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

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DEHNR

July 6, 1995

Ms. Cynthia Gurley
NC CERCLA Project Officer
US EPA Region IV Waste Division, 6th Floor
345 Courtland Street, NE
Atlanta, GA 30365

RE: Preliminary Assessment
Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg County, NC

Dear Ms. Gurley:

Enclosed are the findings of the Preliminary Assessment for the Tom Sadler Road Wells site (NCD 986 231 967), Charlotte, Mecklenburg County, NC.

In 1993, groundwater sampling results from the Garland J. Mingus well at 2128 Tom Sadler Road indicated several chlorinated solvents and 170 ug/L of 1,1-dichloroethylene, above the US EPA removal action level. The Garland Mingus well, serving three people, was removed from service in October 1993 and listed on CERCLIS. The US EPA provided bottled water and installed a granular activated carbon filter on the well so that the water could be used for bathing. City water has since been installed.

The Garland Mingus contaminated well is located five feet from an inactive auto garage which Mr. Mingus operated from 1964 to 1994. During the site visit, a parts washer on the northeast side of the garage in the vicinity of the well was noted. Mr. Mingus stated that he never used chlorinated solvents or the parts washer; he bought the parts washer in an assortment of equipment purchased to reequip his garage after it burned in 1989. The parts washer holds an estimated volume of 25 gallons of solvent. The parts washer was stained and stained soil was in the vicinity. About 150 square feet of stained soil in the vicinity of the drum storage and trash areas was also noted. An insecticide sprayer was noted lying on its side inside the well house.

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The Mecklenburg County Department of Environmental Protection (MCDEP) sampled approximately 400 wells in the Paw Creek area in 1993 and almost 100 wells contained PCE (also known as perchloroethylene, tetrachloroethene or PERC), most at the one to two ppb level. Six wells within 450' of the Mingus facility were found to be contaminated with one ppb PCE and the residences have connected to city water. No PCE was detected in the Mingus well. Since 1,1-dichloroethene (DCE) is found as either a degradation product of other chlorinated solvents or an intermediate in plastics manufacturing, it is assumed that 1,1-DCE occurred in the well from degradation.

A total of sixteen contaminated wells were discovered within 1/4 mile of the Tom Sadler Road wells site during the 1993 sampling event, fourteen of which could possibly be attributable to the site. There were about 51 wells in use within 1/4 mile of the site prior to testing and there are now about 24 wells in use. Two well owners continue to use their wells in which low levels of contamination were detected. One of these wells was tested a second time and contamination was not detected. Of the currently used wells, about twelve have not yet been tested. MCDEP has a policy of testing all wells upon request and a list of untested wells within 1/4 mile of the site has been provided to MCDEP.

The only drinking water intake in the surface water pathway is eight miles below the PPE The closest wetland is at the PPE, at the headwaters of Thomas Pond, a fishery. The contaminants have a low ecotoxicity and bioaccumulation factor. Therefore, a release of these contaminants to Thomas Pond would not pose a significant threat to the wetlands or fishery.

This site is recommended for a low priority Site Inspection for the following reasons:

- Drinking water well contamination, particularly with chlorinated solvents, is widespread in the area.
- The on-site drinking water well has been removed from use.
- The six wells immediately surrounding the site contained low levels of PCE (1 - 2 ppb) and owners have connected to city water.
- In addition, there are eight contaminated drinking water wells within 1/4 mile that are likely attributable to the site.
- No PCE, but only its degradation products were found in the Mingus well. A source had not yet been adequately defined.

- Free well testing services are provided by the Mecklenburg County Department of Environmental Protection (MC DEP), under a cooperative agreement with the NC Division of Environmental Management. Additional contaminated wells may be discovered.

- There are several other known and suspected sources of chlorinated solvents within one to two miles of the site. Attribution of area well contamination to these sources has not been completed.

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

Sincerely,

Jeanette Stanley

Jeanette Stanley
Environmental Chemist
NC Superfund Section

Enclosures

STATE OF NORTH CAROLINA

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

PRELIMINARY ASSESSMENT

Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg County, North Carolina
Reference No. 06103

July 1995

Jeanette Stanley
Environmental Chemist
Division of Solid Waste Management
Superfund Section

1.0 INTRODUCTION

This Preliminary Assessment (PA) for the Tom Sadler Road Wells site (NCD 986 231 967) was performed by the North Carolina Superfund Section under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The PA was conducted to assess the immediate or potential threat posed by the site to human health and the environment and to collect information to support a decision to be made by the United States Environmental Protection Agency (US EPA) regarding the need for further action under CERCLA. The PA included site research, file review, target survey, and a site reconnaissance on May 3, 1995.

2.0 SITE DESCRIPTION

2.1 Location and Climate

The Tom Sadler Road Wells site (NCD 986 231 967), is located in a residential area of northwestern Charlotte, Mecklenburg County, North Carolina (Refs. 3, 4, 7, 8; Figs. 1, 2, 3). This area is part of the Paw Creek community. The site is located at latitude 35° 17' 24" N and longitude 80° 57' 37" W (Ref. 4). This is in the ninth Congressional District and the County Code is 60.

To reach the site, use the Little Rock Road exit off I-85 and drive north. Little Rock Road intersects Freedom Drive; turn left (north) onto Freedom Drive. Continue on Freedom Drive until it intersects with Mount Holly Road and veer left. In one mile, turn right onto Tom Sadler Road. The site is at 2128 Tom Sadler Road (Ref. 7; Figs. 1, 2, 3).

The area has a mean annual precipitation of 44 inches and a mean annual lake evaporation of 40 inches (Ref. 5). The 2-year 24-hour rainfall is 3.5 inches (Ref. 6).

2.2 Site Description, Operational History and Waste Characteristics

In 1993, MCDEP sampled approximately 400 wells in the Paw Creek area (Ref. 13) and several pockets of PCE contamination above drinking water standards (5 ppb or greater) were identified (Ref. 13, p. 2). Almost 100 wells contained PCE (also known as perchloroethylene or tetrachloroethene), most at the one ppb level (Ref. 13).

The Garland J. Mingus well at 2128 Tom Sadler Road was discovered to contain several chlorinated compounds and 1,1-dichloroethylene at 170 ug/L, above the US EPA removal action level (Refs. 7, 13, pp. 25, 26, 32, 40, 48). PCE was not detected in this well. The major contaminant in the Mingus well, 1,1-dichloroethene is a chemical intermediate for plastics manufacturing or a degradation product of other chlorinated solvents, such as PCE or trichloroethene (TCE) (Ref. 25). Since Mr. Mingus did not manufacture plastics, the original source of this contamination is assumed to be a more highly chlorinated solvent.

Figure 1. Tom Sadler Road Wells, USGS Topographic Maps

	Surface Water Intake	Population Served
A	Belmont Converting Co. WTP	8434
	Community Water Supply Wells	
B	Station Support Duke Power	40
C	Oakdale S/D	440
D	Aunt Rosie's Learn & Play	60
E	Ramsey Products Corp.	52
F	Tekmatex	36
G	Huntwood Mobile Home Park (MHP)	191
H	Trexler Park	200
K	Catawba MHP	42
L	Westwood Forest MHP	516

Charlotte-Mecklenburg Water Supply Lines

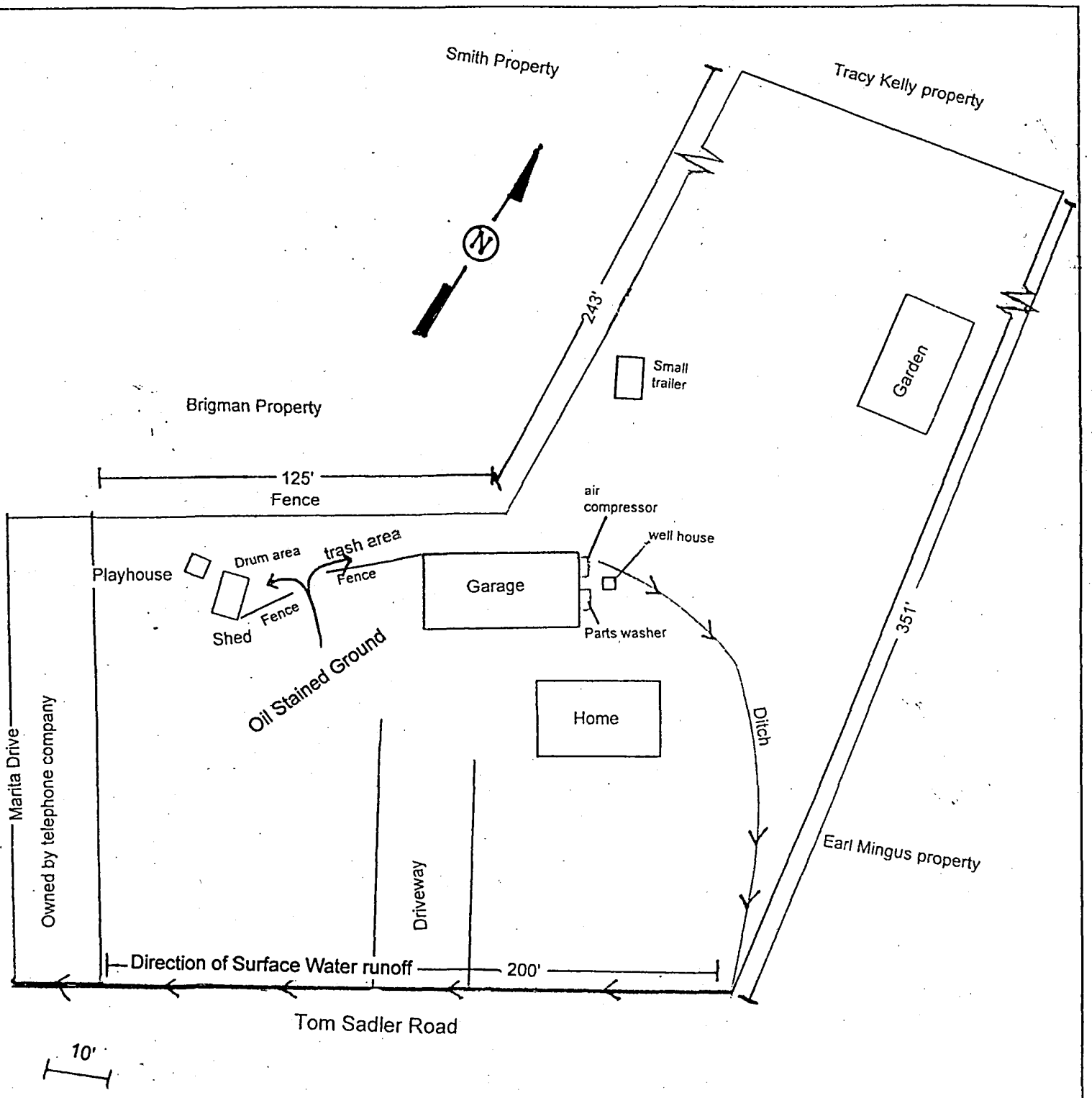


Fig. No: 2	Title: **Site Map**		
North Carolina Division of Solid Waste Management	Scale: As Shown	Date: May 1995	Drawn By: Stanley
Superfund Section	Site Name: Tom Sadler Road Wells		NCD 986 231 967

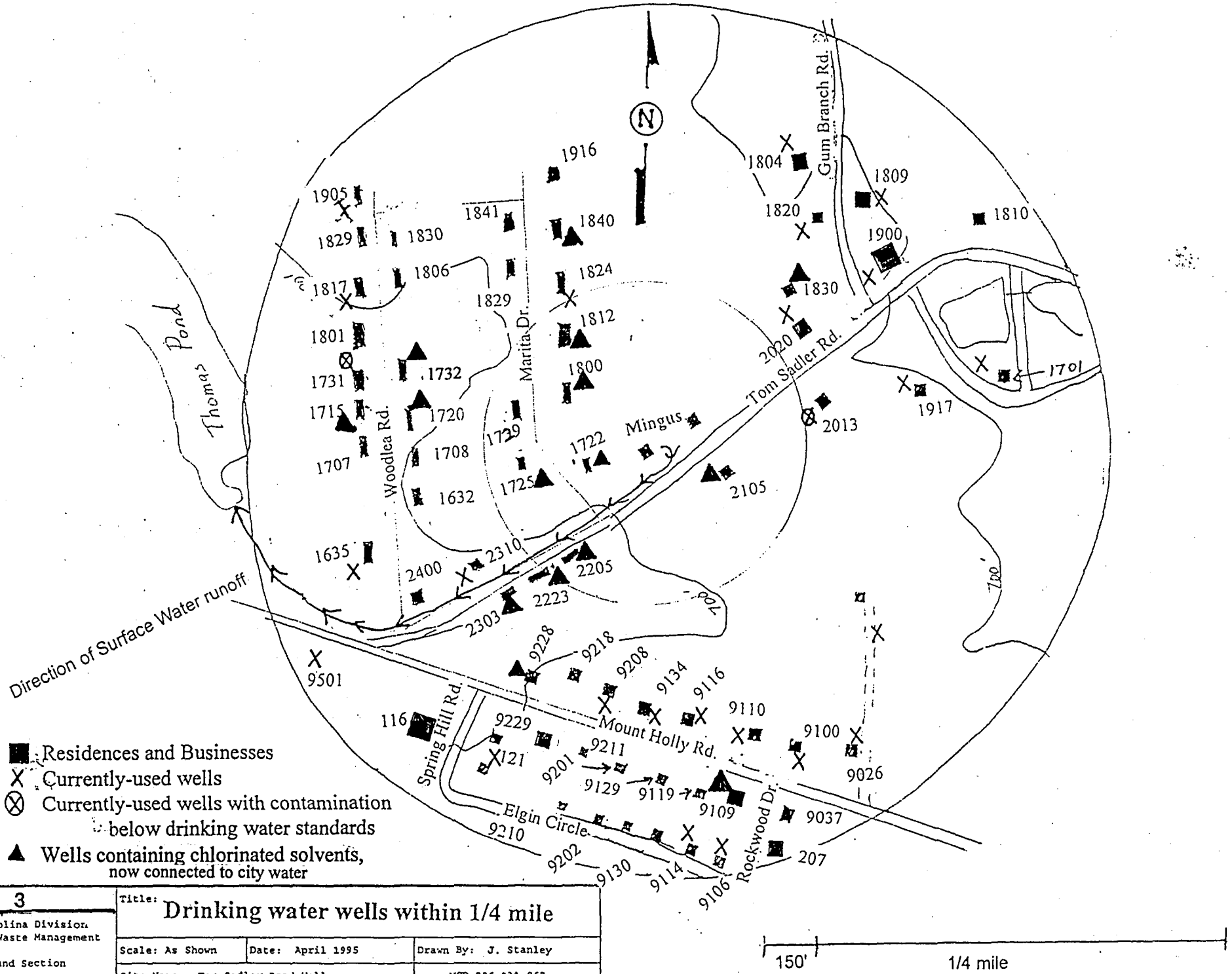


Fig. No: 3	Title: Drinking water wells within 1/4 mile		
North Carolina Division of Solid Waste Management Superfund Section	Scale: As Shown	Date: April 1995	Drawn By: J. Stanley
	Site Name: Tom Sadler Road Wells		NCD 986 231 967

The Garland Mingus well, serving three people (Refs. 7, 9), was removed from service in October 1993 and listed on CERCLIS (Ref. 7). The US EPA provided bottled water and installed a granular activated carbon filter on the well so that the water could be used for bathing. City water has since been installed (Ref. 13, p. 32). The well has not been closed and is still used for watering the Mingus vegetable garden (Ref. 9). Sixteen contaminated wells were discovered within 1/4 mile of the Tom Sadler Road wells site during the 1993 sampling event (Fig. 3; Ref. 13, p.2).

The Garland Mingus contaminated well is located five feet from an auto garage operated by Mr. Mingus for 30 years (Refs.3, 7, 9; Fig. 2). From about 1964 to 1994, Mr. Mingus performed various service activities at the facility, including air conditioning recharge, oil change, tune ups and automotive brakes (Refs. 7, 9; Photographs). There was a fire in the garage and it was rebuilt in 1989 (Ref. 9). The facility is now closed. There is a parts washer on the northeast side of the garage in the vicinity of the well. Mr. Mingus stated that he never used the parts washer (Ref. 9). The once-filled volume of the parts washer is estimated to be 25 gallons. During the site visit, an insecticide sprayer was observed lying on its side in the well house (Ref. 9; Photographs). Mr. Mingus's past practices with the insecticide sprayer is not known, but some formulations contain chlorinated solvents (Ref. 25).

One known source of PCE in the Paw Creek area is at the Old Mount Holly Road PCE site, 1 1/2 miles southeast of the Tom Sadler Road Wells site (Ref. 26). The Consolidated Warehouse site (NCD 130 708 126) has a past history of PCE usage, but a definitive source has not yet been identified (Ref. 26). Martin Marietta-Sodyedo (a National Priorities List (NPL) site (NCD 001 810 365), is 2 1/2 miles west of this site. Several chlorinated hydrocarbons have been detected in the groundwater, including low levels of PCE, but the hydrogeology is well defined and the plume is migrating west toward the Catawba River (Refs. 3, 11; Fig. 1).

