	822340	MILTON (VA.)	089
0344632535	DEVILS F AT SR 1006 NR DANA	4.49	20	351920	822423	MILTON (VA.)	089
0344632553	DEVILS F AT I 26 NR HENDERSONVILLE	6.66	20	351924	822536	MILTON (VA.)	089

1" = 125
FC-10
DOT/DIV HWYS

Ref. 7

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                          SECTOR
 KM  0.00- 0.4            TOTALS
 --- --------- ---------
 S 1         0         0
     --------- ---------
 RING        0         0
 TOTALS

C:\PCGEMS\DM>
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C:\PCGEMS\DM>type bged049.asc

 LATITUDE   35:23:10    LONGITUDE   80:30:12     1980 POPULATION

                          SECTOR
 KM  0.00- 0.8            TOTALS
 --- --------- ---------
 S 1       365       365
     --------- ---------
 RING      365       365
 TOTALS

C:\PCGEMS\DM>
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C:\PCGEMS\DM>type bged043.asc

 LATITUDE   35:23:10    LONGITUDE   80:30:12     1980 POPULATION

                          SECTOR
 KM  0.00- 1.6            TOTALS
 --- --------- ---------
 S 1       365       365
     --------- ---------
 RING      365       365
 TOTALS

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                          SECTOR
 KM  0.00- 3.2            TOTALS
 --- --------- ---------
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     --------- ---------
 RING      370       370
 TOTALS

C:\PCGEMS\DM>
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 LATITUDE   35:23:10    LONGITUDE   80:30:12     1980 POPULATION

                          SECTOR
 KM  0.00- 4.8            TOTALS
 --- --------- ---------
 S 1       3324       3324
     --------- ---------
 RING      3324       3324
 TOTALS

C:\PCGEMS\DM>
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 LATITUDE   35:23:10    LONGITUDE   80:30:12     1980 POPULATION

                          SECTOR
 KM  0.00- 6.4            TOTALS
 --- --------- ---------
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     --------- ---------
 RING      7959       7959
 TOTALS

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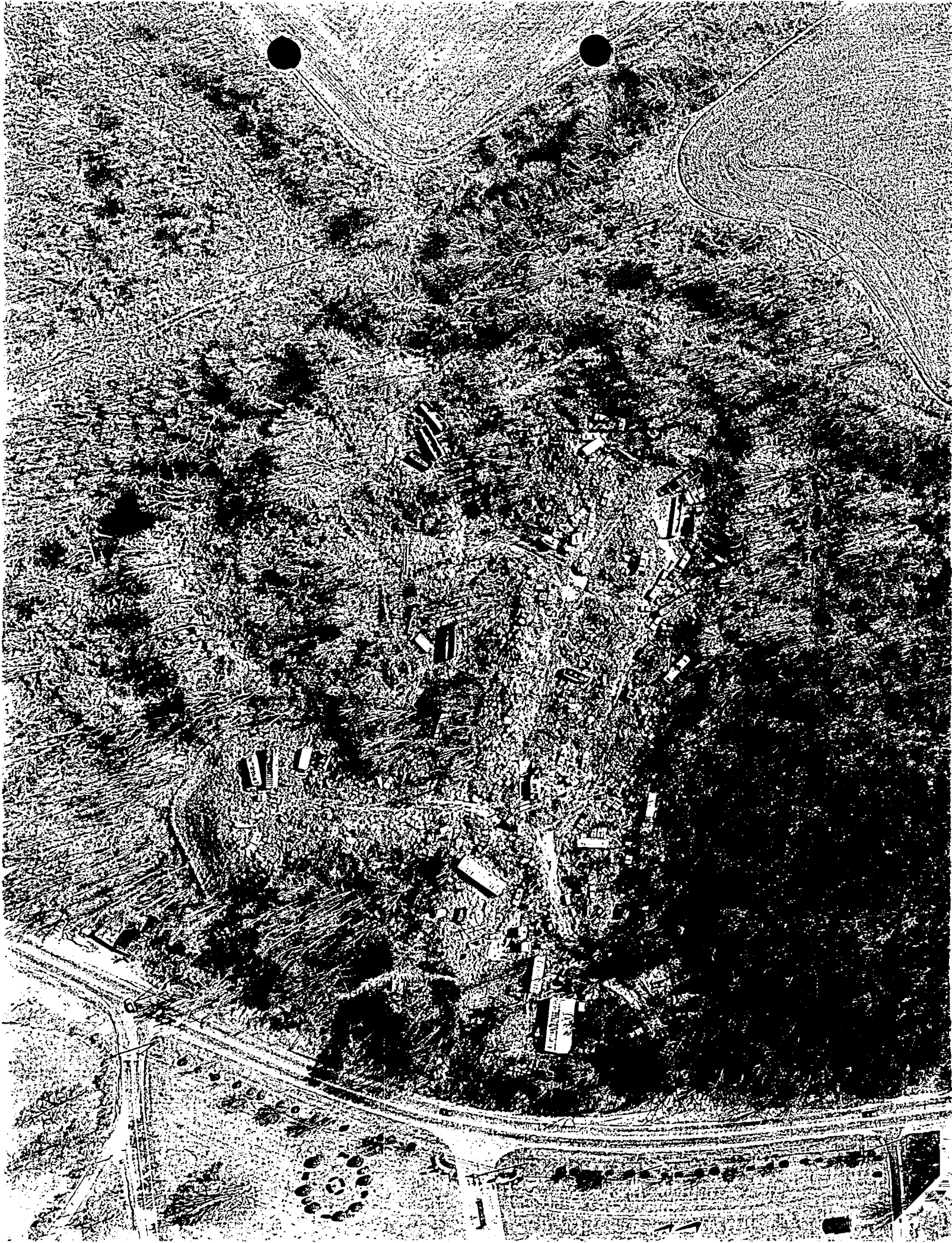