The Budd Lee Paving site (NCD 055 165 005), 3/8 mile northeast of the Mingus residence was recommended for no further action under CERCLA in 1984. This site contained miscellaneous trash, mostly household, but included hardened asphalt and some drums floating in a pond. Mecklenburg County required that some solid waste be shipped off site and permitted burial of some trash onsite. This trash burial area was recorded with the Register of Deeds in 1984 (Ref. 12, pp. 1 - 6). No record of analytical results has been located.

In 1994, a groundwater investigation was conducted in conjunction with a bank foreclosure on property adjacent to the Budd Lee site. A 22' deep monitoring well in the vicinity of the trash was sampled and analyzed. The results did not show any chlorinated solvents (Ref. 12). It only showed 6 ppb toluene. A 40' deep monitor well (MW-4, Fig. 1; Refs. 3, 12) 2000' southeast of the buried trash, 3500' southeast of the Tom Sadler Road Wells site and 4300' northwest of the Old Mount Holly Road PCE site showed 125 ppb PCE in 1994 testing. This well has been resampled but results are not yet available. This contamination and contaminated drinking water wells along Hansard Drive may be attributable to another source.

The John Oats well at 1032 Gumbranch Rd., 3/4 mile north of the site and serving three residences, was found to contain 17.3 ppb carbon tetrachloride, 43.9 ppb 1,1-dichloroethene(DCE) and 69.6 ppb trichloroethene (TCE). This property has not been listed under CERCLIS.

3.0 GROUNDWATER PATHWAY

3.1 Hydrogeology

The Tom Sadler Road Wells site is located in the Charlotte Belt of the Piedmont Physiographic Province of North Carolina (Ref. 10). The bedrock in the region is predominantly a foliated to massive metamorphosed quartz diorite co-mingled with granite, with granite being predominant (Ref. 10). Weathered bedrock, or saprolite, overlies the fractured granitic bedrock (Ref. 10). The saprolite contains pore spaces between rock particles which act as a groundwater reservoir. The bedrock contains water in sheet-like openings formed along fractures which act as interconnected pipes that convey water from the saprolite reservoir to local wells (Ref. 10). Groundwater moves laterally and downward through the saprolite to points of groundwater seepage (springs) on hillsides and to the streams in the adjacent valleys (Ref. 10). Monitoring wells installed 3/8 mile east of the Mingus residence in 1994 had an average depth to groundwater of 25'. The top ten feet of soil was reported as silty or clayey silt, having a hydraulic conductivity of 10^{-6} cm/sec (Refs. 1; 12).

The Mingus two inch diameter well is 95 feet deep (Ref. 7). It does not have a concrete slab on top and was possibly not grouted (Ref. 11). It was drilled in 1992 to replace the old well that had a collapsed casing (Ref. 9). The location of the new well was in the surface drainage pathway from the northeast side of the garage (Ref. 9; Fig. 2)

3.2 Targets

The Charlotte-Mecklenburg Utility Department (CMUD) provides city water to many residents within a four mile radius of the site (Refs. 13, 14). City water lines are shown on Fig. 1.

There are nine community public well systems within 4 miles of the site as shown on Figure 1 (Refs. 3, 16). There are none within two miles of the site (Refs. 3, 16; Fig.1). Populations served by these systems and the distances of these wells from the site are listed in Table 1.

Table 1. Community and Non-Transient, Non-Community Wells

Well name	Distance, miles	Population
Ramsey Products	> 2 - 3	52
Westwood Forest Mobile Home Park	> 2 - 3	516
Trexler Park	> 2 - 3	200
Station Support, Duke Power	> 3 - 4	40
Aunt Rosie's Learn & Play	> 3 - 4	60
Oakdale Subdivision	> 3 - 4	440
Tekmatex	> 3 - 4	36
Huntwood Mobile Home Park	> 3 - 4	191
Catawba Mobile Home Park	> 3 - 4	42

At the time of site discovery, there were 51 residences using private drinking water wells within 1/4 mile of the site (Ref. 13). During the 1993 testing conducted in the Paw Creek area, seventeen wells (excluding the on-site well) within 1/4 mile of the site were discovered to contain chlorinated solvents (Ref. 13). A subsequent test on one of these wells did not show chlorinated solvents (Ref. 13). Fifteen of these residences and twelve additional homes have connected to city water (Ref. 14). There are now only 24 residences within 1/4 mile of the site using private drinking water wells (Refs. 13, 14, 15). All homes along Woodlea and the west side of Marita will be destroyed during construction of the Charlotte Outer Loop (Ref. 9).

The population estimated to be using groundwater for drinking water (including community well populations) as of May 1995 is given below (Refs. 13, pp. 29 - 33; 14; 15):

Distance ring	Population
0 - 1/4 mile	60
> 1/4 - 1/2 mile	40
> 1/2 - 1 mile	137
> 1 - 2 miles	800
> 2 - 3 miles	1756
> 3 - 4 miles	1671

The closest private drinking water well still in use is located at 1824 Marita Drive, about 450 feet northwest of the site (Ref. 14, Fig. 3). All wells within 450' of the site (six) were found to be contaminated with chlorinated solvents and have been connected to city water. The well at 2014 Tom Sadler Road is about 475' east of the site and tested positive for PCE in one of the two tests conducted (Ref. 12). The second test did not show contamination. This well is still in use.

Groundwater is not used for irrigation of commercial farms within 4 miles of the Paw Creek area (Ref. 18). There are no wellhead protection areas within 4 miles of the site (Ref. 24).

3.3 Sample Locations and Analytical Results

On June 15, 1993, the G. J. Mingus home at 2128 Tom Sadler Road was sampled by the Mecklenburg County Department of Environmental Protection (MC DEP) and the following constituents were detected in the well. The well was resampled by MC DEP on June 22, 1993 and similar results were obtained (Ref. 12).

Carbon Tetrachloride	58
Chloroethane	13
1,1-Dichloroethane	75
1,2-Dichloroethane	1
1,1-Dichloroethene	205
1,1,1-Trichloroethane	307

The US EPA sampled the Mingus well and determined that 1,1-DCE at 170 ug/L exceeded removal action levels (Ref. 7). The following wells within 1/4 mile of the Mingus well were sampled by MC DEP and found to contain detectable levels of chlorinated solvents (Refs. 13; 14).

Table 2. Contaminated Wells Within 1/4 Mile of the Site

Name	address	Contamination (ppb, ug/L)	current drinking water status	# residents using well
Betty Tucker	2013 Tom Sadler	1 ppb PCE; Resampled, ND	still using well	4
*Jimmie Auten	2105 Tom Sadler Rd.	1 ppb PCE	city water	2
*J. J. Warren	2205 Tom Sadler Rd.	2 ppb PCE	city water	3
*J. J. Warren	2223 Tom Sadler Rd.	1 ppb PCE	city water	2
*Marion Culp	2303 Tom Sadler	0.25 TCE	city water	**
*Sheila Hord	1830 Gumbranch	1 ppb PCE	city water	**
*Mimmie Brigman	1722 Marita Dr.	1 ppb PCE	city water	2
*Linda Saunders	1725 Marita Dr.	1 ppb PCE	city water	3
*Julie Smith	1800 Marita Dr.	2 ppb PCE	city water	4
*Carole Lee	1812 Marita Rd.	1 ppb PCE	city water	3
*Libby Stogner	1840 Marita Dr.	2 ppb PCE	city water	**
*Ola Chapman	1715 Woodlea Rd.	1 ppb PCE	city water	3
*H. L. Lutz	1720 Woodlea Rd.	2 ppb PCE ,1 ppb 1, 1- Dichloroethane	city water	2
*Ernestine Williams	1731 Woodlea Rd.	2 ppb PCE	still using well	3
*Robert Broome	1732 Woodlea Rd.	1 ppb PCE	city water	2
Grace Wagner	9109 Mount Holly Rd.	1 ppb PCE	city water	**
Kelly Longshore	9228 Mound Holly Rd.	1 ppb PCE	city water	**

*Contamination of these wells is considered attributable to this site
**The number of residents of these homes could not readily be determined

The Mecklenburg County Department of Environmental Protection (MC DEP) has a cooperative agreement with the North Carolina Division of Environmental Management (NC DEM). MC DEP will test residents' well if requested. As a result of this Preliminary Assessment the NC Superfund Section has advised the MC DEP of several wells in the area that are still in use and have not yet been tested. Results of these tests are not yet available.

3.4 Conclusions

In addition to the Mingus well, seventeen drinking water wells within 1/4 mile contained chlorinated solvents. All of these were below drinking water standards. One well was tested a second time and no contaminants were detected. All six wells within 450' of the site were contaminated. Attribution of some of the contaminated wells further away from the site may be difficult due to other sources in the area. In addition to the three residents served by the Mingus well, it is likely that fourteen of the wells serving approximately 36 residents within 1/4 mile of the site can be attributed to this site.

City water is available to these residents and CMUD has offered reasonable connection fees. Only one residence continues to use a PCE-contaminated drinking water well. Twenty four residences within 1/4 mile continue to use private drinking water wells. Use of five of these currently-used wells will be discontinued when the residences are destroyed for highway construction in the area. Most wells in the area have been sampled by MC DEP (Mecklenburg County Department of Environmental Protection), and it is possible that a few additional contaminated wells will be discovered. Additional groundwater sampling by the NC Superfund Section is not warranted for this site at this time.

4.0 SURFACE WATER PATHWAY

4.1 Hydrology and Targets

The site is not within a 500-year flood plain (Ref. 48). Surface water runoff enters a ditch on the northeast side of the garage (Fig. 2). This ditch flows toward Tom Sadler Road and then flows in a southwesterly direction in front of the Mingus home. The ditch crosses under Marita and Woodlea Drives and turns in a northwesterly direction into the headwaters of Thomas Pond, the probable point of entry (PPE). The total overland distance to surface water is 1500 feet (Refs. 3, 9; Fig. 4).

There is a 1.5-acre wetland at the headwaters of Thomas Pond. The perimeter of this wetland is about 1000'. Thomas Pond is 0.2 mile long. The outfall from Thomas Pond, a minimal stream and an unnamed tributary to Long Creek, flows in a northerly direction. This unnamed tributary flows for 0.8 mile until it enters Long Creek, a small to moderate stream. Long Creek flows in a southwesterly direction for 4 miles and enters the Catawba River, a large stream to river. The Catawba River is the major tributary to Lake Wylie. The surface water pathway ends on Lake Wylie at the point where the lake enters South Carolina waters (Ref. 17, Fig. 4)

In addition to the 1.5-acre wetland at the pond headwaters, the first 0.5 mile length of the unnamed tributary is a linear wetland (Ref. 17). The total wetland frontage along the Long Creek surface water pathway is 9.5 miles. The total wetland frontage along the Catawba River/Lake Wylie is 5.5 miles (Ref. 17). Except for wetlands, there are no other sensitive environments along the surface water pathway (Ref. 21).

The Belmont Converting Co. surface water intake is on the Catawba River, eight miles from the PPE, and serves approximately 8,424 people (Fig. 1; Refs. 3, 19).

Thomas Pond is the closest fishery (Ref. 14). It will be destroyed during construction of the Charlotte Outer Loop, in about ten years (Ref. 9). The unnamed tributary to Long Creek is not a fishery (Ref. 20). The next nearest fishery is Long Creek, one mile from the PPE (Ref. 20). Fisheries continue downstream along Long Creek, the Catawba River, and Lake Wylie (Ref. 20).

4.2 Sample Locations and Analytical Results

No samples have been taken in the surface water pathway. While the contaminants found in the drinking water wells exceed the Cancer Risk Screening Concentration for drinking water, these contaminants do not readily accumulate in fish tissue or the environment and have no ecological-based benchmarks (Ref. 2).

4.3 Conclusions

Even if contamination were found in the fishery, attribution would be very difficult due to the number of other influences on the road side ditch that serves as the surface water pathway. None of the contaminants found in the onsite well have a high ecotoxicity or bioaccumulation factor. Distance to surface water (1500') indicates that an observed release to surface water is unlikely. The Thomas Pond fishery and wetland will be destroyed within 10 years during highway construction.

Due to these factors, sampling in the surface water pathway is not needed to determine if this site warrants further action under CERCLA.

5.0 SOIL EXPOSURE AND AIR PATHWAYS

5.1 Physical Conditions

There are no signs of stressed vegetation on the site. The surface area of oil-stained ground in the trash and empty drum storage areas on the Mingus property is about 150 square feet (Refs. 9; Fig. 2).

5.2 Soil and Air Targets

In addition to the Garland Mingus home, there are three homes within 200 feet of the site (Ref. 3; Figs. 1, 3). The site is a private, unfenced yard with no public recreation. The population within the target distance limits has been determined as listed below (Ref. 22).

Distance	Population
Onsite	3
0 to 1/4 mile	162
>1/4 to 1/2 mile	333
>1/2 to 1 mile	1,734
>1 to 2 miles	6,376
>2 to 3 miles	6,458
>3 to 4 miles	13,831

The wetlands for the four mile radius surrounding the site were measured from the National Wetlands Inventory Maps. The total wetland acreage for the area surrounding the Paw Creek site is listed below (Ref. 23).

Distance	Wetland Acreage
0 to 1/4 mile	1
>1/4 to 1/2 mile	0.7
>1/2 to 1 mile	4.8
>1 to 2 miles	36.7
>2 to 3 miles	144.4
>3 to 4 miles	150.7

The closest school is Paw Creek School 0.8 miles east of the site (Ref. 3; Fig. 1). There are no daycare facilities within 1/4 mile of the site (Ref. 22). Other than wetlands, there are no other sensitive environments within 3 miles of the site (Refs.3, 21). There is a federally endangered plant between 3 and 4 miles northwest of the site, the Schweinitz's Sunflower (Ref. 21). There is no silviculture within 4 miles of the Paw Creek area (Ref. 18).

No soil or air samples have been taken in connection with this site.

5.3 Conclusions

No soil sampling has been conducted although there is an area of stained soil approximately 150 square feet on site near the garage. The site and area of stained soil is accessible although not used for recreation. Due to the limited number of on-site residents likely to be exposed to the surface contamination and the type of contamination in the groundwater at the site, the threat posed by potential soil contamination at the site is relatively low.

6.0 SUMMARY AND CONCLUSIONS

There is documented release of contaminants to groundwater. The onsite well serving three people was closed under an EPA emergency removal action. Seventeen wells within 1/4 mile of this site were found to contain chlorinated solvents during testing in 1993. One of these was tested again and determined to not contain contamination. Only one PCE-contaminated

drinking water well is still in use. All drinking wells (six) within 450' of the site contained chlorinated solvents at the time of site discovery. These have connected to city water. Within 1/4 mile of the site, use of ten additional drinking water wells containing chlorinated solvents has been discontinued. Attribution of some of these wells to the site may be difficult due to other sources in the area, but it is likely that contamination of fourteen of these wells can be attributed to the site.

There are 24 wells still in use within 1/4 mile of the site. Due to future construction in the area and wide-spread chlorinated solvent contamination of groundwater in the Paw Creek area, the number of in-use drinking water wells will continue to decrease.

The site is located 1500' from the PPE of the surface water pathway. The overland pathway is a roadside ditch which crosses under two streets before reaching Thomas Pond, a fishery with a 1.5 acre wetland at the headwaters. The distance from the site to the PPE and the volatile nature of the contaminants suggests that contamination of surface water from site runoff is unlikely in Thomas Pond. While the contaminants found in the drinking water wells exceed the Cancer Risk Screening Concentration for drinking water, these contaminants do not readily accumulate in fish tissue or the environment and have no ecological-based benchmarks.

The site is an unfenced private yard with no public recreation use. There are no areas of stressed vegetation. There is a small area of oil-stained ground. There is no school or daycare center within 200' of the property. Due to the limited number of on-site residents likely to be exposed to the surface contamination and the type of contamination in the groundwater at the site, the threat posed by potential soil contamination at the site is relatively low.

Based on these findings, the Tom Sadler Road Wells site is recommended for a low priority Site Inspection. The findings of on-going groundwater sampling should be reviewed. On-site soil sampling should be conducted to determine source area(s) and constituents.

Tom Sadler Road Wells
NCD 986 231 967
REFERENCES

1. US Environmental Protection Agency, Hazard Ranking System, Final Rule, 55 FR 51532, 1990.

2. US Environmental Protection Agency, Superfund Chemical Data Matrix (SCDM). Office of Solid Waste and Emergency Response. Directive 9345.1-13. Revised Semi-annually.

3. US Department of the Interior, Geological Survey, 7.5-minute topographic quadrangle maps of North Carolina: Mountain Island Lake, NC, 1969, photoinspected 1983; Charlotte West, NC, 1968, photorevised 1980; Mount Holly, NC, 1970.

4. US Environmental Protection Agency, "Standard Operating Procedure to Determine Site Latitude and Longitude Coordinates", 1991. Calculation worksheet for Old Mount Holly Road PCE Site.

5. US Department of Commerce, "Climatic Atlas of the United States", National Climatic Center, Asheville, NC, 1979.

6. US Department of Commerce, "Rainfall Frequency Atlas of the United States", Technical Paper No. 40, US Government Printing Office, Washington, DC, 1963.

7. Rigger, R. Donald, On-Scene Coordinator, US EPA, Removal Authorization for Tom Sadler Road Wells Site, October 29, 1993.

8. Charlotte Mecklenburg Department of Publications System, Real Estate Detail Summary, Parcels 031-056-12, 031-056-13, 031-056-14, 031-056-15, April 12, 1995.

9. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, May 9, 1995. Site Visit.

10. Heath, Ralph C., Basic Elements of Ground Water Hydrology with Reference to Conditions in North Carolina. Open File Report 80-44, pp. 26-29; US Geological Survey, 1980, North Carolina Geologic Survey, Division of Land Resources, Department of Natural Resources, Geologic Map of North Carolina, Scale 1:500,000, 1985; Preliminary Explanatory Text for the 1985 Geologic Map of North Carolina, Contractual Report 88-1, November 4, 1988, p. 52; and LeGrand, H. E. and Mundorff, M. J., Geology and Ground Water in the Charlotte Area, NC, Bulletin No. 63., 1952, pp. 18-19, 66-73. Hydrogeology References.

11. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memos to file, December 20, 1993 and April 12, 1995. Other possible sources of contamination in the Paw Creek area.

12. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, April 26, 1995; Bailey, Andrew D., Assistant Vice President, Gainsborough Corp., Letter to Rob Krebs, Mooresville Regional Office, NC DEM, Nov. 9, 1994, with attachments; Goodwin, Cletus W., Letter to Frank Moore, NC Solid Waste Division, January 13, 1983; Greenlee, Charlotte, Complaint Investigation, June 9, 1983; Mecklenburg County Register of Deeds, Record of Buried Trash on Mattox property, October 31, 1983. Information on nearby properties.

13. Private drinking water well information in the Paw Creek area:
    - Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, April 27, 1995.
    - Stahl, Jerry, R. S. , Mecklenburg County Department of Environmental Protection, Five letters to citizens regarding well testing, April 13, 1995.
    - DeRoller, Chris, Hydrogeologist, Mooresville Regional Office, NC DEM, Sample results of well at 2303 Tom Sadler Road., April 22, 1993.
    - Stahl, Jerry, R. S. , Mecklenburg County Department of Environmental Protection, Paw Creek Sampling Report and status of drinking water wells, May 19, 1994.
    - Summary of Paw Creek Drinking Water Well sampling June 25, 1987 through March 26, 1992.
    - Mecklenburg County Department of Environmental Protection, List of wells sampled in the Paw Creek Area, September 13, 1993.
    - Mecklenburg County Department of Environmental Protection, List of contaminated wells in the Paw Creek area, November 3, 1993.

14. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memos to file, June 7, 1995, May 24, 1995, July 5, 1995, September 28, 1994 and May 24, 1995. Current groundwater users within 1/4 mile of the Tom Sadler Road Wells site.

15. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, May 26, 1995. Groundwater users within 4 miles of the site.

16. Snavely, Keith, Hydrogeologist, NC Superfund Section, Memo to file, May 25, 1995, Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, April 26, 1995, Moore, Martha, NC Department of Human Resources, April 13, 1995, Public Water Supply Database.

17. Surface water pathway and wetland frontage.

- Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, June 1, 1995,

- Meikle, Robert L., "Drainage Areas of Selected Sites on Streams in North Carolina", North Carolina Department of Natural Resources and Community Development, 1983. and U. S. Geological Survey,

- Water Resources Investigations Report 88-4094, "Map of Mean Annual Runoff for the Northeastern, Southeastern, and Mid-Atlantic United States, Water Years 1951 -80.

18. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, October 12, 1993 and Flood Insurance Rate Map, Mecklenburg County, NC, Panel 70 of 210, February 3, 1993. Groundwater resource use, silviculture, and Flood Plain Information.

19. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memos to file, January 25, 1995 and October 13, 1993 and Rumford, G. Doug, Hydrogeologist, NC Superfund Section, Memo to file, June 17, 1993. Surface water intakes.

20. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, October 12, 1993. Fisheries.

21. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memos to file, May 10, 1995 and February 12, 1994. Sensitive environments.

22. NC State Center for Geographic Information and Analysis, Population 0 - 4 miles from the Tom Sadler Road Wells Site, April 17, 1995 and Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, April 18, 1995.

23. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, April 18, 1995. Wetland acreage within four miles of the site.

24. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, Memo to file, Jan. 10, 1994. Wellhead protection areas.

25. Micromedex, Inc., HSDB, PCE, Vol. 15, Expires Jan. 31, 1993, Municipal Environmental Research Laboratory, Office of Research and Development, US EPA, "Sources of Toxic Compounds in Household Wastewater, EPA-600/2-80-128, August 1980 and Merck & Co., Inc. The Merck Index, Tenth Edition, pp.1315, 1378, 1430, Rahway, N. J. 1983.

26. Stanley, Jeanette, Environmental Chemist, NC Superfund Section, "Old Mount Holly Road PCE Site Inspection Report", September 1994 and "Consolidated Warehouse Site Inspection Report", January 1995.

MEMO

DATE: June 28, 1995

TO: File

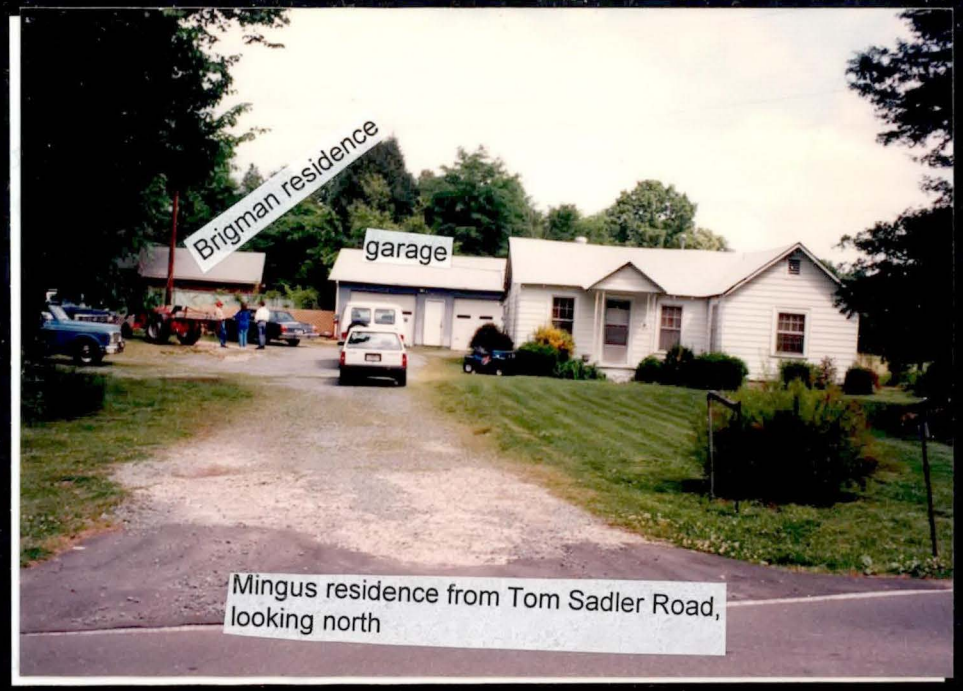
FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

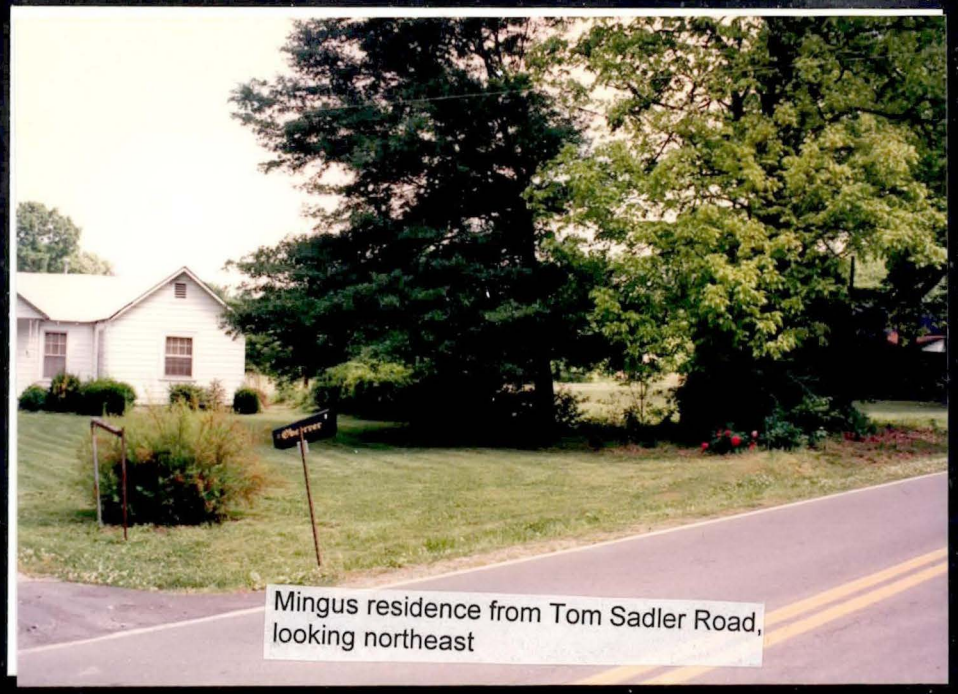
On March 29, 1994, in connection with several site reconnaissances in the Paw Creek area, I drove past the G. J. Mingus home and took three photographs of the area identified as the Tom Sadler Road Wells site.

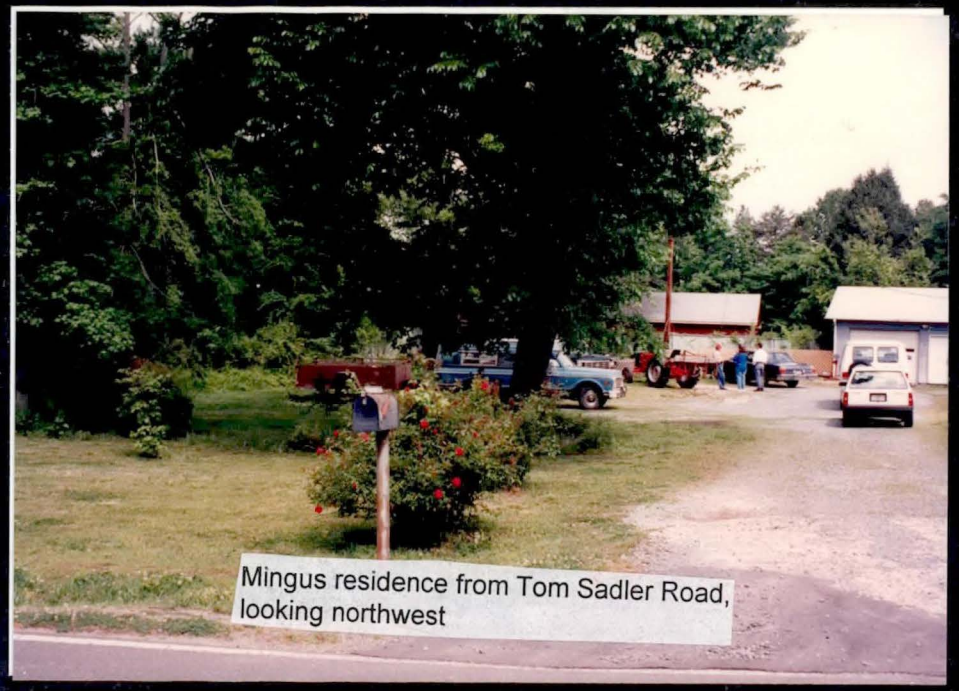
During the May 3, 1995 site reconnaissance at for the Preliminary Assessment at the Tom Sadler Road Wells site, I took the following photographs:

#1 - 3	Panoramic view of Residence and Garage
#4	Brigman home
#5	East side of garage and parts washer
#6	Well house
#7	Area of drums
#8	Area of drums and trash



Mingus residence from Tom Sadler Road, looking north


Mingus residence from Tom Sadler Road, looking northeast


Mingus residence from Tom Sadler Road, looking northwest

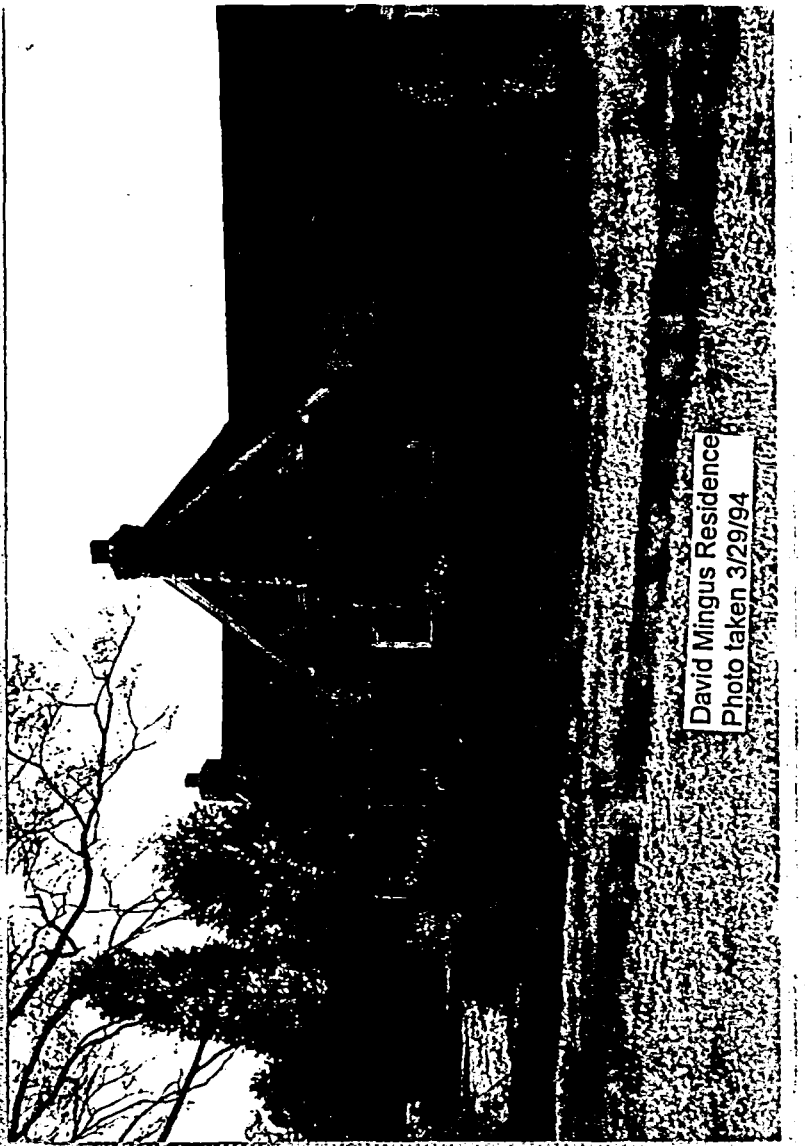
Brigman residence
trash area

drums behind playhouse

east side of garage
well house
parts washer

well house

East side of Mingus residence and garage
Photo taken 3/29/94



David Mingus Residence
Photo taken 3/29/94

Front of Mingus Residence and garage
(note sign showing services)
Photo taken 3/29/94

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

SITE NAME: Tom Sadler Road Wells CERCLIS #: NCD 986 231 967

AKA: Garland J. Mingus home SSID: _____

ADDRESS: 2128 Tom Sadler Rd.

CITY: Charlotte STATE: NC ZIP CODE: 28214

SITE REFERENCE POINT: Mingus home

USGS QUAD MAP NAME: Mountain Island Lake TOWNSHIP: ____ N/S RANGE: ____ E/W

SCALE: 1:24,000 MAP DATE: 1969 SECTION: ____ 1/4 ____ 1/4 ____ 1/4

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

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

LONGITUDE: 80 ° 52 ' 30 " LATITUDE: 35 ° 15 ' ___ "

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

LONGITUDE: 80 ° 57 ' 30 " LATITUDE: 35 ° 15 ' ___ "

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 436

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

A x 0.3304 = 144.___ "

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 2 ' 24.___ "

D) ADD TO STARTING LATITUDE: 35 ° 15 ' ___.___ " + 2 ' 24.___ =

SITE LATITUDE: 35 ° 17 ' 24.___ "

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 21

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

A x 0.3304 = 7.___ "

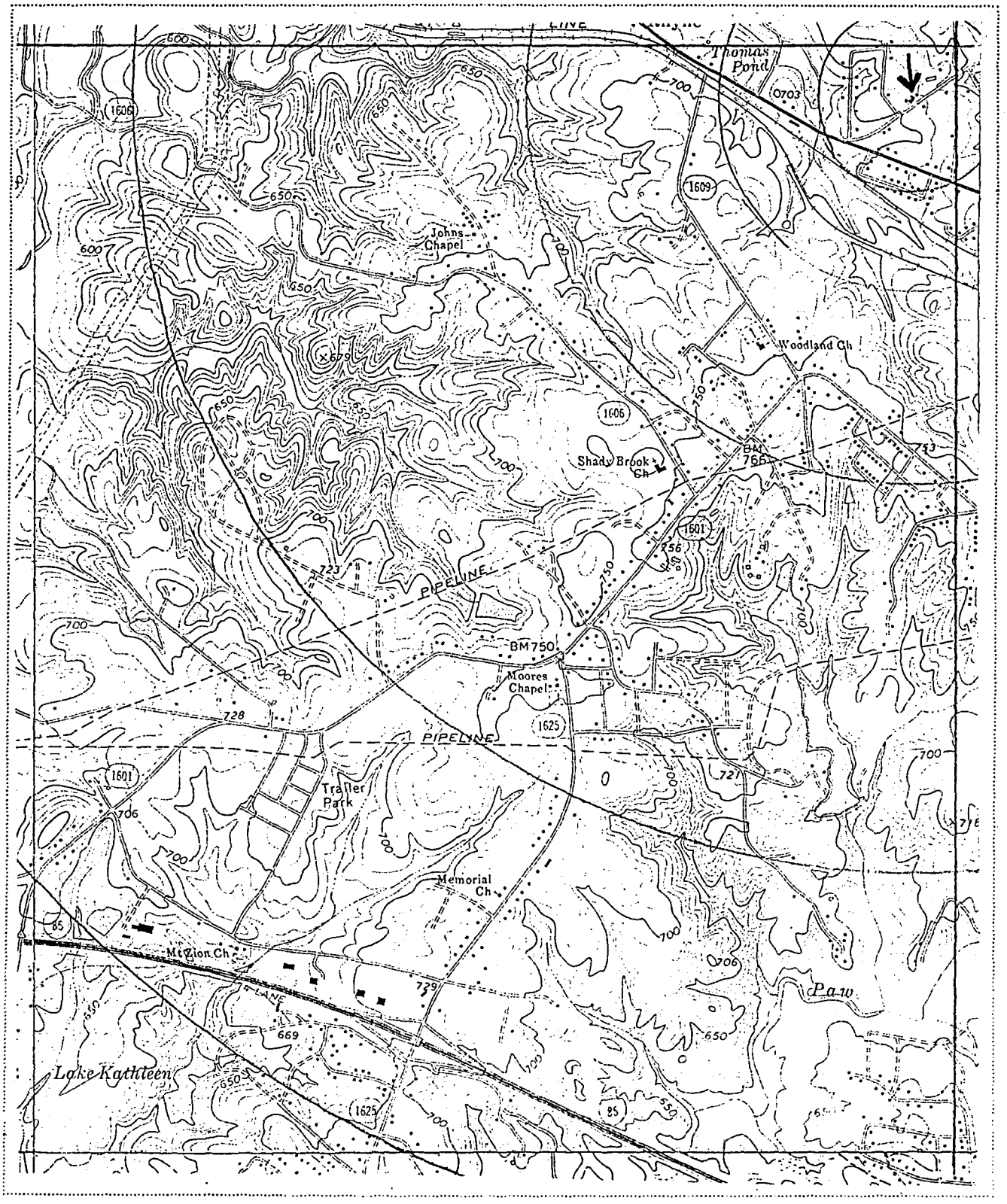
C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): ___ ' 7.___ "

D) ADD TO STARTING LONGITUDE: 80 ° 57 ' 30.___ " + ___ ' 7.___ =

SITE LONGITUDE: 80 ° 57 ' 37.___ "

INVESTIGATOR: Janet Stanley DATE: April 11, 94

SITE NAME: Tom Sadler Road Wells NUMBER: NCD 986 231 967

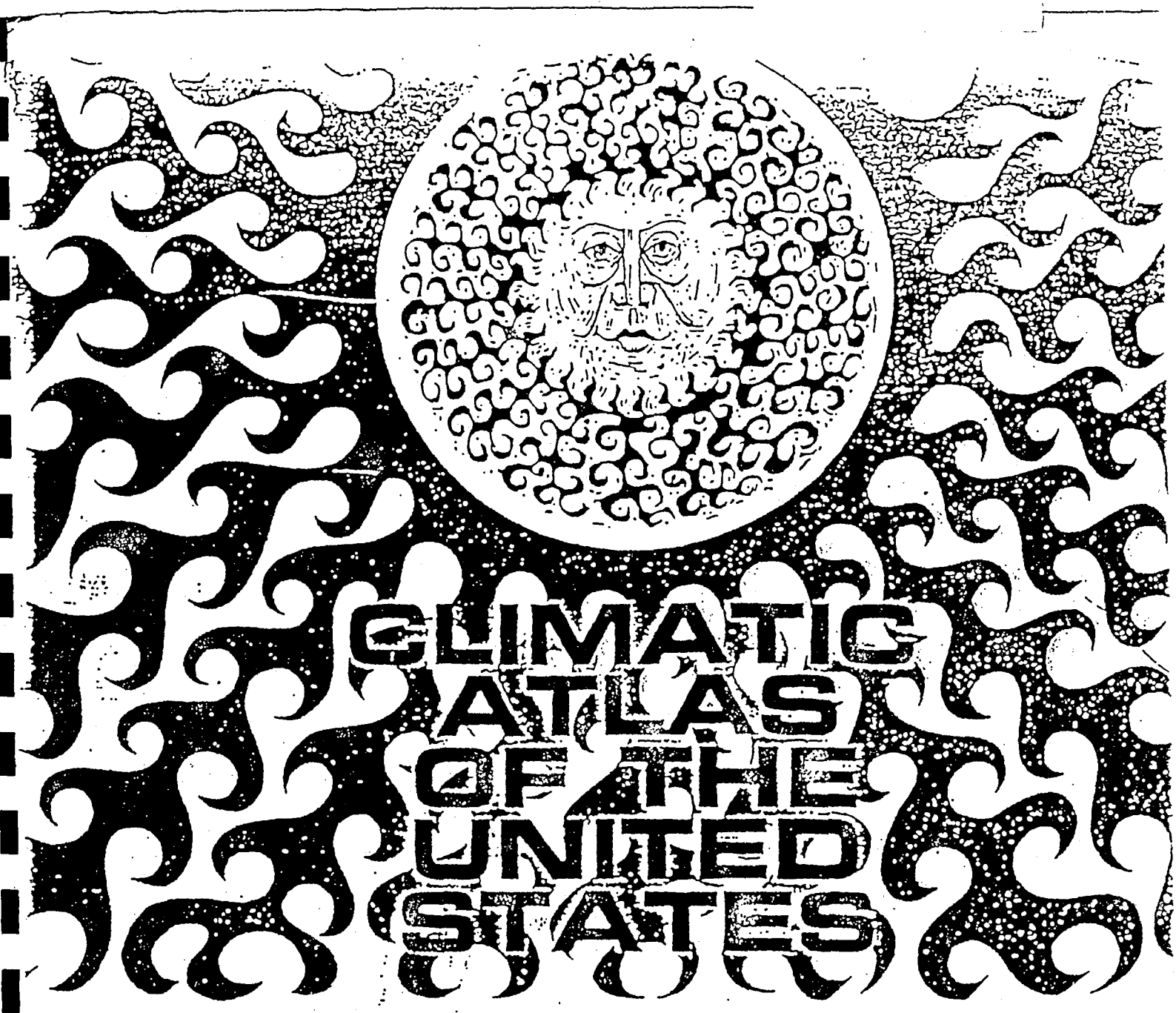


TOPOGRAPHIC MAP QUADRANGLE NAME: Mountain Island Lake, NC SCALE: 1:24 000

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

LATITUDE: 35° 15' LONGITUDE: 80° 57' 30"

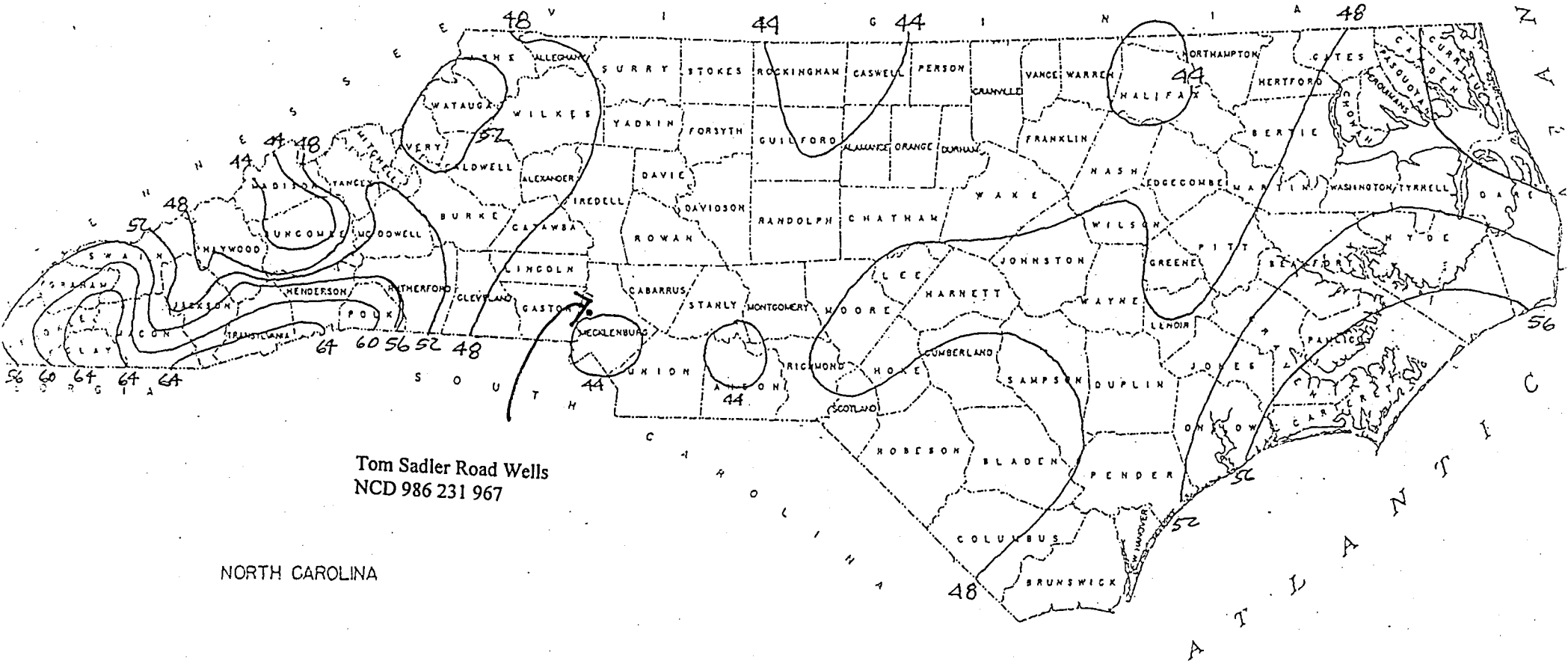
Ref. 5



RCE . Environmental Science Services Administration . Environmental Data Service

nited States Department of Commerce, 1979, Climatic Atlas of the United States, National Climatic Center, Asheville, NC.

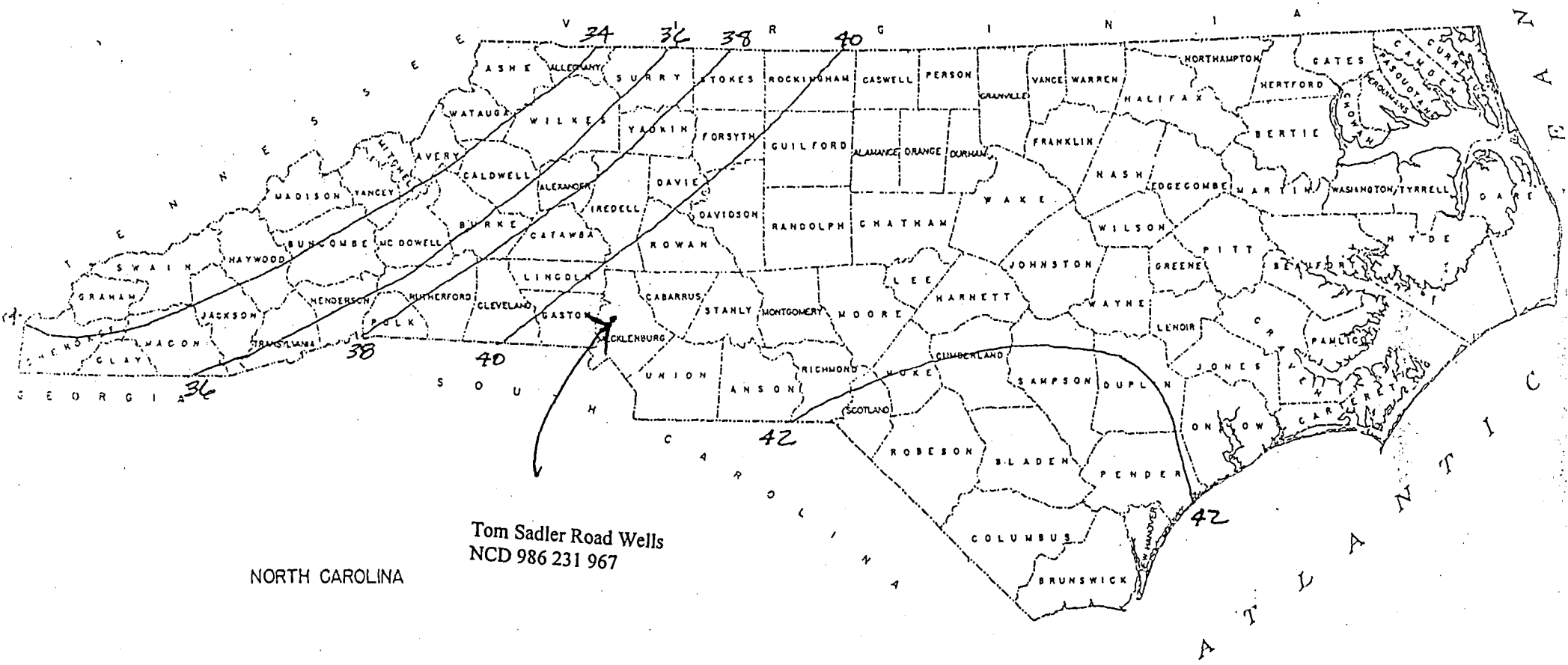
NORMAL ANNUAL TOTAL PRECIPITATION
(INCHES)



Tom Sadler Road Wells
NCD 986 231 967

NORTH CAROLINA

MEAN ANNUAL LAKE EVAPORATION
(INCHES)



Tom Sadler Road Wells
NCD 986 231 967

NORTH CAROLINA

U. S. DEPARTMENT OF COMMERCE
Jesse H. Jones, Secretary

WEATHER BUREAU
F. W. Reichelderfer, Chief

TECHNICAL PAPER NO. 40

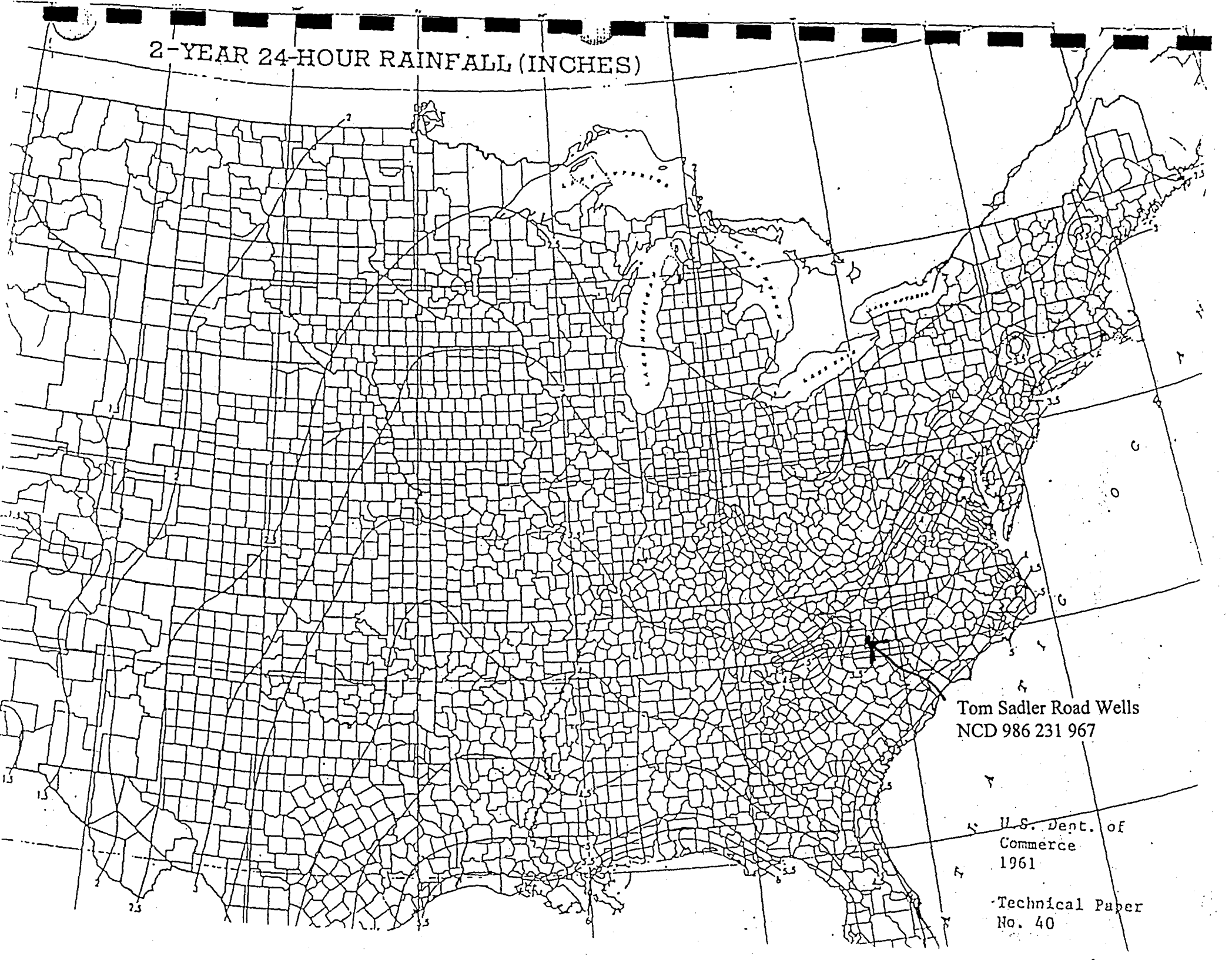
RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

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

PROPERTY OF EPA
FIT IV

Ref. 6


2-YEAR 24-HOUR RAINFALL (INCHES)
Tom Sadler Road Wells
NCD 986 231 967
U.S. Dept. of
Commerce
1961
Technical Paper
No. 40

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

Ref. 7

ACTION MEMORANDUM

DATE: OCT 29 1993

SUBJECT: Removal Authorization for Tom Sadler Road Wells Site in Charlotte, Mecklenburg County, North Carolina

FROM: R. Donald Rigger, On-Scene Coordinator

TO: File

I. ISSUE

This memorandum is for authorization to proceed with a removal action for $18,000 at the Tom Sadler Road Wells Site located in Charlotte, North Carolina. The drinking water supply from a contaminated well serves two residences. The contaminants were determined to be carbon tetrachloride and 1,1-dichloroethylene. Verbal consultation with ATSDR and the state toxicologists determined that the water is unsuitable for bathing or ingestion. Consequently, provisions for an alternate source of potable water were made available to the residences served by this well.