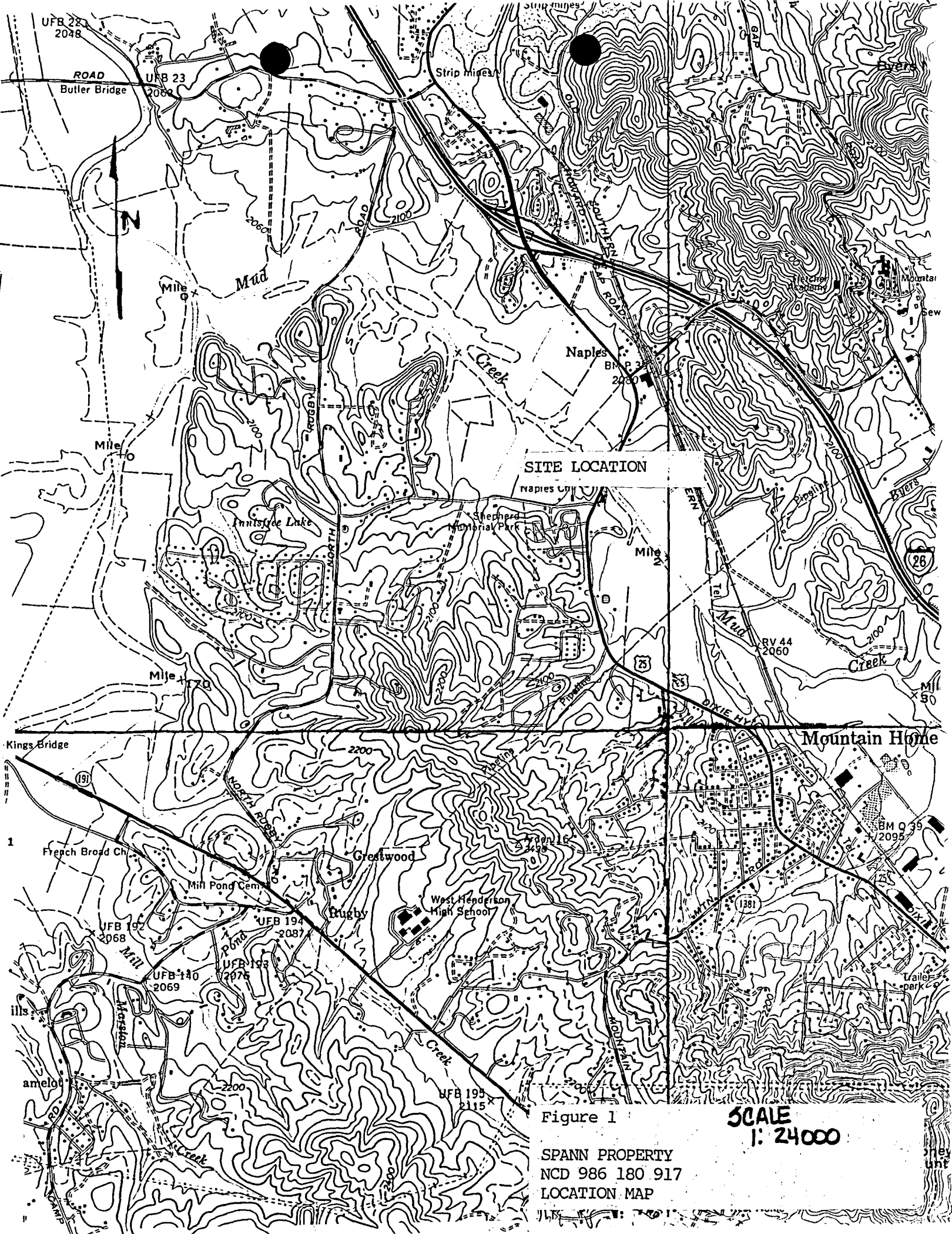


Figure 1

SCALE
1: 24000

SPANN PROPERTY
NCD 986 180 917
LOCATION MAP

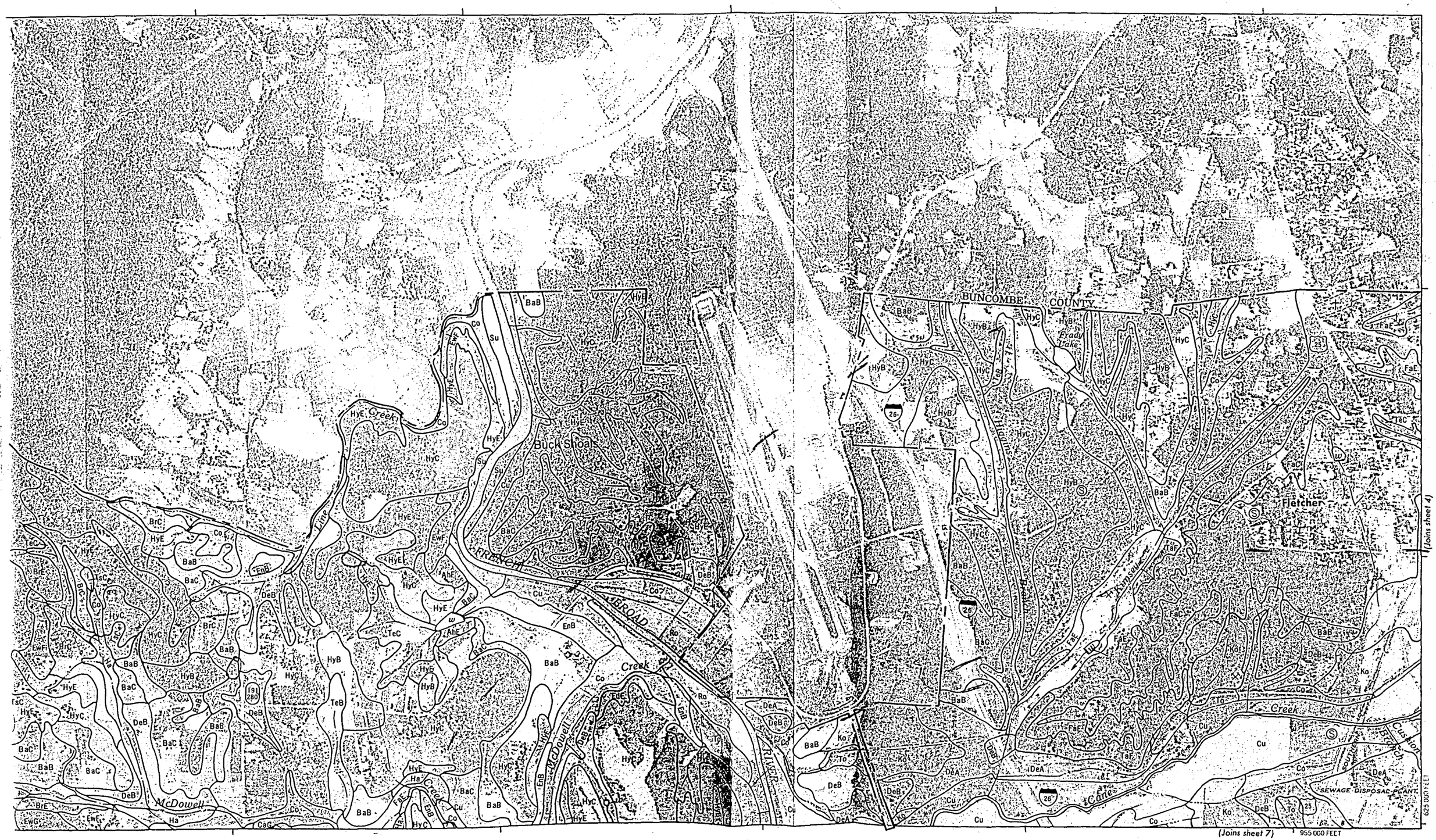
N
(Joins sheet 11)
(Joins inset, sheet 1)
(Joins sheet 17)
Horse Shoe Bend
Pine Knob
Drysdale Hills
Etowah
Little Mountain
Horse Shoe Mountain
Burl Mtn
FRENCH BROAD RIVER
Gash Creek
Upper Willow Creek
Big Willow Creek
Carter Branch
North Fork
South Fork
Pincy Br
COUNTY
TRANSYLVANIA
water
585 000 FEET
920 000 FEET
5000 4000 3000 2000 1000 0 5000 Feet
1 .5 0 1 Kilometer
Scale - 1:20000

N

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000



5 000 4 000 3 000 2 000 1 000 0 5 000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

Ref. 33

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

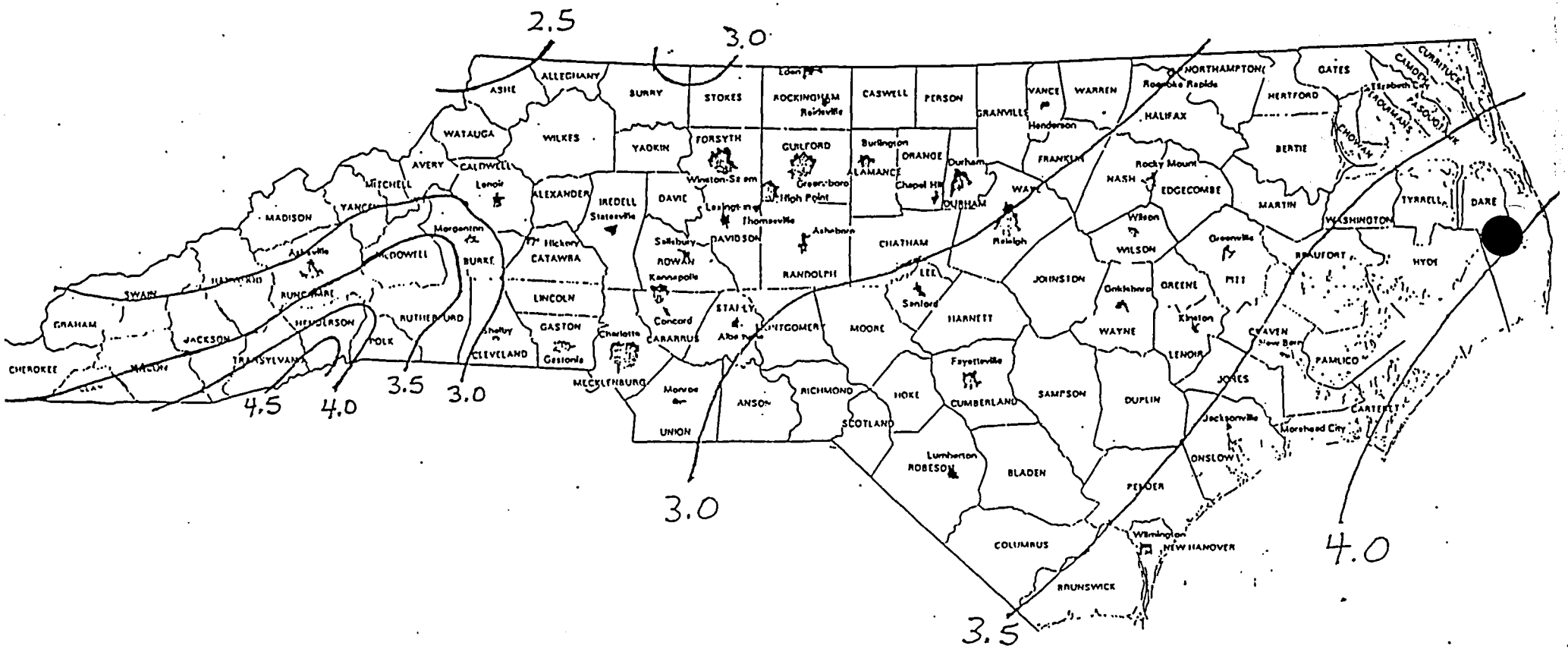
Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