II. BACKGROUND

A. Site Description

1. Physical Location

The Site is in a residential neighborhood. The affected residences are located next to each other. The well sits on the property of Mr. Mingus, who resides at 2128 Tom Sadler Road, Charlotte, North Carolina, 28214. The well also serves the home of his neighbor, who is also the brother of Mr. Mingus.

2. General Character of the Site

The well is a two inch diameter well with a total depth of 95 feet. The well was drilled in September of 1992 and was intended to replace the user's old well which had developed a collapsed casing. The well under investigation is about five feet away from a small auto

repair establishment that Mr. Mingus operated for about thirty years.

3. NPL Status

The Site is not on the NPL, and it is not anticipated that it will be added to the list.

B. Incident/Release Characteristics

On June 29, 1993, ERRB was notified by the Mecklenburg County (North Carolina) Environmental Protection Division (MCEPD) of a drinking water emergency in the Paw Creek area of Charlotte. MCEPD reported a private drinking water well contaminated with six volatile organic compounds. Two of the compounds identified, carbon tetrachloride and 1,1-dichloroethylene, exceeded EPA's Removal Action Levels (RALS). Carbon tetrachloride exceeded RALs of 30 ug/l by two times and 1,1-dichloroethylene exceeded RALs of 70 ug/l by three times. Both ATSDR and the state toxicologist agreed that the situation warranted a recommendation that all use of the contaminated water, including bathing, should be discontinued. Mr. Rusty Rozelle, a representative of MCEPD, informed EPA that the local government does not have the funds available for providing an alternative water supply. Samples of the well were sent to EPA's analytical labs at the Environmental Services Division (ESD) in order to confirm The MCEPD's laboratory results.

C. Quantities and Types of Substances Present

ESD's analysis of the contaminated well confirmed the elevated concentration of 1,1-dichloroethylene (170 ug/l). In fact, the levels were indeed more than two times the RALs (70 ug/l). The analysis did not confirm the presence of carbon tetrachloride. Nevertheless, confirmation of one of the contaminants warranted a removal action.

D. Previous Actions to Abate Threat

EPA and MCEPD informed the users of the well that all use of the contaminated water, including bathing, should be discontinued.

III. THREAT TO THE PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

A. Threats to the Public Health or Welfare

This Site poses a threat to the public health because the potable water supply to the residences has been contaminated. The removal program guidance for contaminated

drinking water sites (OSWER Directive 9360.1-10) states that the removal action level for 1,1-dichloroethylene is 70 ug/l. Provision of alternate water supplies is warranted whenever this removal action level is exceeded. Ingestion and inhalation pathways must be evaluated when potable water supplies are contaminated with volatile organic compounds (VOCs). Concentrations as high as those at this site pose a threat to human health through both the ingestion and inhalation pathways. Therefore, an alternative source of all household water, not just bottled water for drinking and cooking, must be provided.

B. Threats to the Environment

Groundwater in the area of the site is discharged at the land surface in seeps and springs which feed surface water bodies. The contaminants now present in the groundwater would pose a threat to surface water quality.

IV. ENFORCEMENT

See attachment 1.

V. PROPOSED ACTIONS AND COSTS

A. Proposed Actions

Emergency measures were required in order to protect the welfare of the affected residents. These measures were taken under the On-Scene Coordinator's emergency authority. Toxicologists with the State of North Carolina and the ATSDR advised that the contaminant concentration, given that the contaminant is a VOC, was so high that all use of the water should be discontinued. Therefore, as a temporary measure, the affected families were told to avoid using the contaminated well water for drinking, cooking and bathing. Bottled water for drinking and cooking was provided by EPA less than two days after the discovery of the problem. As soon as arrangements could be made a granular activated carbon filter was installed on the well to remove the VOCs from the water. MCEPD sampled the water to confirm the effectiveness of the treatment and agreed to sample the water on a quarterly basis. The Mecklenburg County Public Water Supply assured EPA that public water services will be extended to the affected residences within the next six months.

B. Estimated Costs	(dollars)	
Extramural Costs		
Regional Allowance Costs:		
ERCS	10,000	
Non-Regional Allowance Costs:		
TAT	2,000	
Subtotal	12,000	
15% Contingency	1,800	
Total, Extramural Costs:		13,800
Intramural Costs		
Direct (50 hrs at $30/hr)	1,500	
Indirect (50 hrs at $54/hr)	2,700	
Total, Intramural Costs:		4,200
TOTAL SITE BUDGET		18,000

VI. REGIONAL DETERMINATION

Because conditions at the Tom Sadler Road Wells Site meet the NCP 40 C.F.R. 300.415 criteria for a removal action, I, as an On-Scene Coordinator, authorize expenditures not to exceed $18,000 through procurement authority delegated to me under Authority Number 87-26-A008-B-0201. Of this $18,000, $10,000 will be funded from the FY 93 regional removal allowance.

R. Donald Rigger

R. Donald Rigger
On-Scene Coordinator
Emergency Response and Removal Branch

10/29/93
DATE

ATTACHMENT 1

ENFORCEMENT SENSITIVE

The source of the groundwater contamination is unknown at this time. Due to the exigencies of the situation, a response could not be delayed while the source was being determined.

In order to pursue enforcement actions against PRPs at this site, a site investigation must be conducted to identify the source of the contamination. At this point the contamination is extremely localized (other wells within 200 feet of the Mingus well are not contaminated). A site investigation would cost more than the proposed remedy with no guarantee of positively identifying the source. Therefore, at his time it is recommended that no site investigation be conducted. The fact that the contaminated groundwater is being extracted and treated should help control the migration of the contaminants and also will eventually remedy the problem. Therefore, due to the anticipated high cost of a site investigation and the uncertainty of positively identifying the source of the contamination, no enforcement is anticipated at this site at the present time. If new information becomes available, this enforcement strategy may change.

Ref. 8

04/12/1995 CHAR-MECK TAX DEPARTMENT PUBLIC ACCESS SYSTEM TDPA030 C
07:02 PM CURRENT REAL ESTATE DETAIL SUMMARY TP03
031-056-13 FIRE: 1 TWP: 12 SITUS: MECK SD:

OWNER/MAILING ADDRESS
MINGUS GARLAND JACOB,JR
& WIFE BERNICE TYPE : INDIVIDUAL
2118 TOM SADLER RD DEED : 1332 0391
DATE : 01/01/1975
CHARLOTTE NC 28214
TOT ACRE: .000 AC LEGAL: L85-87P88-91&REAR M4-81 TOM SA
SITUS: 2118 TOM SADLER RD MECK

CARD 1 OF 1 1995 APPRAISAL DATA TOTAL VALUE

BUILT 1947	NET COND % : .40	LAND	10,400
SQFT: 860	AUX SQ. FT : 162	BLDG	18,720
ZONE: R17MF	NEIGHBORHOOD: 03102	OBXF	9,970
ACRE: .910		TAXABLE	39,090

USE/MODEL: SINGLE FAM/SINGLE FAM

<-TYPE CHOICE, F5:MORE INFO F7:UP CLEAR:RESET
PRESS ENTER. F1:HELP F2:OPTIONS F3:RETURN F6:PREV INFO F8:DOWN F12:EXIT

031-056-14
mingus, Earl H. & Alice

031-056-15
Kelly, Tracy

04/12/1995 CHAR-MECK TAX DEPARTMENT PUBLIC ACCESS SYSTEM TDPA03D C
07:01 PM CURRENT REAL ESTATE DETAIL SUMMARY TP03
0[illegible]-056-12 FIRE: 1 TWP: 12 SITUS: MECK SD:

OWNER/MAILING ADDRESS
MINGUS GARLAND JACOB,JR
& BERNICE J
2[illegible]28 TOM SADLER RD
CHARLOTTE NC 28214
T[illegible] ACRE: .000 AC
SITUS: 2128 TOM SADLER RD MECK

TYPE : INDIVIDUAL
DEED : 2460 0252
DATE : 01/01/1975
LEGAL: L80-84 M4-81 TOM SADLER RD

C[illegible]RD 1 OF 1 1995 APPRAISAL DATA

BUILT 0000 NET COND % : 1.00
S[illegible]FT: AUX SQ. FT :
Z[illegible]NE: R17MF NEIGHBORHOOD: 03102
ACRE: .430 <--CALCULATED
U[illegible]E/MODEL: SINGLE FAM/VACANT

	TOTAL VALUE
LAND	10,400
BLDG	
OBXF	
TAXABLE	10,400

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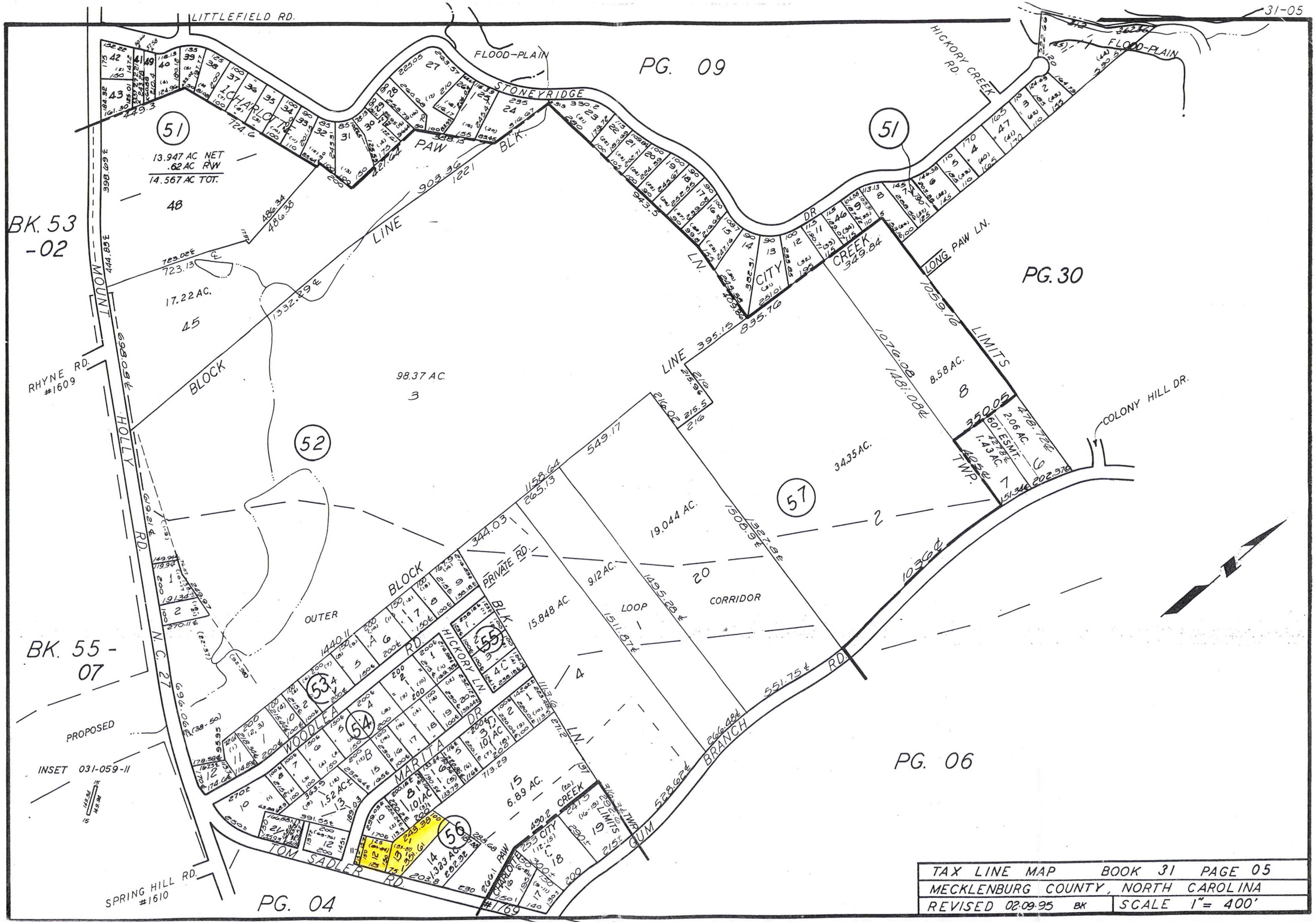
RECEIVED
APR 17 1995
SUPERFUND SECTION



TAX LINE MAP	BOOK 31	PAGE 05
MECKLENBURG COUNTY, NORTH CAROLINA		
REVISED 02-09-95 BK	SCALE 1" = 400'	

MEMO

DATE: May 9, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

On May 3, 1995, I visited the G. J. Mingus property. In addition to Mr. Mingus, Bob Gandley, Environmental Engineer, NC Superfund Section and Jerry Stahl, R. S., Mecklenburg County Department of Environmental Protection were present. Jerry Stahl and I discussed the proposed Charlotte outer loop location. He said that all homes on Woodlea Road and those on the northwest side of Marita Drive would be destroyed for the road construction. This construction will occur in about ten years. Thomas Pond will also be destroyed for this road project.

Mr. Mingus explained the past use of the buildings on his property. He operated a garage on the property for about 30 years. He did general auto repair, including oil changes, tune ups, brakes and air conditioning recharge. He closed his business in November 1994. Approximately 10 empty drums were noted on the property. He said that one drum still had some varsol in it. It was lying on its side on the ground. Mr. Mingus said that the drum had fallen and his health was not good. He was waiting for his grandchildren to return it to its proper location.

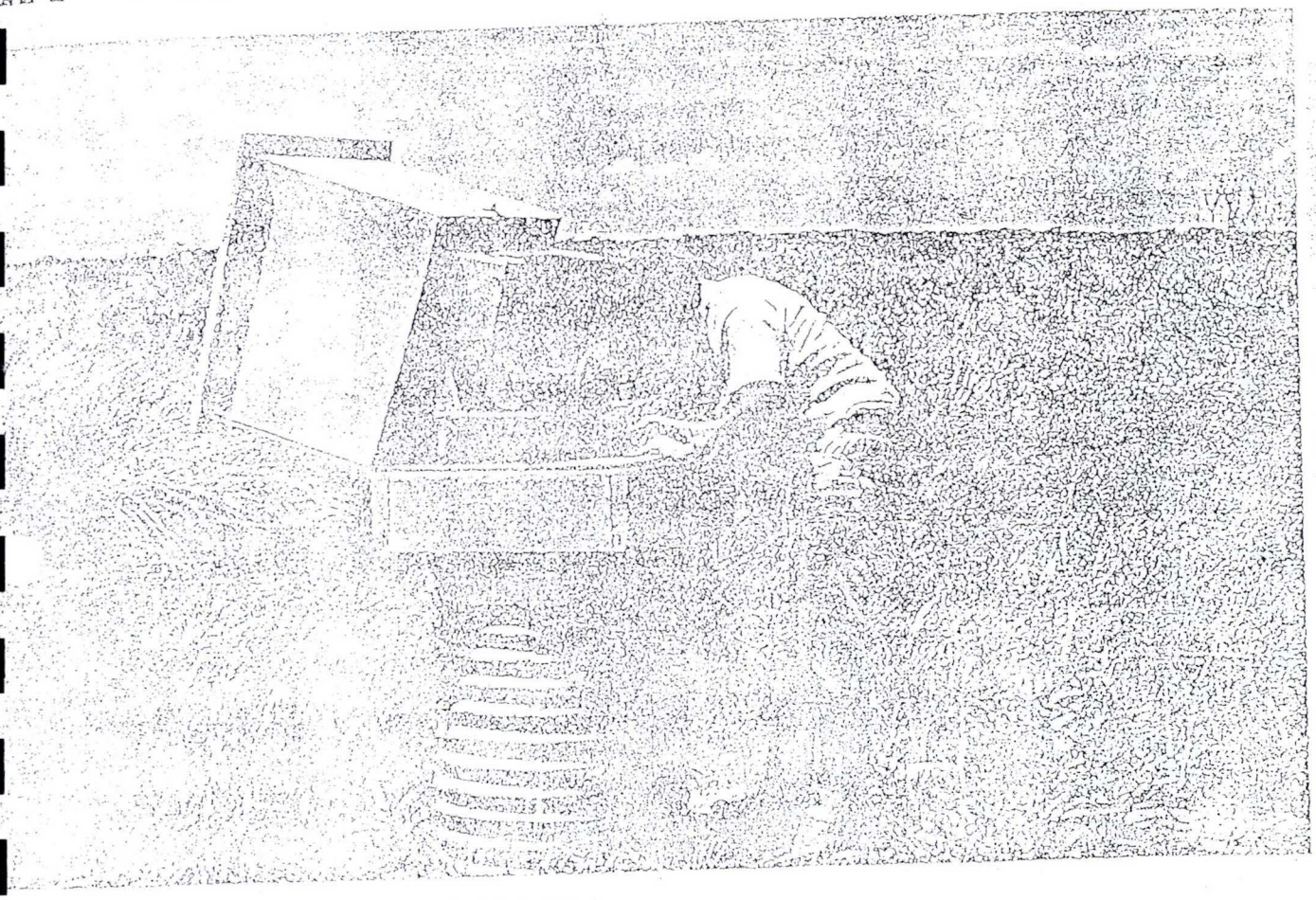
Mr. Mingus said that he only washed parts with varsol in a pan. All of this evaporated and he did not need to pour out any waste. He never used chlorinated solvents. The only other solvent he used was spray cans of carburetor cleaner. I noted a parts washer on the northeast side of the garage, about five feet from the well house. It was an old unit, covered with a smokey grey residue. Mr. Mingus said that he never used the parts washer. His garage burned down around 1989 and he rebuilt it. He got the parts tumbler after the garage burned down, along with other used equipment. Mr. Mingus said that the garage did not have floor drains.