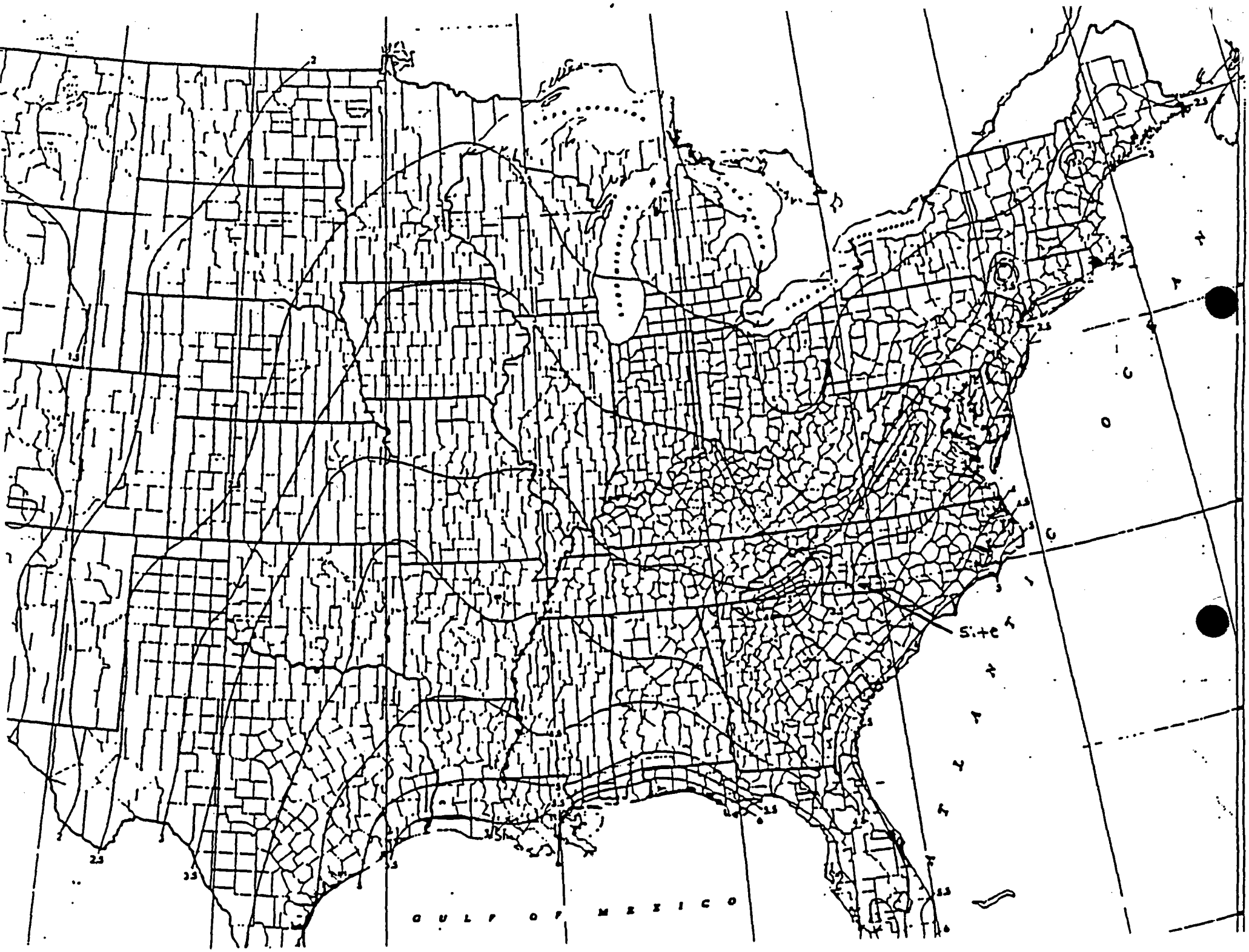
PROPERTY

ONE-YEAR 24-HOUR RAINFALL IN INCHES

SOURCE: RAINFALL FREQUENCY ATLAS OF THE UNITED STATES, TECH. PAPER NO. 40, U.S. DEPT. OF COMMERCE, U.S. GOV'T PRINTING OFFICE, WASHINGTON DC, 1963.

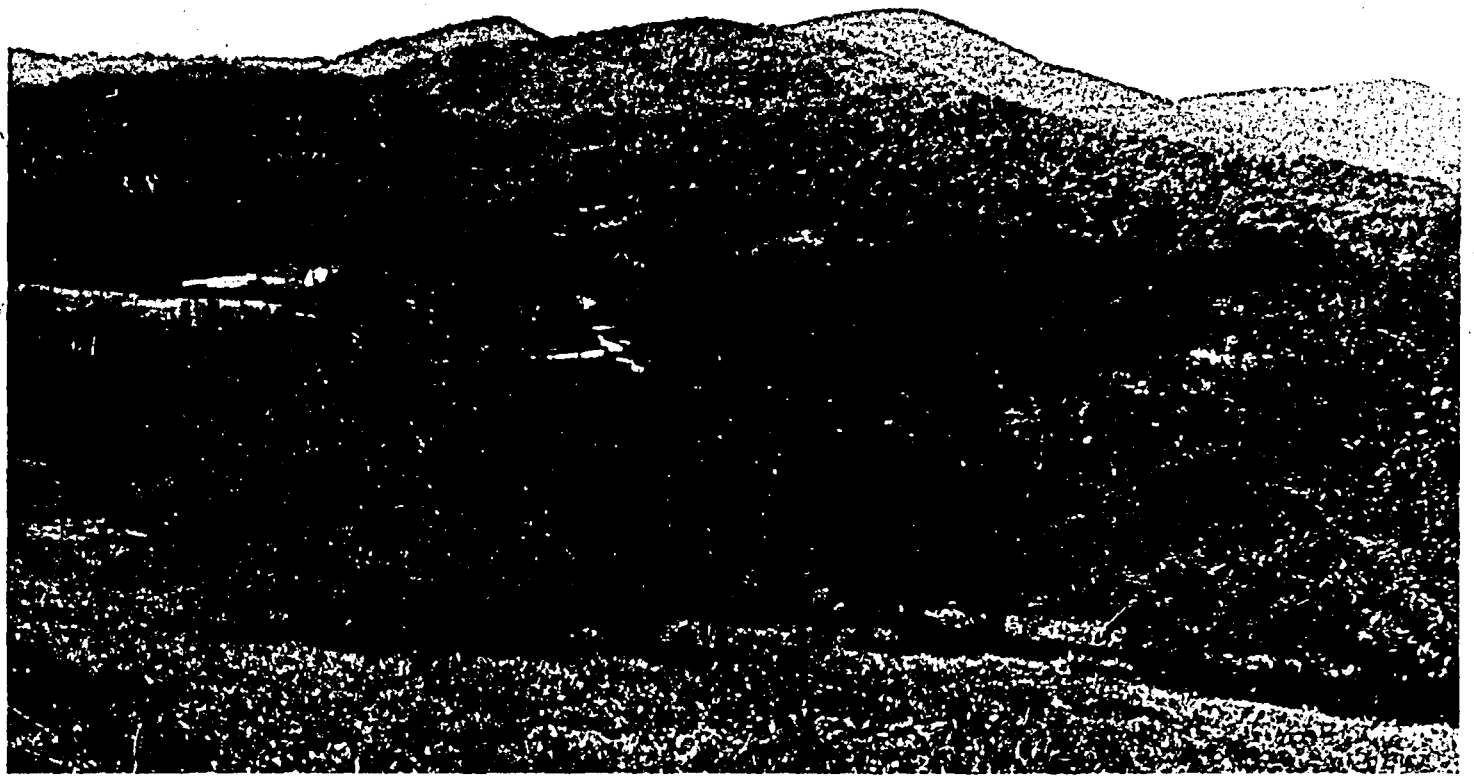
TAKEN FROM: UNCONTROLLED HAZARDOUS WASTE SITE RANKING SYSTEM A USERS MANUAL (HW-10) PAGE 33 FIG. 8




Site
GULF OF MEXICO

Ref. 31

SOIL SURVEY OF
Henderson County, North Carolina



United States Department of Agriculture
Soil Conservation Service and Forest Service
In cooperation with
North Carolina Agricultural Experiment Station

SOIL SURVEY OF HENDERSON COUNTY, NORTH CAROLINA

By John M. King, Jr., Soil Conservation Service

Soils Surveyed By John M. King, Jr., and John W. Turpin, Soil Conservation Service, and Charles H. Young, Forest Service

United States Department of Agriculture, Soil Conservation Service and Forest Service, in cooperation with the North Carolina Agricultural Experiment Station

Henderson County is in the southwestern part of North Carolina (see facing page). The county is 241,664 acres, or approximately 377 square miles, in size. According to the 1970 census, the population of the county was 42,804. Hendersonville, the county seat, had a population of 25,018.

Henderson County is in the Blue Ridge Mountains physiographic province. Elevation ranges from 1,400 feet above sea level near Bat Cave to 5,200 feet on Little Pisgah Ridge. The elevation at Hendersonville is 2,153 feet. The mean annual temperature at Hendersonville averages 56 degrees, and precipitation averages about 56 inches.

About 18,400 acres in the survey area is in the Pisgah National Forest, and about 11,383 acres is in urban and built-up areas. Land other than that used for crops and pasture makes up 13,000 acres. According to the Conservation Needs Inventory of North Carolina, in 1967 more than 140,000 acres was used for woodland.

Climate

By A. V. HARDY, climatologist for North Carolina, National Weather Service, U. S. Department of Commerce.

The climate of Henderson County is influenced strongly by elevation; irregular topography causes large differences in climate within the county. Latitude, location on the continent, and other lesser factors help to control the general climatic features. Temperature and precipitation data for Henderson County are shown in table 1. Weather data in this survey are from Hendersonville. Data are representative of the climate in the main farming areas of the French Broad River valley and tributary valleys and in similar areas that are level to moderately rolling and are between 2,000 and 2,300 feet above sea level. More mountainous parts of the county, which have peaks ranging to 3,000 feet or more, have lower average temperatures and in some places greater average precipitation.

The average length of the freeze-free growing season is about 180 days. Table 2 gives information on the probability of freezing temperatures in spring and fall. The time and intensity of freezes late in spring and early in fall vary considerably from year to year and from place to place within the county. The lowest temperature of record at Hendersonville is 9 degrees F below zero, but in most years winter passes without temperatures reaching zero. The highest temperature of record is 100 degrees, but this has occurred only once in 80 years. A temperature of 90 degrees or higher occurs on an average of about 15 days each summer, but in some years summer passes without the temperature reaching 90 degrees.

Henderson County is in the eastern part of the wettest area of North Carolina and of the eastern United States. Although observed data at Hendersonville and near Fletcher do not reflect the high precipitation recorded at stations in adjoining counties near the Georgia border, these data show an average of more than 3 inches for each month and more than 50 inches for the year. Much of the rainfall during the growing season comes from summer thunderstorms. Precipitation may vary considerably from week to week, from year to year, and even from place to place; however, there is rarely a month that has less than 1 or 2 inches except September and October. Rain early in summer is fairly dependable. Precipitation in winter usually results from low pressure storms which frequently pass through or near the area and is even less variable than that in summer.

Most winter months have snow cover on 1 to 15 days but usually on fewer than 5 days. The greatest accumulation in most winters is less than 1 foot, but there are some heavier accumulations of as much as 2 feet at higher elevations.

Cloudiness is variable; an average of about 1 day in 3 or 4 is essentially fair, 1 is cloudy, and 1 or 2 are partly cloudy. The area receives about half the total possible sunshine and slightly more than half late in spring and in summer. The average relative humidity is about 90 percent at sunrise and about 55 percent at midafternoon.

Westerly winds prevail in summer, and northwesterly winds prevail during the other seasons. Wind direction in the surrounding area is influenced to some extent by local

topography. Windspeed averages 8 to 10 miles per hour, but it is somewhat higher early in the afternoon and is a little lower early in the morning, before sunrise. Tropical storms from the Atlantic Ocean or the Gulf of Mexico rarely cause destructive winds in Henderson County, but in places they cause an increase in rainfall. Tornadoes are very rare. Highest winds are most often caused by thunderstorms in summer. Such storms may also cause hail. These storms usually affect only a small area.

Physiography, Relief, and Drainage

Henderson County is dissected by many streams that form a dendritic drainage pattern. The general slope of the western, central, and northern parts of the county is toward the French Broad River, which leads into the drainage basin of the Tennessee Valley. This basin covers about three-fourths of the county. The northeastern corner of the county drains into the Broad River, and the southern and southeastern parts drain into the Green and Hungry Rivers. These rivers eventually flow into the Atlantic Ocean. The topography of the county is mountain ranges, isolated peaks, large rolling valleys, and stream flood plains. The most rugged topography is in the western and northeastern parts and along the Green and Hungry Rivers. Many of the mountains rise to an elevation of 4,000 feet or more. In most places these mountains have narrow ridgetops and steep sides. Several escarpments are near drainageways in the vicinity of Bat Cave, and almost perpendicular, bare rock walls are conspicuous on the northwestern side of Sugarloaf Mountain. One of the most noticeable features of the topography is the broad, rolling intermountain plateau or valley, covering 75 to 80 square miles. It covers from the vicinity of Hendersonville and Flat Rock to northeast of Edneyville, to Fletcher and Etowah. The most extensive flood plains are along the French Broad River, Mills River, and Cane, Mud, Clear, and Hooper Creeks. These flood plains are subject to frequent, brief flooding. The bottom land is as much as 1 mile wide in places.

Water Supply

The average yield of water from wells in Henderson County is about 18 gallons per minute, but the yield ranges from 1 gallon to 80 gallons per minute. The average depth of wells is 118 feet, and depth ranges from 25 feet to more than 200 feet. Almost all rural homes depend on domestic ground-water supplies. Springs are used where available, particularly in the hills.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are located, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes, the size of streams and the general pattern of drainage, the kinds of native plants or crops, the kinds of rock, and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has been changed very little by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The *soil series* and the *soil phase* are the categories of soil classification most used in a local survey.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Soil series commonly are named for towns or other geographic features near the place where they were first observed and mapped. Edneyville and Brevard, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in characteristics.

Soils of one series can differ in texture of the surface layer and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Hayesville loam, 2 to 7 percent slopes, is one of several phases within the Hayesville series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a named soil phase.

Some mapping units are made up of soils of different series, or of different phases within one series, and some have little or no soil. These kinds of mapping units are discussed in the section "Soil Maps for Detailed Planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. Existing ratings of suitabilities and limitations (interpretations) of the soils are field tested and modified as necessary during the course of the sur-

TABLE 1.--CLIMATIC DATA

[All data from Hendersonville, or estimated as indicated, for Henderson County, N.C.]

Month	Temperature				Precipitation					
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with-- Maximum temperature equal to or higher than--	Two years in 10 will have at least 4 days with-- Minimum temperature equal to or lower than--	Average monthly total	One year in 10 will have-- Less than--	One year in 10 will have-- More than--	Average number of days with snow cover of 1.0 inch or more	Average depth of snow on days with snow cover	Average soil temperature at 4-inch depth on bare, level ground (estimated)
	F	F	F	F	In	In	In		In	F
January----	52	29	64	8	4.8	1.5	6.3	3	2	41
February---	53	29	68	14	4.6	1.5	7.5	3	2	42
March------	60	34	76	20	5.5	2.9	8.1	2	2	48
April------	70	42	83	27	4.5	1.4	8.3	([1])	([1])	57
May--------	78	50	88	36	4.1	1.6	5.8	0	0	66
June-------	84	58	92	46	4.8	2.1	9.5	0	0	73
July-------	85	62	92	52	6.2	2.5	9.6	0	0	75
August-----	85	61	91	49	5.5	1.7	13.4	0	0	75
September--	80	55	87	40	4.0	0.5	9.1	0	0	69
October----	71	43	79	27	3.8	0.4	9.7	0	0	60
November---	59	33	72	18	3.6	1.6	5.4	([1])	([1])	48
December---	51	28	66	12	4.7	1.4	7.8	1	1	41
Year------	69	44	[2] 93	[3] 3	56.1	46.7	72.4	9	2	58

[1]Less than one-half day.
[2]Average annual highest maximum.
[3]Average annual lowest minimum.