We discussed the well on the northeast side of the garage. Mr. Mingus said that he had the well installed after the old well developed a collapsed casing. The old well was about three feet east of the new well. Soon after the new well was installed, his wife became ill. The health department tested the well several times for coliform and other contaminants, and that was when the contamination was discovered. His brother, David Mingus, lives next door in the log cabin. He was also connected to the well at the time the contamination was discovered. Mr. Mingus said that just he and his wife lived in the home at the time the contamination was discovered. He still uses the well, but only for watering his vegetable garden. The well is no longer connected to the plumbing. I noted an insecticide sprayer lying on its side adjacent to the well head.

We discussed the surface water drainage pathway. Surface water runoff enters a ditch on the northeast side of the garage. This ditch flows toward Tom Sadler Road and then flows in a southwesterly direction in front of the Mingus home. The ditch crosses under Marita and Woodlea Drives. Just before the ditch reaches Mount Holly Road, it turns in a northwesterly direction and flows into the headwaters of Thomas Pond. Mr. Mingus said that Thomas Pond is owned by Mr. Cline. Bob and I toured the area and noted house numbers. We observed Thomas Pond. It was full of algae and lily pads and did not appear to be an attractive fishery.

Ref. 10

Basic Elements of Ground-Water Hydrology with Reference to Conditions in North Carolina



U.S. GEOLOGICAL SURVEY
WATER RESOURCES INVESTIGATIONS
OPEN-FILE REPORT 80-44

Prepared in cooperation with the
North Carolina Department of Natural
Resources and Community Development

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Basic Elements of Ground-Water Hydrology With Reference to Conditions in North Carolina

By Ralph C. Heath

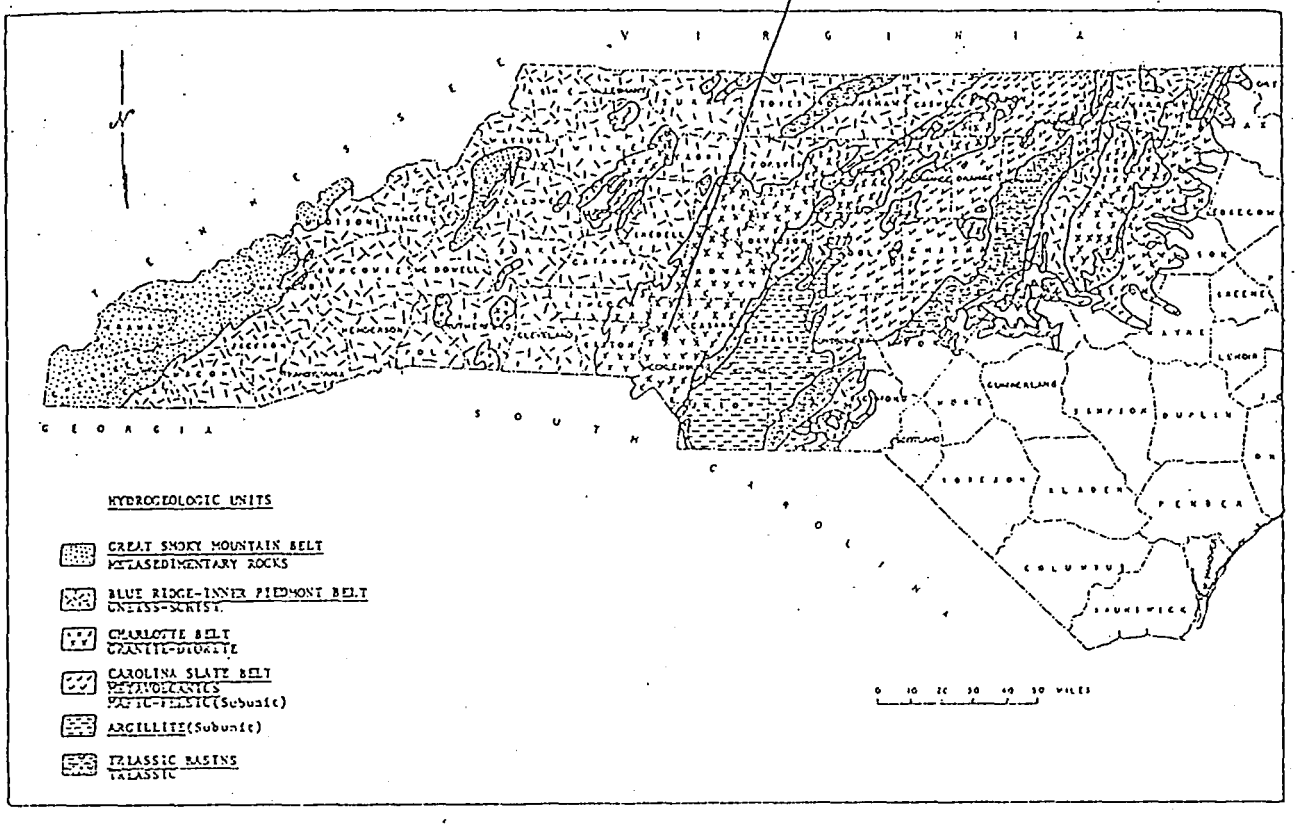
U.S. Geological Survey
Water-Resources Investigations
Open-File Report 80-44

Prepared in cooperation with the
North Carolina Department of Natural
Resources and Community Development

Raleigh, North Carolina
1980

Rock Units and Aquifers in the Piedmont and Mountains

Tom Sadler Road Wells
Charlotte, Mecklenburg County, NC
NCD 986 231 967



The rocks underlying the Piedmont and mountains can be divided into two groups: (1) bedrock, and (2) saprolite (or residuum). The saprolite underlies the land surface and ranges in thickness from a foot or two near bedrock outcrops to more than 100 ft. Bedrock underlies the saprolite and is the parent rock from which the saprolite was derived in the process referred to as weathering.

Many stream valleys, especially those of larger streams, are underlain by a layer of material similar in composition to saprolite. This material, which has been deposited by the streams during floods, is correctly referred to as *alluvium*. However, to avoid unnecessary complications, we will lump the alluvium in with the saprolite for the purpose of this discussion.

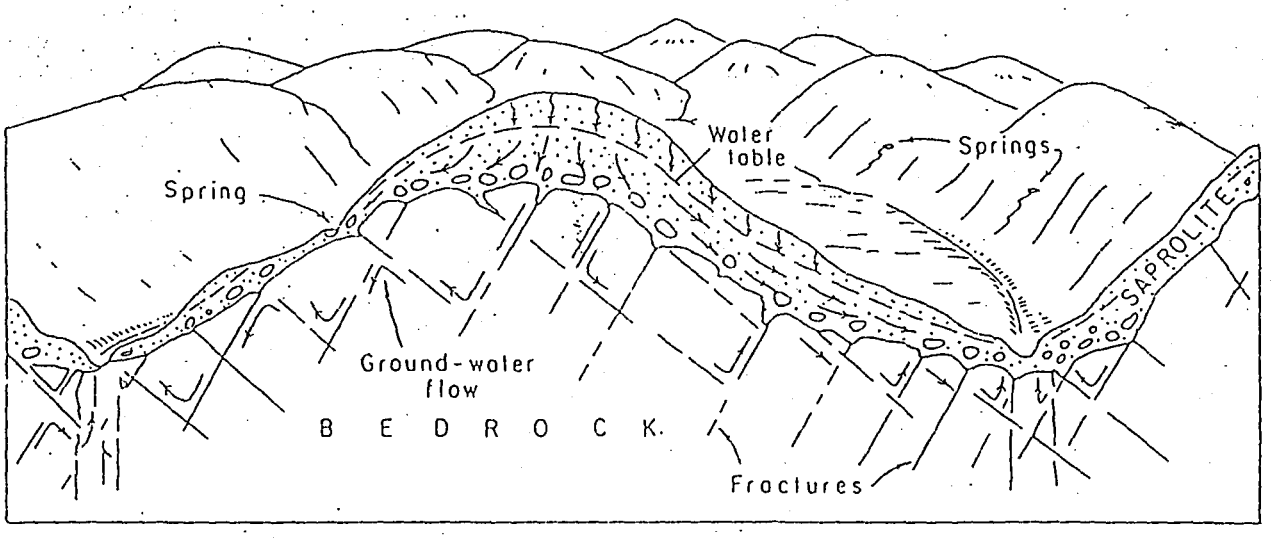
The bedrock underlying the Piedmont and mountains consists of many different types of igneous and metamorphosed igneous and sedimentary rocks. The Generalized Geological Map of North Carolina accompanying the discussion of WATER-BEARING ROCKS divides the bedrock in the Piedmont and mountains into six units. The 1:500,000 scale Geologic Map of North Carolina, published in 1958, divides the bedrock in the same area into 48 different units. But, a much larger number of units have been identified and are shown on large scale geologic maps.

The bedrock units differ from each other in mineral composition and other geologic characteristics. Fortunately, these differences do not result in large differences in hydraulic characteristics so that it is possible to combine the bedrock units into a relatively small number of hydrogeologic units.

The accompanying map shows the hydrogeologic units into which the bedrock in the Piedmont and mountains has been divided by the U.S. Geological Survey and the North Carolina Groundwater Section.

The most productive hydrogeologic units are the Great Smoky Mountain belt and the Blue Ridge-Inner Piedmont belt. The least productive units are the Carolina Slate Belt and the Triassic Basins. The Charlotte Belt is intermediate in productivity.

Ground-Water Situation in the Piedmont and Mountains



The *saprolite* (weathered rock) that forms the land surface in the Piedmont and mountains consists of unconsolidated granular material. It thus contains water in the pore spaces between rock particles.

The *bedrock*, on the other hand, does not have any significant intergranular (primary) porosity. It contains water, instead, in sheet-like openings formed along fractures (that is, breaks in the otherwise "solid" rock). Fractures in bedrock are of two types: (1) *joints*, which are breaks along which there has been no differential movement; and (2) *faults*, which are breaks along which the adjacent rocks have undergone differential movement.

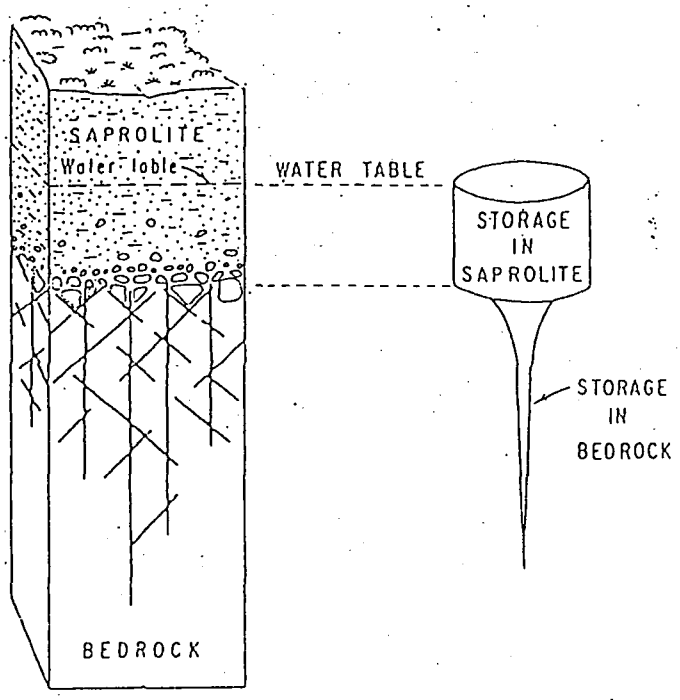
Faults are formed during earthquakes and generally contain larger and more extensive openings than those developed along joints. Joints, however, are far more numerous than faults.

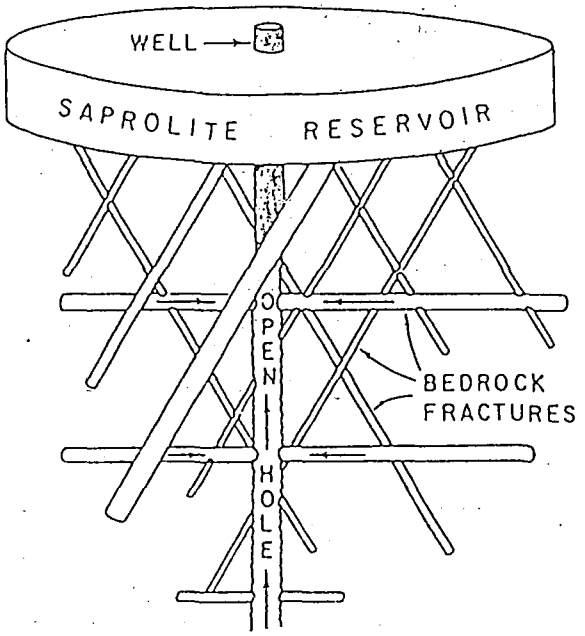
Fractures (joints and faults) are more abundant under valleys, draws, and other surface depressions than under hills. In fact, geologists assume that it is the presence of fractures that determined the position of valleys in the first place. Fractures tend to be more closely-spaced and the openings developed along them tend to be larger near the surface of the bedrock. Most fractures appear to be non water-bearing below a depth of 300 to 400 ft. Large water-bearing openings, penetrated below this depth are probably associated with faults.

The ground-water system in the Piedmont and mountains is recharged by precipitation on the interstream areas. A part of the precipitation infiltrates through the unsaturated zone to the water table, which normally occurs in the saprolite.

Ground water moves laterally and downward through the saprolite to points of ground-water seepage (springs) on the hillsides and to the streams in the adjacent valleys. Some of the water in the saprolite also moves downward into the bedrock and, thereafter, through the fractures to the adjacent valleys.

Hydraulic Characteristics of the Piedmont and Mountain Ground-Water System





One of the most basic concepts of ground-water hydrology is that aquifers function both as reservoirs, in which water is in storage, and as pipelines, which transmit water from one point to another. This is referred to as the *reservoir-pipeline concept*. This concept forms a useful basis on which to discuss the hydraulic characteristics of the Piedmont and mountain ground-water system.

The reservoir (storage) function of aquifers depends on the porosity. The pipeline function depends on the hydraulic conductivity and the thickness of the aquifer. The approximate range in porosity and hydraulic conductivity for the saprolite and bedrock is shown in the following table.

Rock type	Porosity in percent	Hydraulic conductivity in feet per day
Saprolite	20-30	1-20
Bedrock	0.1-1	1-20

The above values suggest that the principal difference between saprolite and bedrock is in water-storage capacity. In other words; the saprolite has the capacity to store a much larger quantity of water than does the bedrock. This is not the entire story, however.

As we noted above, the capacity of an aquifer to transmit water depends both on hydraulic conductivity and on aquifer thickness. The part of the bedrock containing water-bearing fractures is several times thicker than the saprolite.

We can then, without great error, view the ground-water system in the Piedmont and Mountains as consisting of a saprolite reservoir overlying a bedrock pipeline consisting of numerous small, interconnected pipes. In the vicinity of a pumping well the bedrock fractures ("pipes") convey water from the saprolite reservoir to the well.

The yield of a well drawing from fractured bedrock depends on several factors. The most important of these are believed to be:

1. The number, size, areal extent, and degree of interconnection of the fractures penetrated by the well,
2. The thickness of saturated saprolite in the vicinity of the well and the specific yield of the saprolite, and
3. The hydraulic conductivity of the saprolite and the nature of the hydraulic connection between the saprolite and the bedrock.