TABLE 2.--PROBABILITIES OF LAST FREEZING TEMPERATURES IN SPRING AND FIRST IN FALL

[Hendersonville, Henderson County, N. C.]

Probability	Dates for given probability and temperature				
	16° F or lower	20° F or lower	24° F or lower	28° F or lower	32° F or lower
Spring:					
1 year in 10 later than---	Mar. 15	Mar. 21	Apr. 10	Apr. 25	May. 7
2 years in 10 later than---	Mar. 4	Mar. 13	Apr. 3	Apr. 19	Apr. 30
5 years in 10 later than---	Feb. 20	Mar. 3	Mar. 23	Apr. 9	Apr. 22
Fall:					
1 year in 10 earlier than-	Nov. 15	Nov. 8	Oct. 30	Oct. 16	Oct. 6
2 years in 10 earlier than-	Nov. 22	Nov. 14	Nov. 7	Oct. 21	Oct. 11
5 years in 10 earlier than-	Dec. 2	Nov. 24	Nov. 17	Oct. 29	Oct. 19

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DIVISION OF GROUND WATER

GROUND WATER BULLETIN NO. 16

NORTH CAROLINA

DEPARTMENT OF WATER AND AIR RESOURCES

CERCLA

RALEIGH
APRIL
1970

GEOLOGY AND GROUND-WATER RESOURCES OF THE ASHEVILLE AREA NORTH CAROLINA

By

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GEOLOGIST, U. S. GEOLOGICAL SURVEY

GROUND WATER BULLETIN NUMBER 16

NORTH CAROLINA
DEPARTMENT OF WATER AND AIR RESOURCES
George E. Pickett, *Director*

Division of Ground Water
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UNITED STATES DEPARTMENT OF THE INTERIOR
AND THE NORTH CAROLINA
DEPARTMENT OF WATER AND AIR RESOURCES

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Henderson County

(Area 382 square miles, population 36,163, 1960 census)

Geography

Henderson County lies in the southeastern part of the four-county area. It is bounded on the south by the State of South Carolina. The county seat is Hendersonville, with a population of 5,911. The only other incorporated town is Laurel Park, a residential suburb of Hendersonville. The county is characterized by a dissected central plateau (part of the Asheville plateau) bounded on the northwest by a well-defined, northeast-trending mountain range (the Pisgah Ridge), on the south by granite ridges, and on the east by the Blue Ridge front. The plateau has an average elevation of about 2,200 feet, but there are isolated knobs and ridges 2,500 to 2,600 feet in elevation. The lowest and most level parts of the plateau are the flood plains of the French Broad and Mills Rivers, and Cane, Mud, Clear, and Hooper Creeks. The Blue Ridge has a gentle slope on the west (French Broad River) side of the drainage divide. East of the divide, the topography is rugged. Southwest of Zirconia, the Blue Ridge has an eastward trend.

Altitudes range from about 1,400 feet above sea level where the Broad River leaves the county at Bat Cave to about 5,280 feet on Little Pisgah Mountain at the junction of Henderson, Buncombe, Transylvania, and Haywood Counties. Henderson County lies within the drainage basin of the French Broad River except for the areas along the eastern and southern boundaries, which are drained by the Broad and Green Rivers. The principal tributaries of the French Broad River in Henderson County are Boylston Creek, Mills River, Mud Creek, and Cane Creek. The Little Hungry and Hungry Rivers are tributaries of the Green River.

The Asheville-Spartanburg line of the Southern Railway traverses the county in a general north-south direction. There are interstate highways and many State, County, and Forest Service roads providing access to most parts of the county.

Henderson County produces more than half the apples grown in North Carolina. These are grown mostly in the area between Hendersonville and Edneyville, on hillsides and in small valleys. Commercial truck and dairy farms occupy most of the broad valleys. Livestock raising is also important, and corn and hay are the principal feed crops.

Manufacturing in Henderson County is centered around Hendersonville, and includes apparel, electrical equipment, and scientific instruments. There is a textile print works and a rug factory at Fletcher, and a textile mill at Toledo.

Bricks are manufactured from clay dug at Fletcher, and formerly at Etowah. The clay is from saprolite along the Henderson Gneiss-Brevard Schist contact. Two dolomite quarries are active at Fletcher in dolomitic marble of the Brevard Schist. The rock is used for aggregate and for agricultural lime. The Henderson Gneiss also has been quarried for crushed stone at various localities. Gold was formerly mined on the southeast flank of the Pisgah Ridge, 1 mile northeast of the Transylvania County line. It was found in granite and pegmatite dikes in quartz-biotite gneiss. Zircons were formerly mined at Zirconia from the Whiteside Granite.

Geology

The northwest corner of Henderson County is underlain mainly by biotite gneiss.

Southeast of the gneiss is a belt predominantly of muscovite schist. This belt is only about $1\frac{1}{2}$ miles wide at the Transylvania County line, and there consists entirely of Brevard Schist. The Brevard Schist includes quartzite, phyllite, argillite, slate, garnet-muscovite schist, marble, fine-grained gneiss, and pyroclastics. Its most distinctive rock type is sericite schist containing finely disseminated graphite. To the northeast, the schist belt broadens, with coarse garnet-muscovite schist intruded by pegmatite dikes separating the typical Brevard Schist on the southeast from the quartz-biotite gneiss on the northwest. The topography of the schist belt ranges from nearly flat to moderately rugged. The Brevard Schist lies largely in the valleys of Boylston and Cane Creeks.

The greater part of Henderson County, southeast of the Brevard Schist belt, is underlain by Henderson Gneiss which is characterized by feldspar porphyroblasts, locally broken and deformed into augen. The rock varies in composition from a granite gneiss to a biotite gneiss or quartzite with a few scattered feldspar porphyroblasts. The Henderson Gneiss varies considerably in topographic expression.

The broad valleys of the French Broad River, Mud Creek, and Hooper Creek lie mostly within the area of Henderson outcrops. The gently undulant area northwest of the Blue Ridge front from Upward to Edneyville is also in the Henderson Gneiss outcrop. Possibly the differences in topography are controlled by compositional variations of varying resistance to weathering and erosion.

South of the Henderson Gneiss is a gneissic granite, which has been correlated with the Whiteside Granite of western Transylvania County and Jackson County. The white gneissic granite contains biotite and isolated masses of hornblende gneiss and garnet-muscovite schist. The hornblende gneiss is intruded by granitic dikes.

Along the eastern edge of Henderson County is a complex of granite gneiss, pegmatite, hornblende gneiss, garnet-muscovite schist, biotite-injection gneiss, and quartzite. The granitic parts locally contain coarse feldspar crystals which give the rock an appearance similar to that of the Henderson Gneiss. Elsewhere, the rock more closely resembles the Whiteside Granite.

Regional dip averages about 40 degrees to the southeast, but is reversed on Pisgah Ridge, the topographic expression of an anticline aligned northeastward.

Ground-Water Hydrology

Henderson County is second in the four-county area in the number of public water systems, and it leads in the number of these which are supplied by ground-water sources.

Almost all rural homes depend on domestic ground-water supplies. Springs are used where available, particularly in the hills. Dug wells, used for many years, have been supplanted in importance by drilled wells.

Agricultural use of ground water is largely for watering livestock and washing dairy equipment.

Both the Cranston Print Works (Well No. 17) and the Mountain Rug Mills (Wells No. 15 and 16) use ground water. Cranston's well (No. 17) has a maximum yield of about 55 gpm. Wells No. 15 and 16, combined, are adequate for the needs of Mountain Rug Mills.

Potential sites for light industry in Henderson County should not be excluded from consideration because they are not within an

area served by a public water supply. In most parts of the county, wells can supply small factories with an adequate supply of water for fire protection and processing. The water requirements of factories may be comparable to ground water use in Grimesdale (Well Nos. 54, 55, 56, 57, and 58), the Mountain Sanitarium-Fletcher Academy (Well Nos. 8, 9) and the west Henderson School (Well No. 46). The large wells supplying the above institutions and subdivision were drilled in the Henderson Gneiss, which covers a large part of the county. Much of the gently undulant land in the county suitable for industrial development is underlain by Henderson Gneiss. Before an industrial site is located beyond public water supplies, the presence of adequate ground water should be confirmed by drilling and testing one or more wells.

Turbidity occurs in water from some wells, particularly those drilled in deeply weathered Brevard Schist.

Most of the springs in Henderson County, used for domestic purposes have yields on the order of 1 gpm. An exception is Spring No. 2A. Few of the springs used for public supplies yield more than 5 to 10 gpm in dry seasons.

Inventoried drilled wells have an average depth of 118 feet and an average yield of 18.3 gpm, or 0.156 gpm per foot.

Quality of Ground Water in Henderson County

Analyses of ground water from Henderson County are shown in table 15. Water from Wells 3, 6, 11, 19, 24, 37, 48, and 60 have iron concentrations greater than 0.3 ppm. All but two of these wells are in the Henderson Gneiss. Wells 2, 18, 19, 33, 36, and Spring 5A have water with high chloride and/or nitrate concentrations.

Table 17.- Public water supplies, Henderson County

Name	Source	Number of Taps	Wells			Wells and Springs			Name, Number, Inventory Number	Remarks
			Depth (feet)	Diameter (inches)	SWL (feet below LSD)	Yield (gpm)	Aquifer	Topography		
Bat Cave	Ground water	Approx 10-15				—	Henderson Gneiss	Slope	#1, #1	Untreated
Bright-waters	Ground water	25				1-4 each (est)	Henderson	draws	8 small springs, not inventoried	4 springs, clustered around concrete gravity reservoir, in each of 2 draws
			100	6	20	Est. 10	Henderson	slope	Well #1 - #45	Furnishes water to Bright-waters lodge
			150	6	8	Est. 20	Henderson	slope	Well #2 - #44	Water pumped into spring reservoirs as required un-treated.
			125	6	20	Est. 20	Henderson	ridge	Well #3 - #43	
Gerton (Chestnut Hill)	Ground water	Approx. 20				—	Henderson	draw	Spring #1-#4A	Not treated
Grimes-dale	Ground water	80+	54	6	12-14	35	Henderson	hill-near top	Well #1 - #55	Not treated
			76	6		25	Henderson	slope	Well #2 - #58	
			96	6	—	25	Henderson	slope	Well #3 - #54	
			100	6	—	15-20	Henderson	valley	Well #4 - #57	
			112	6	flow	60+	Henderson	valley	Well #5 - #56	
Henderson-ville	Surface water	5071							Bradley Creek & North Fork Mills River	Chlorinated
Lake Sum-mit Corp.	Ground water	70				Est. 3.5	Hornblende gneiss & granite	draw	Walker, #20A	One spring is pumped to reser-voir, remainder gravity flow.
						Est. 5.0		draw	Hux #1, #21A	
						Est. 5.0		draw	Hux #2, #22A	
						Meas. 1.0	"	draw	Vermont, #18A	
						Meas 10.0	Whiteside Granite	draw	Benning-field, #19A	
Laurel Park	Ground water					Est. 7.5	Henderson	draw	Indian Cave, #14A	Gravity distribution, 7 reservoirs
						Meas. 5.3	Henderson	draw	Fleetwood #1 13A	Not treated
						Meas. 7.5	Henderson	draw	Fleetwood #2 12A	
						Meas. 7.2	Henderson	draw	Upper Apple House, #16A	
						Meas. 4.2	Henderson	draw	Lower Apple House, #17A	
						Meas. 3.3	Henderson	slope	Skyview Village #15A	
	Surface water									From Hendersonville supply

Table 17.- Public water supplies, Henderson County--Continued

Name	Source	Number of Taps	Wells			Wells and Springs			Name, Number, Inventory Number	Remarks
			Depth (feet)	Diameter (inches)	SWL (feet below LSD)	Yield (gpm)	Aquifer	Topography		
Mount Lookout Subdiv.	Ground water	17	92	6	—	20	Henderson	slope	#230	Pressure tank reservoir. Not treated
Mountain House Water Assoc.	Ground water	143	about 100	6¼	—	8	Henderson	draw	#1 - #233	Two reservoirs, gravity distribution
			about 230	6¼		18	Henderson	draw	#2 - #232	Not treated
			165	6¼	10-15	25	Henderson	ridge	#5 - #234	
Toledo	Surface water	—								Supplied by J. P. Stevens Co.
White Sub-division	Ground water	42	110?	—	—	17	Henderson	draw	#1 - #235	Pressure tank reservoir. Not treated
			154	—	—	17	Henderson	draw	#2 - #236	

TABLE 18. Records of wells in Henderson County

Well No.	Location	Owner	Type of Well	Depth (ft)	Diameter (in)	Depth of casing (ft)	Water-bearing material	Water level (ft)	Yield (gpm)	Drawdown (ft)	Topography	Remarks
1	0.2 mile S of junction U.S. 64 and 74 at Bat Cave	R. E. Griffin	Drilled	109	5 5/8	82	Henderson gneiss	—	—	—	Slope	Public supply
2	1.7 miles W of Bat Cave	John S. Moore	Dug	16.5	24	16?	do	7-13	—	—	Valley	Observation well. Sampled for chemical analysis
3	Edneyville	Jimmy Case	Drilled	152	6	About 72	do	16	4½	—	Slope	High iron content. Sampled for chemical analysis
4	do	Henderson County Board of Education	do	About 227	6	"Most of hole"	do	About 40	12-17	—	do	Edneyville School well. Supplies over 1,000 pupils
5	1.9 miles SW of Edneyville	J. E. Hunsinger	Dug	31.5	72	Unlined	do	15-22.6	—	—	do	Observation well (filled in)
6	do	do	Drilled	108	6	About 70	do	28	6-8	—	do	Sampled for chemical analysis
7	Hooper Creek	Ray Ruth	Dug	35-40	36	—	do	29	4-5	—	Draw	
8	1.7 miles E of Naples	Mountain Sanitarium	Drilled	98	—	—	do	32	Over 45	—	do	Used for young people's camp
9	1.2 miles ENE of Naples	do	do	150	8	44	do	36	60	—	Slope	Auxiliary supply for sanitarium and academy
10	1 mile ENE of Naples	do	do	Over 100	8	—	do	42	20	—	do	do
11	1 mile SE of Fletcher	Oak Forest Baptist Church	do	85	6	About 50	do	About 60	12	—	Valley	Sampled for chemical analysis
12	0.9 mile ESE of Naples	Mountain Sanitarium	do	110	—	—	do	—	25	—	do	
13	Fletcher (E. side)	L. R. Mathews	do	90-95	—	About 20	Brevard schist	—	4½	—	Slope	Sampled for chemical analysis
14	Fletcher	Henderson County Board of Education	do	About 120	—	—	do	20	—	—	Ridge	Sampled for chemical analysis. Fletcher School
15	Fletcher (S. side)	Mountain Rug Mills	do	55	—	—	do	—	Can pump dry ½ hour	—	Valley	High iron content, corrosive
16	do	do	do	90	—	—	do	—	do	—	do	do
17	0.9 mile S. of Fletcher	Cranston Print Works	do	150	8	20	Brevard near contact Henderson	—	About 55	—	do	Sampled for chemical analysis
18	Fletcher, N. side	E. J. Nesbitt	do	92	6	28	Brevard	—	5	—	Draw	Sampled for chemical analysis

Well No.	Location	Owner	Type of Well	Depth (ft)	Diameter (in)	Depth of casing (ft)	Water-bearing material	Water level (ft)	Yield (gpm)	Drawdown (ft)	Topography	Remarks
19	Fletcher, NW. side	Horace T. Allen	Drilled	65	5 5/8	30	Brevard	30	10	—	Draw	Sampled for chemical analysis
20	0.5 mile WNW of Fletcher	Charlie Israel	Dug	About 35	60	Unlined	do	30	—	—	Ridge	do
21	0.9 mile WNW of Fletcher	Jim Ball	Drilled	212	5 5/8	About 200	do	18-25	—	—	Slope	do
22	1.8 miles SSW of Brickton	Charles Chipman	do	138	5 5/8	—	Henderson Gneiss	About 16	Couldn't pump down	—	Ridge	
23	1.3 miles W of Fletcher	Carroll Hudson	Bored	50	24	—	Garnet-muscovite schist and pegmatite	33	Can't pump dry	—	Slope	Sampled for chemical analysis
24	0.5 miles E of Asheville Airport	Frank Minker	Drilled	125	5 5/8	About 35	do	10-12	15	—	Draw	Sampled for chemical analysis. Water treated to remove iron
25	1.8 miles WSW of Brickton	J. Stockton Bryan	do	184	—	25	Brevard schist	—	25	—	do	
26	1.9 miles N of Hwy. 191 Bridge at Mills River	Robert Metcalf	do	170	5 5/8	127	Garnet-muscovite schist	40	20	—	Ridge	
27	0.15 mile E of Hwy. 191 on Fanning Bridge Road	B. J. Hill	Dug	46.7	54	Unlined	do	45.5	—	—	Slope	
28	Hwy. 191, 1/3 mile S. of Fanning Bridge Road	L. F. Hayes	Drilled	50	—	About 30	do	—	5	—	Valley	
29	Junction Hwy. 191 and N. Mills River Road	J. Carland	do	138	5 5/8	38	do	18	15	—	do	Sampled for chemical analysis
30	Hwy. 280, 0.8 mile SW of Junction Hwy. 191	Dan Palmer	do	96	5 5/8	About 70	Brevard schist	8	About 5	—	do	
31	Hwy. 280, 0.7 mile SW of Junction Hwy. 191	Dr. J. G. Betts	do	152	7	About 30	Garnet-muscovite schist	72	Over 25	—	Hill	
32	1 mile SW of Junction Hwy. 191 and 280	J. E. Brown	do	180	6	About 125	Brevard schist	About 35	6	—	Slope	
33	Hwy. 280, 1.4 miles NE of county line	Caskell Rhodes	do	Over 200	—	30	do	—	2	—	Valley	Sampled for chemical analysis
34	Boylston-Etowah Road, 0.8 mile SE of Hwy. 280	Ike Cairnes	do	174	5 5/8	158	do	46	15	—	Hill	do