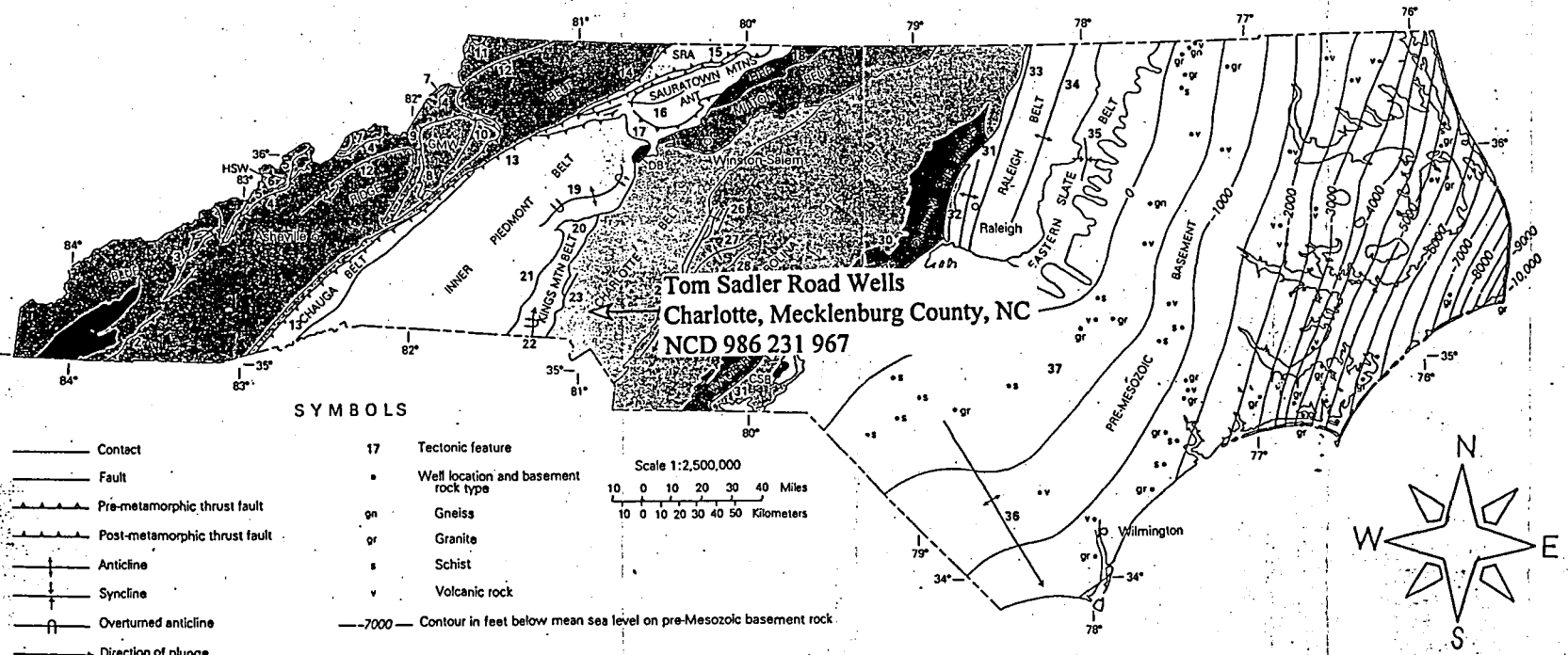
The number and the size of the fractures control the rate at which water can enter the well. The areal extent and degree of interconnection of the fractures control the size of the area that supplies water to the well.

The thickness and the specific yield of the saprolite determines the volume of water available from storage in the saprolite. The hydraulic conductivity of the saprolite and the nature of the hydraulic connection between the saprolite and the bedrock determines the rate at which water can drain from the saprolite into the bedrock fractures.

G E O R G I A

EXPLANATION

MURPHY BELT
HOT SPRINGS WINDOW
GRANDFATHER MOUNTAIN WINDOW
SMITH RIVER ALLOCHTHON
BLUE RIDGE BELT
CHAUGA BELT
INNER PIEDMONT BELT
KINGS MOUNTAIN BELT
SAURATOWN MOUNTAINS ANTICLINORIUM
CHARLOTTE BELT
MILTON BELT
CAROLINA SLATE BELT
TRIASSIC BASINS
DURHAM } SUB-BASINS
SANFORD }
WADESBORO BASIN
DAN RIVER BASIN (DRB)
DAVIE BASIN (DB)
RALEIGH BELT
EASTERN SLATE BELT



SYMBOLS

Contact
Fault
Pre-metamorphic thrust fault
Post-metamorphic thrust fault
Anticline
Syncline
Overturned anticline
Direction of plunge

17 Tectonic feature
Well location and basement rock type
gn Gneiss
gr Granite
s Schist
v Volcanic rock
—7000— Contour in feet below mean sea level on pre-Mesozoic basement rock

Scale 1:2,500,000
10 0 10 20 30 40 Miles
10 0 10 20 30 40 50 Kilometers

MAP SHOWING MAJOR LITHO-TECTONIC FEATURES

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Mary Conley

PRELIMINARY EXPLANATORY TEXT FOR THE 1985 GEOLOGIC MAP OF NORTH CAROLINA

Contractual Report 88-1

by

The North Carolina Geological Survey

November 4, 1988

mappable), and a distinctive, manganiferous unit that consists of fine-grained equigranular garnet and quartz rock closely interlayered with quartz-sericite schist or phyllite. Formation boundaries are not exposed.

CZbl BLACKSBURG FORMATION

The following description was summarized from Horton (1977, 1983). The unit is predominantly metasedimentary, but mafic lenses (amphibolite) may be metamorphosed sills and flows. The unit includes light- to dark-gray, fine- to medium-grained phyllitic metasiltstone; fine- to coarse-grained marble containing phlogopite and, in some cases, tremolite interlayered with calc-silicate rock and fine-grained amphibolites; mappable beds of laminated metaquartzite interlayered with the metasiltstone; amphibolite and hornblende gneiss; and chlorite phyllite. Phyllite and schist are commonly graphic. The formation is fault bounded.

CZbf FINE-GRAINED BIOTITE GNEISS

This unit is mapped in two areas, one is an area encompassing the southern half of Iredell County, eastern Catawba County, and a small portion of northeastern Lincoln and northwestern Mecklenburg Counties. Goldsmith and others (1988) described the rock here as fine-grained biotite gneiss predominantly of granodioritic composition. Michie (1985) described a portion of the area but in greater detail. Michie found a prevalence of biotite gneiss over other rock types that include amphibolite, granitic gneiss, aluminous mica schist, and metaquartzite. Michie noted that the other rock types are interlayered with the biotite gneiss on an outcrop scale but that it is not feasible to separate them into mappable units. Michie also reported concordant and discordant leucocratic granite, alaskite, and pegmatite within the unit.

The other area where this unit is mapped is in the Yadkin River valley from Scott Reservoir in Wilkes County to Crutchfield in Surry County. The state geologic map unit contacts here compare best with those of Espenshade and others (1975). They describe this unit as a fine-grained, thinly layered sulfidic biotite-muscovite gneiss with interlayers of mica schist and phyllite and minor amphibolite. However, Espenshade and others (1975) also included the area shown as the $CZma_1$ unit on the State Map in their unit.

PzZq METAMORPHOSED QUARTZ DIORITE

This unit is also present in the Charlotte belt, Carolina Slate belt, and Eastern Slate belt. It is predominately medium-grained, locally porphyritic, foliated to massive quartz diorite, trondhjemite, diorite, and tonalite (LeGrand and Mundorf, 1952; Farrar, 1985a; Goldsmith and others, 1988). In some areas, co-mingled with other rock types, including granite, in such a way that mapping as separate rock types is not feasible on a regional scale (LeGrand and Mundorf, 1952). Some bodies are hypabyssal intrusives (Farrar, 1985a).

Mc CHERRYVILLE GRANITE

This unit is a generally medium-grained, massive to weakly foliated, leucocratic, muscovite-biotite quartz monzonite that is cut by numerous [illegible]te-oligoclase-muscovite pegmatites (Kish, 1977). Kish reported that the [illegible]e is lithium bearing on the east side. This unit is mapped in the Inner

NORTH CAROLINA
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
GEORGE R. ROSS, DIRECTOR

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BULLETIN NUMBER 63

CERCLA

GEOLOGY AND GROUND WATER IN THE Charlotte Area, North Carolina

BY

H. E. LeGRAND AND M. J. MUNDORFF
GEOLOGISTS, U. S. GEOLOGICAL SURVEY

PREPARED COOPERATIVELY BY THE GEOLOGICAL SURVEY,
UNITED STATES DEPARTMENT OF THE INTERIOR

1952

GEOLOGY AND GROUND-WATER RESOURCES OF THE CHARLOTTE AREA, NORTH CAROLINA

By H. E. LeGrand and M. J. Mundorff

ABSTRACT

The Charlotte area is in the southwestern part of North Carolina and comprises Cabarrus, Cleveland, Gaston, Lincoln, Mecklenburg, Polk, and Rutherford Counties. It includes 2,834 square miles and according to the 1950 census has a population of 505,638. The area lies in the Piedmont province, the western part extending to the Mountain province. The undulant topography of the Piedmont represents an alternation of valleys and rounded hills. In the western part of the area the topography is mountainous and relief features are sharp and commonly precipitous. The major streams have high but decreasing gradients to the southeast. Streams and the resultant topography have adjusted themselves to the underlying structure in many places, but in a part of the area the drainage and structure have discordant relations.

The area is underlain by igneous and metamorphic rocks, consisting chiefly of schists, gneisses, granites, and slates. The slates and volcanic rocks to which they are related have a restricted occurrence in the extreme eastern part of the area. The mica schists and the mica and hornblende gneisses represent the chief country rocks which have been pervaded by granite. Local variations in types of rocks are common, and large homogeneous masses of a single type of rock are rare. The rocks trend northeastward and are tipped on edge.

Ground-water supplies are obtained through drilled wells, which get water from fractures in the bedrock, and through dug wells, which get water from the weathered material above bedrock.

Wells drilled in schist have a slightly higher average yield than wells in other rock units. The average yield of municipal and industrial wells in this rock is 31 gallons a minute; in the remainder of the rocks it is about 28 gallons a minute.

Topographic location has an important bearing on the amount of water yielded by wells. The average yield of wells drilled in valleys and draws is more than twice as much as that of wells drilled on hills.

The amount of water contained in the rocks decreases with depth. The yield per foot of well generally decreases with depth to a point—perhaps at 250 or 300 feet—below which it is not advisable to drill if the desired yield has not been approached.

Included in the report are several tables showing the relation of yield to type of rock, to topographic location, and to depth of wells. The report contains a discussion of the ground-water resources of each of the seven counties, with tables of well data and chemical analyses. Also included is a geologic map of each county.

INTRODUCTION

This report, one of a series on the ground-water resources of the State, gives the results of an investigation in a part of the south-central Piedmont of North Carolina.

The investigations are being made through a continuing cooperative agreement between the North Carolina Department of Conservation and Development and the Geological Survey, United States Department of the Interior. The program is under the direction of Dr. J. L. Stuckey, State Geologist, and Dr. A. N. Sayre, Chief, Ground Water Branch, U. S. Geological Survey.

The first report of these cooperative investigations, published as Bulletin 47 of the North Carolina Department of Conservation and Development, is a progress report giving general information on ground-water resources of the entire State, with particular emphasis on the Coastal Plain.

The second report, published as Bulletin 51, gives the results of an investigation of the ground-water resources of Edgecombe, Halifax, Nash, Northampton, and Wilson Counties.

The third report, Bulletin 55, covers the investigation of the ground-water resources of Alamance, Caswell, Forsyth, Guilford, Rockingham, and Stokes Counties.

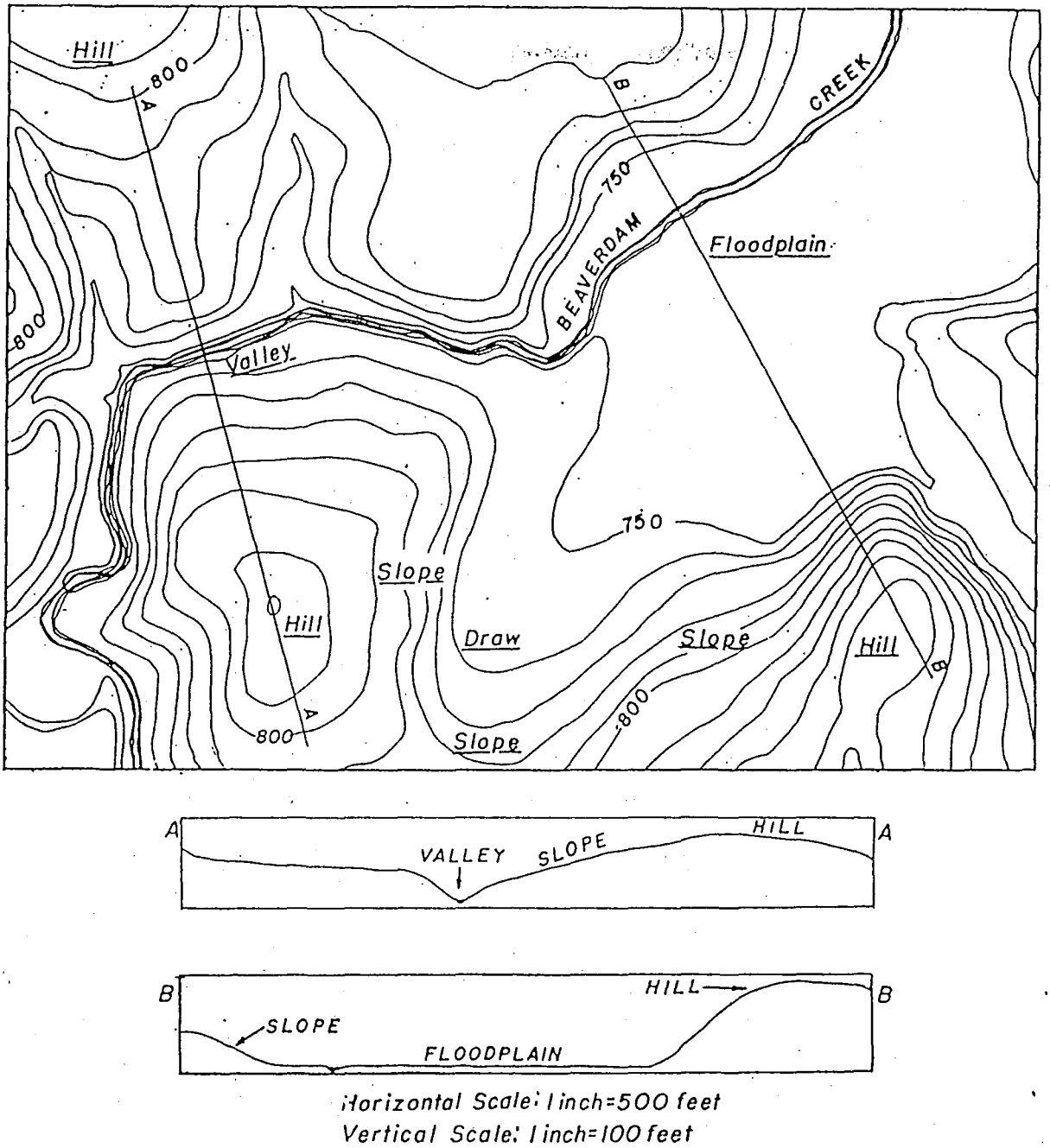

FIGURE 6a.—*Map showing typical topography in the Charlotte area and names of topographic features d in this report.* [*As shown in table 2, draws are the most favorable and hills the least favorable topo- ic locations for high-yielding wells. The order of topographic features from the most favorable to the t favorable, as far as quantity of water yielded to individual is concerned, is draw, valley, flat, slope, hill.* (*Topography taken from U. S. Geol. Survey Bull. 936-J.*)]

(1) Hills and upland areas readily shed much water from precipitation as surface runoff. As a result, re is less seepage into the ground to become ground water. On the other hand, the lowlands obtain influent e directly from precipitation and also from upland surface runoff.

(2) The direction of movement of the ground water is toward the valleys where part of it discharges ms. In addition, influent seepage may occur from upland rock slopes beneath the residual mate- The more impervious the bedrock, the more readily is water deflected down the slope along this contact.

TABLE 2.—AVERAGE YIELD OF WELLS ACCORDING TO TOPOGRAPHIC LOCATION

Topographic Location	Number of wells	Average depth (feet)	Yield (gallons a minute)			Percent of wells yielding 1 gal. a minute or less
			Range	Average	Per foot of well	
Hill	170	149	0–100	10.8	.072	4
Flat	36	179	1–150	16.9	.094	3
Slope	144	150	1–100	16.7	.111	2
Draw	116	157	1–90	24.8	.158	1
Valley	24	176	0–50	18.8	.107	4
All wells	490	155	0–150	16.7	.108	3

(3) Wells located in lowlands may salvage some of the water that would be lost naturally by discharge from the underground reservoir. There the depressed water level resulting from pumping, if near a discharge area, prevents further discharge out of the area.

(4) Wells on hills penetrate the water table at a greater depth than those in lowlands. When a well on a hill is pumped, the water table is lowered as a cone of depression, the center of the cone being at the well. As pumping continues the cone may grow larger and deeper but its span is limited because of the topography and because of the relatively low permeability of rocks at progressively greater depth below the surface. The yield of wells under these conditions is not great. On the other hand, wells in lowlands, even though penetrating the same rocks as those on uplands, intersect the water table near the ground surface. Thus, the water table can be lowered a greater distance by pumping than in a well of the same depth on a hill. The fact that the static and pumping water levels lie nearer the ground surface than in wells on hills results in the pumping level lying in a more permeable zone; hence the intake area is broader and the yield of the wells larger.