TABLE 18. Records of wells in Henderson County (Continued)

35	Hwy. 280, 1.7 miles NE of county line	Shipman	do	187			do	82			do	Supplies 9 houses. Sampled for chemical analysis
36	2.2 miles NW of Etowah	Earl Ashworth	do	About 104	5 5/8		do	15	6		Ridge	Sampled for chemical analysis
37	1.3 miles WNW of Etowah	Bill Allison	do	80			Brevard at contact	15	10-12		Slope	do
38	Hwy. 280, 2 miles SW of junction Hwy. 191	J. R. Brown	do	84			Brevard schist		Est. 1½		Valley	
39	Etowah	Etowah Methodist and Presbyterian Churches	do	92	5 5/8	65	Henderson schist	22	10		Hill	Sampled for chemical analysis
40	Etowah	Henderson County Board of Education	do	More than 63'			do	15-20			Slope	Etowah School. Sampled for chemical analysis
41	1.9 miles SE of Etowah	David Mallet	do	119		63	do		4		do	
42	Rugby Road, 1.7 miles NE of Horse Shoe	A. E. Podesta	do	136		130	do		6		Ridge	
43	Brightwater	S. J. Childs Estate	do	125	6		do	20	20		Slope	Public supply. Auxiliary to 8 springs
44	Brightwater	S. J. Childs Estate	do	150	6		Henderson gneiss	8	20		do	Public supply. Auxiliary to 8 springs
45	do	do	do	100	6		do	20	10		do	Public supply
46	0.4 mile E of Rugby	Henderson County Bd. of Education	do	246			do	21	52		Draw	West Henderson High School well
47	0.6 mile W of Mountain Home	V. D. Orr	do	92		Almost to bottom	do		20		Slope	Public supply. Mount Lookout Subdivision
48	Mountain Home	Mountain Home Water Assoc.	do	67	6		do	.9-2.7			Valley	Observation well. Sampled for chemical analysis. Not used—Well #3
49	do	do	do	230			do		18		Draw	Well #2, Public supply
50	do	do	do	About 100			do		8		do	Well #1, Public supply
51	do	do	do	165	6¼		do	10-15	25		Slope	Well #5, Public supply
52	do	White Subdivision	do	110			do		About 17		Draw	Well #1, Public supply
53	do	do	do	154		Almost to bottom	do		17		do	Well #2, Public supply
54	Grimesdale SE of Hillgirt	Charles P. Grimes	do	96	6		do		About 25		Slope	Grimesdale Subdiv. Public Supply Well #3

Well No.	Location	Owner	Type of Well	Depth (ft)	Diameter (in)	Depth of casing (ft)	Water-bearing material.	Water level (ft)	Yield (gpm)	Drawdown (ft)	Topography	Remarks
55	Grimesdale SE of Hillgirt	Charles P. Grimes	Drilled	54	6	—	Henderson gneiss	12-14	35	—	Hill	Grimesdale Subdiv. Public supply Well #1
56	do	do	do	112	6	—	do	Flow	More than 60	—	Valley	Grimesdale Subdiv. Public Supply Well #5
57	Grimesdale	do	do	100	6	—	do	—	15-20	—	do	Grimesdale Subdiv. Public Supply Well #4
58	do		do	76	6	—	do	—	25	—	Slope	Grimesdale Subdiv. Public Supply Well #2
59	2.4 miles SW of center of Hendersonville	Jearl Harden Laurel Rock Subdivision	do	48.5	6	21.4	do	13.5-18	Over 15	—	Draw	Observation well. Sampled for chemical analysis
60	0.6 mile NNW of Flat Rock	Campbell Boyd: Flatrock Forest Subdivision	do	121.4	6	—	do	1-28	—	—	Valley	do
61	3.3 miles NE of Hendersonville, Corn Mountain Subdivision	R. L. Eichenberg	do	160	—	30	do	75	—	—	Hill	
62	do	Houston Huggins	do	57	—	—	do	—	Couldn't pump down	—	Draw	
63	4 miles NE of Hendersonville	R. E. Corn	Bored	27	10	27	do	23.7	—	—	Slope	
64	0.8 mile N of Dana	Melvin T. Raines	Drilled	113	5 5/8	93	do	14	80	—	do	
65	Dana	Henderson County Board of Education	do	85	6	—	do	About 40	Over 3	—	Ridge	Dana School well (525 pupils)
66	1.4 miles N of Blue Ridge	Spurgeon Clark	Dug	22.1	54	Unlined	do	16.8-19.8	—	—	Slope	Observation well Replaces No. 175
67	0.4 mile SE of Blue Ridge	Carl E. Justice	Drilled	81	5 5/8	37	do	28	6	—	Ridge	
68	0.7 miles SE of Blue Ridge	Odell Hyer	Dug	35	36	Unlined	do	30-31	—	—	do	Ran dry 1954-55, deepened 3'
69	0.8 mile W of Tuxedo	Homer Lindsay	Drilled	135	5 5/8	About 40	Whiteside Granite	39	5-6	—	Draw	Sampled for chemical analysis
70	On Crab Creek 0.4 mile E of Transylvania County Line	Russell Henry	Dug	29.7	30	—	Henderson Gneiss	19.8-24.6	—	—	Slope	Observation well

TABLE 19. Records of springs in Henderson County

Well No.	Location	Owner	Type of Well	Depth (ft)	Diameter (in)	Depth of casing (ft)	Water-bearing material	Water level (ft)	Yield (gpm)	Drawdown (ft)	Topography	Remarks
1-A	Bat Cave	M. J. Connor	Spring				Henderson Gneiss		—		Slope	Public supply
2-A	1.6 miles W of Bat Cave	John S. Moore	do				do		Est. 30-50		Draw	
3-A	2.75 miles NNE of Edneyville	George A. Lyda	do				do		Est.3		Valley-	
4-A	Chestnut Hill	E. I. Earnhardt	do				do		—		Draw	Public supply
5-A	1.2 miles SE of Hooper Creek	Vernon Glad	do				do		1.2-5.0		Valley-	Observation spring. Sampled for chemical analysis
6-A	E. side McDowell Creek, 0.5 mile S. of Buncombe Co. line	France Quarries Corp.	do				Garnet-muscovite schist & pegmatite		12		Draw	
7-A	N. Mills River, 4.4 miles W. of Hwy. 191	U. S. Forest Service	do				Biotite Gneiss		5.8-36		Draw	North Mills River Camp Ground. Observation spring. Sampled for chemical analysis
8-A	Hwy. 280, 1.2 miles NE of Transylvania County line	J. L. Morris	do				do		Est. 2		do	Sampled for chemical analysis
9-A	Hwy. 280, 1.6 miles NE of county line	Euria Cannon	do				do		38		do	
10-A	Hwy. 280, 2 miles SW of junction Hwy. 191	J. R. Brown	do				Henderson Gneiss		Est. 14		do	
11-A	1.4 miles W. of Horse Shoe	Brannon Bros.	do				do		5-11		do	Observation spring. Sampled for chemical analysis
12-A	Laurel Park, Jumpoff Mtn.	Town of Laurel Park	do				do		7½		do	Public Supply: Fleetwood #2
13-A	do	do	do				do		5.3		do	Public Supply: Fleetwood #1
14-A	Laurel Park, Hebron Rd.	do	do				do		Est. 7.5		do	Public Supply: Indian Cave Spring
15-A	Laurel Park, Skyview Village	do	do				do		3.3		Slope	Public Supply: Skyview Village Spring
16-A	Laurel Park	do	do				do		7.25		Draw	Public Supply: Upper Apple House Spring
17-A	do	do	do				do		4.25		do	Public Supply: Lower Apple House Spring

Well No.	Location	Owner	Type of Well	Depth (ft)	Diameter (in)	Depth of casing (ft)	Water-bearing material	Water level (ft)	Yield (gpm)	Drawdown (ft)	Topography	Remarks
18-A	1.9 miles E of Tuxedo	Lake Summit Corp. (Mrs. John Law)	Spring				Hornblende gneiss & granite		1		Draw	Public Supply: Vermont Spring
19-A	1.5 miles SE of Tuxedo	do	do				Whiteside granite		10		do	Public Supply: Benningfield Spring
20-A	0.9 SSE of Zirconia Station	Lake Summit Spring Corp. (Mrs. John Law)	do				Hornblende gneiss & granite		Est. 3.5		do	Public Supply: Walker Spring
21-A	0.5 mile SE of Zirconia Station	do	do				do		5		do	Public Supply: Hux #1 Spring
22-A	do	do	do				do		5		do	Public Supply: Hux #2 Spring

TABLE 20.- CHEMICAL ANALYSES OF GROUND WATER FROM HENDERSON COUNTY

Chemical analyses, in parts per million

Number	Rock type	Water type	Source and depth (ft.)	Date of collection	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Lithium (Li)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Dissolved solids: Residue at 180°C	Dissolved solids: Calculated	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Non-carbonate	Specific conductance (micromhos at 25°C)	pH	Color
	1/	2/	3/																							
2	hgg	C	Du- 16	Nov. 18, 1961	11	0.1	0.20	0.04	19	4.9	29	19	0.4	40	0.2	49	0.1	55	0.0	233	208	68	34	350	6.1	10
3	hgg	IV	Dr-152	Nov. 18.....	27	.2	3.8	--	2.2	.9	4.7	1.2	.0	26	.2	1.8	.0	.3	.0	49	52	10	0	40	6.1	10
6	hgg	IV	Dr-108	Nov. 18.....	12	.0	1.1	.00	1.0	.7	1.8	1.1	.2	12	.2	2.0	.0	.0	.0	29	25	6	0	24	5.5	0
11	hgg	III	Dr- 85	Nov. 15, 1962	30	--	1.2	--	6.0	2.6	6.0	1.4	--	50	.2	.6	.1	.0	--	--	72	26	0	78	6.4	--
13	bs	I	Dr- 90	Nov. 15.....	8.9	--	--	--	2.2	.9	1.4	.2	--	13	.2	1.1	.0	.2	--	--	21	10	0	28	5.7	--
14	bs	III	Dr-120	Nov. 15.....	20	--	.01	--	3.0	1.8	3.5	.2	--	27	.2	1.0	.0	.0	--	--	43	14	0	47	6.0	--
18	bs	IV	Dr- 92	Nov. 15.....	11	--	--	--	2.8	1.7	4.9	.3	--	14	6.0	3.3	.1	2.5	--	--	40	14	2	59	5.6	--
19	bs	V	Dr- 65	Nov. 15.....	7.5	--	.34	--	1.4	1.4	2.7	.2	--	10	.6	2.6	.0	4.2	--	--	26	9	1	38	5.5	--
20	bs	D	Du- 35	Nov. 13.....	5.1	--	--	--	1.0	.6	.6	.2	--	8	.2	1.3	.0	.5	--	--	13	5	0	18	5.3	--
21	bs	V	Dr-212	Nov. 15.....	22	--	--	--	4.5	2.8	3.2	.6	--	38	1.0	.7	.0	.1	--	--	54	23	0	61	6.6	--
23	gms	I	B - 50	Nov. 15.....	8.7	--	--	--	26	2.8	1.0	1.2	--	90	2.0	2.0	.0	.5	--	--	88	78	4	158	6.9	--
24	gms	V	Dr-125	Nov. 15.....	9.4	--	1.2	--	1.6	1.1	1.2	.8	--	15	.2	.1	.0	.1	--	--	22	8	0	26	5.7	--
29	gms	III	Dr-138	Nov. 15.....	19	--	.03	--	3.0	1.3	3.4	.9	--	26	.6	.5	.0	.0	--	--	42	12	0	43	6.3	--
33	bs	V	Dr-200	Nov. 15.....	23	--	--	--	38	22	4.9	2.8	--	210	4.4	9.0	.1	15	--	--	222	186	14	370	7.3	--
34	bs	V	Dr-174	Nov. 15.....	19	--	.08	--	6.3	4.0	4.2	.5	--	48	.2	1.3	.1	.4	--	--	60	32	0	85	6.4	--
35	bs	V	Dr-187	Nov. 15.....	14	--	--	--	2.1	1.3	2.1	.6	--	19	.8	.5	.1	.0	--	--	31	10	0	34	6.3	--
36	bs	C	Dr-104	Nov. 15.....	7.0	--	--	--	4.6	3.5	7.9	.5	--	26	.2	10	.1	9.8	--	--	57	26	4	98	6.6	--
37	hgg	IV	Dr- 80	Nov. 15.....	27	--	1.0	--	1.8	.5	5.8	.8	--	26	.2	.1	.0	.0	--	--	49	6	0	42	6.0	--
39	hgg	IV	Dr- 92	Nov. 15.....	31	--	--	--	2.8	.6	3.9	.8	--	24	.6	.1	.1	.7	--	--	53	10	0	40	6.3	--
40	hgg	IV	Dr- 63	Nov. 15.....	34	--	.12	--	3.4	.6	6.7	1.1	--	31	.2	.3	.1	.2	--	--	62	11	0	52	6.5	--
48	hgg	IV	Dr- 67	Nov. 16, 1961	35	.0	.53	.00	2.6	1.0	5.8	1.0	.2	30	.2	1.3	.2	.0	.2	65	62	11	0	49	6.5	5
59	hgg	IV	Dr- 48	Nov. 16.....	8.8	.0	.28	.00	.8	.4	1.5	1.1	.1	8	.2	1.8	.0	.0	.1	19	19	4	0	17	5.5	0
60	hgg	III	Dr-121	Nov. 16.....	25	.1	.60	.06	6.4	1.1	6.4	2.7	.0	42	.2	1.9	.1	.1	.4	64	65	20	0	75	6.4	5
69	grgg	IV	Dr-135	Feb. 5, 1963.	10	--	.03	--	1.3	1.0	1.8	.9	--	11	.2	.8	.1	.7	--	--	22	7	0	26	5.9	--
5A	hgg	C	S	Nov. 18, 1961	12	.0	.01	--	2.1	.5	2.6	1.7	.0	12	.0	3.4	.0	2.4	.5	29	32	8	0	38	6.8	5
7A	bg	D	S	Nov. 16.....	7.8	.0	.02	.01	.5	.9	1.0	.5	.0	8	.2	1.3	.0	.0	.0	15	14	4	0	12	6.1	5
8A	bg	D	S	Nov. 15, 1962	8.0	--	--	--	.4	.6	1.0	.4	--	6	.2	.9	.0	.0	--	--	14	4	0	10	6.7	--
11A	hgg	III	S	Nov. 16, 1961	14	.0	.00	--	1.6	.1	1.8	1.3	.1	13	.2	1.1	.0	.0	.1	22	26	4	0	21	6.0	0

1/ Rock Type

ldm -limestone, dolomite, marble
scq -sandstone, conglomerate, quartzite
sssa-shale, sandstone, slate, argillite
grgg-granitic rock and granite gneiss
hgg -Henderson Gneiss
ur -ultramafic rock
hg -hornblende gneiss
bg -biotite gneiss
big-biotite-injection gneiss
bs -Brevard Schist
gms-garnet-muscovite schist
a -alluvium

2/ Water Type

I-calcium, magnesium, sodium bicarbonate
II-calcium, sodium, magnesium bicarbonate
III-calcium, sodium, magnesium bicarbonate
IV-sodium, calcium, magnesium bicarbonate
V-magnesium, calcium, sodium bicarbonate
*-calcium sulfate
D-dissolved solids too low to reflect effects of lithology upon water composition
C-excessive chloride and/or nitrate masks effects of lithology upon water composition

3/ Source

S-spring
Dr-drilled well
Du-dug well
B -bored well