(5) In many places hills exist because the rocks there have a greater resistance to erosion than in the valleys, this resistance being due in many places to poor jointing. Joints and fractures facilitate entrance of ground water, which promotes chemical decay and permits mechanical erosion. Thus depressions such as draws or valleys suggest that the rock underlying the depressions has more openings through which ground water can move than the rock underlying the hills. It is not known how important this factor is in the Charlotte area. Where lowlands and highly fractured rocks coexist highly productive wells can be expected.

COMPLETION AND TESTING OF DRILLED WELLS

Generally the casing in a drilled well is driven tightly into the rock to seal out direct entrance of water from the mantle. This lessens danger of contamination and prevents entrance of turbid water into the well, which sometimes occurs, particularly after a rainfall, in wells in which the casing is not tightly sealed in the rock. The space between the outside of the casing and the soil at the surface should be filled with cement or clay to prevent any surface water from running down along the outside of the casing. Surface drainage should be away from the well. The collar of the well should be several inches above the surface and tightly closed.

The yield of only a small percentage of the wells drilled is accurately determined. The cost of adequately testing a drilled well is generally not more than about 5 percent of the cost of the well, and the information obtained is nearly always worth many times the added cost. The length of test should be 2 hours or more on a well for domestic purposes, 24 hours or more on a well for a small industrial plant or public supply such as a school, and 48 hours or more on a well for a large industrial plant or a municipality. In making a pumping test the water level of the well should be measured at regular intervals. The well should be pumped at several different rates. After pumping ceases, the water level should be measured at intervals for several hours to determine the rate of recovery. With this information the proper size of pump and the correct pump setting can be determined and an estimate of the pumping level at a future date can be made.

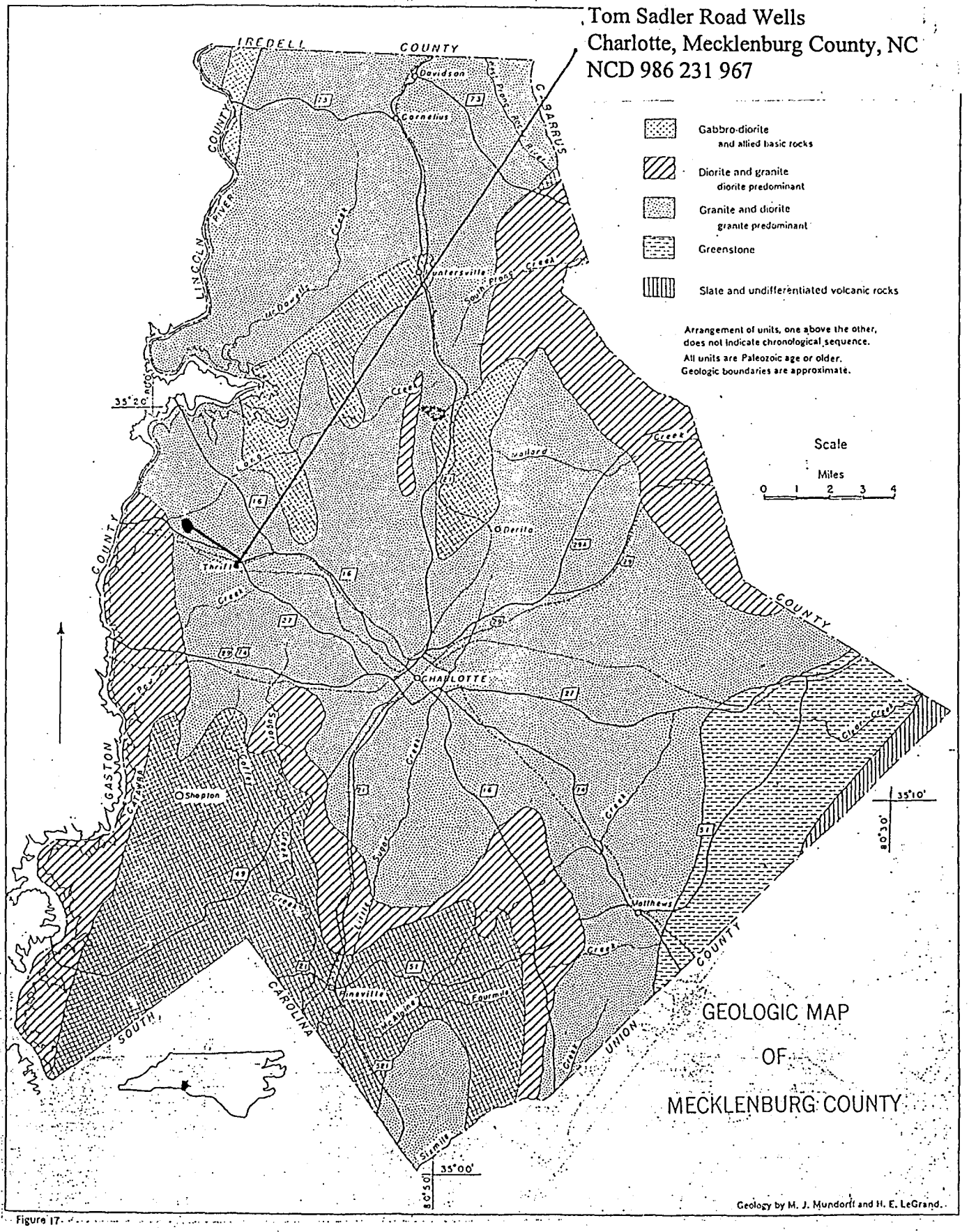

Figure 17

FIGURE 17.—GEOLOGIC MAP OF MECKLENBURG COUNTY.

MECKLENBURG COUNTY

(Area 542 square miles; population in 1950, 197,052)

Geography and physiography.—Mecklenburg County, in the southeast part of the Charlotte area, is the most densely populated county in the area. Charlotte, the only city, is the county seat; it is the largest city in the State and had a population of 133,219 according to the 1950 U. S. census. The county is the center of the textile industry of the State, many of the mills lying in the close environs of Charlotte.

That part of the Piedmont Province that includes Mecklenburg County consists of a series of moderately level interstream areas which are appreciably hilly near the larger streams. No hills stand out prominently above the general level of the upland. The highest land in the county is near Davidson, in the extreme northern part of the county, where the altitude is slightly more than 850 feet above sea level, and the lowest land is on the Catawba River at the South Carolina line, where the altitude is about 520 feet.

The western part of Mecklenburg County is drained by the Catawba River, whereas the eastern part is drained by small streams tributary to Rocky River, which itself is in the drainage basin of the Pee Dee River. The major divide formed by these drainage systems extends from Davidson in the north through Derita to the vicinity of Matthews. The Catawba River flows southward along the western border of the county, whereas the Rocky River flows along the northeast part. These rivers are only 10 miles apart in the northern part of the county, and as a consequence the interstream area is narrow and much dissected. On the other hand, Catawba and Rocky Rivers in the southern part of the county are more widely spaced which results in longer tributaries of lower gradients extending to the major divide. Thus, the topography in the southern part is rather gentle.

Geology.—The most striking feature of the geology of Mecklenburg County is the near absence of schistose rocks (fig. 17). With the exception of a thin belt of slaty rocks in the extreme east, the rocks he county are, for the most part, massive and are generally lacking in regional structural trends.

Rocks of the Carolina slate belt occur in the southeastern part of the county where they extend southward from Cabarrus County. Although several types of rock occur within the belt only two are shown on the accompanying geologic map; they are the greenstone and undifferentiated rocks, including slates and associated volcanic rocks. The slates are generally composed of dense, fine-grained siliceous material. At least a part of the slate is well bedded and resembles the slate at Monroe,[28] which is a distinctive part of the Carolina slate belt. The slates, as a rule, are well jointed and possess a gentler dip than other rocks in the Charlotte area.

With the exception of the rocks of the Carolina slate belt in the east, the rocks of Mecklenburg County belong to the diorite-granite complex or are believed to be associated with it. Gabbro-diorite is widely exposed along N. C. Route 49 south of Shopton in the southwest part of the county. It is a massive medium- to coarse-grained dark colored igneous rock composed mostly of pyroxene or hornblende and plagioclase feldspars. It is exposed in a few road cuts and as isolated boulders above the generally flat land surface. It is locally referred to as "blackjack" and is the source of the Mecklenburg soil type.[29] The extent of the gabbro-diorite to the south in South Carolina is not known, but it is bounded in Mecklenburg County by rocks of the diorite-granite complex.

The diorite-granite complex proper covers a large area around Charlotte. Bodies of diorite are locally separate from bodies of granite, but as a whole the two rocks are too closely intermixed to map separately. Outcrops are not common enough to ascertain the predominance of one type over the other except in a general way. However, the granite component is everywhere conspicuous and appears to make up the greater part of the complex. It appears to be subordinate to the diorite in a band bordering the gabbro-diorite in the south and along the Cabarrus County line in the northeast.

Rocks in the northern part of the county do not fall easily into the classification of rocks designed for the Charlotte area. They are granitic but contain considerable hornblende and biotite in places. They

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Stuckey, J. L., Personal communication.

[29]Report on Mecklenburg County Soils, Agriculture, and Industry: North Carolina Dept. Agriculture County Soil Report No. 1, vol. 38, no. 4, p. 32, 1917.

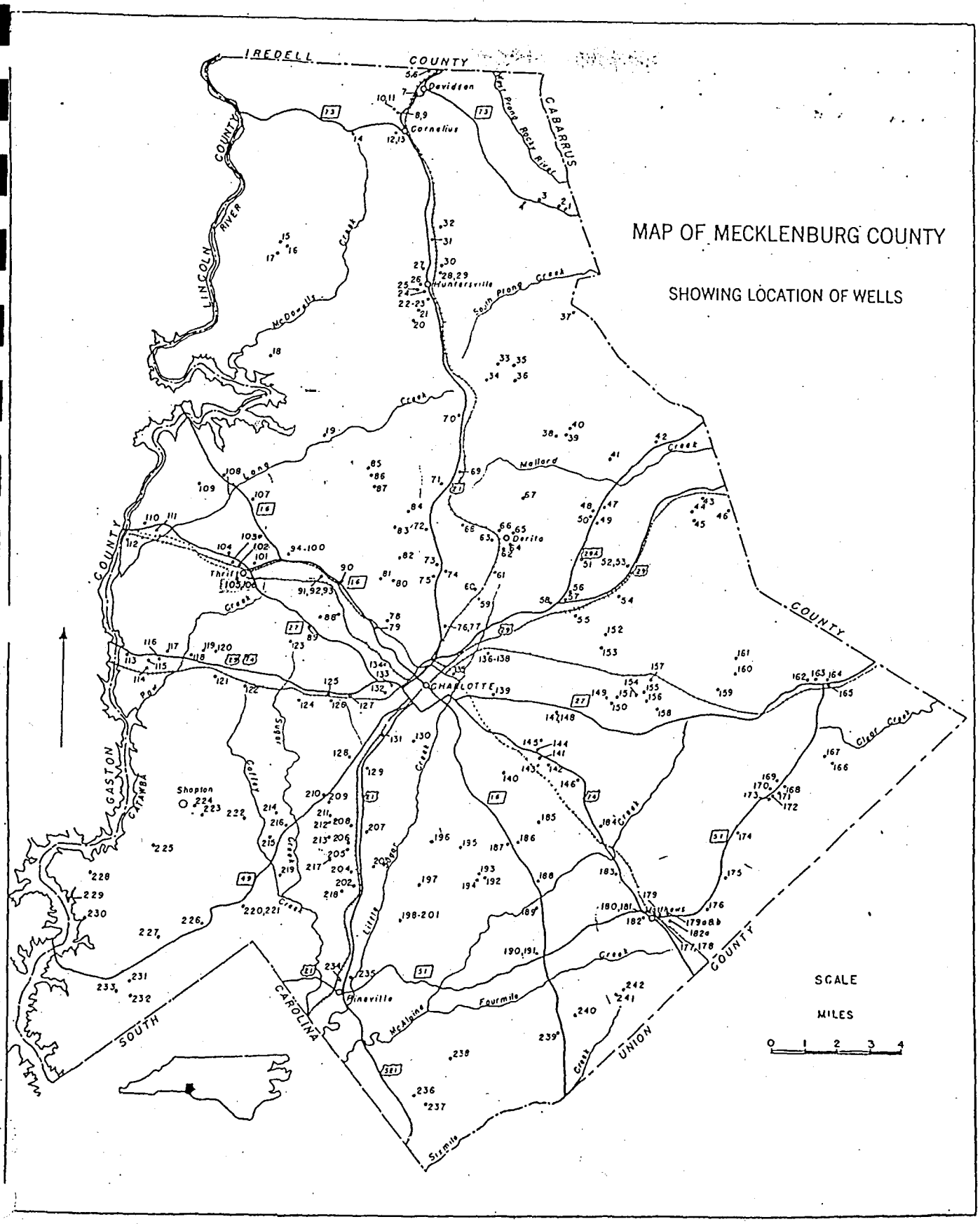


FIGURE 18.—MAP OF MECKLENBURG COUNTY SHOWING LOCATION OF WELLS.

are shown on the geologic map of Mecklenburg County as predominantly granite although they contain a greater quantity of black minerals than other granites in the Charlotte area. These rocks appear to have the same composition as those of the diorite-granite complex if a complete mixing of diorite and granite had occurred. Thus this approximate equivalence and the juxtaposition of these rocks suggest that they may be genetically related and that the hornblende-biotite granite in the northern part of the county may represent a nearly complete mixing of the diorite and granite components.

The soil derived from the hornblende-biotite granite has a deeper color than soils from other granites of the Charlotte area and contains many yellow flakes of vermiculite.

The rock weathers deeply, owing to the sharp relief in its area of outcrop, thus allowing a thick zone of weathering above the general water table.

Ground water.—Nearly all domestic water supplies and three municipal water supplies are obtained from wells (fig. 18).

Dug wells are extensively used for domestic supplies in rural districts. Normally they are from about 15 to 50 feet deep and 2½ to 4 feet in diameter. As these wells cannot easily penetrate hard rock, they generally yield adequate water as long as the water table does not fall below the surface of the hard rock, or more specifically as long as the water table does not fall below the bottom of the well. Where the bedrock lies at or near the surface, as in much of the area underlain by diorite and gabbro in the southwestern part of the county, wells may not be dug deep enough to prevent them from going dry during long periods of dry weather.

Records of more than 245 drilled wells are given in the tables of well data for Mecklenburg County. Many of these, especially in the rural areas, were core-drilled with chilled shot and are 2 or 3 inches in diameter. Their cheapness makes them suitable for domestic use, but inasmuch as 7 or 8 gallons a minute is the maximum rate at which water can be removed from a 2-inch well by a deep-well pump they are not generally used where large supplies of water are desired. Most industrial and public-supply wells are drilled with a percussion drill and are from 4 to 8 inches in diameter. The large-diameter wells might encounter fractures and cracks than missed by small-diameter wells. Also, more water can be pumped from a large-diameter well. Also, pumps with greater capacities can be installed in the larger wells.

The rocks penetrated by wells in Mecklenburg County are chiefly granite and diorite. The gabbroic rocks, occurring mostly in the southwestern part of the county, are included, for the purposes of ground-water description, with the diorite. A few wells in the eastern part of the county are drilled in slate but complete data on these wells are lacking. As the diorite and granite are rather closely intermingled, some wells doubtless penetrate both rocks. Table 13 presents characteristics of the wells as related to rock types and topographic locations.

TABLE 13.—SUMMARY OF DATA ON WELLS IN MECKLENBURG COUNTY

ACCORDING TO ROCK TYPE

Type of Rock	Number of wells	Average depth (feet)	Yield (gallons a minute)			Percent of wells yielding 1 gallon a minute or less.
			Range	Average	Per foot of well	
Diorite	41	117	1—75	17.9	0.153	2
Granite	54	124	2—65	11.5	.092	0
All wells	95	132	1—75	14.3	.109	1

1 Drilled wells 2 inches or more in diameter.

SUMMARY OF DATA ON WELLS IN MECKLENBURG COUNTY
(Drilled wells 3 inches or more in diameter)

ACCORDING TO ROCK TYPE

Type of Rock	Number of wells	Average depth (feet)	Yield (gallons a minute)			Percent of wells yielding 1 gallon a minute or less.
			Range	Average	Per foot of well	
Diorite	30	155	3—75	22.6	.147	0
Granite	36	136	3—100	14.8	.109	0
All wells	66	144	3—100	18.4	.128	0

ACCORDING TO TOPOGRAPHIC LOCATION

Topographic location	Number of wells	Average depth (feet)	Yield (gallons a minute)			Percent of wells yielding 1 gallon a minute or less.
			Range	Average	Per foot of well	
Hill	41	125	1-65	8.5	0.068	2
Flat	13	119	2—40	13.1	.110	0
Slope	19	144	2—75	15.9	.110	0
Draw	21	144	5—75	24.9	.173	0
Valley	1	97	----------	8	.082	0

According to table 13 wells in diorite have greater yield and average yield per foot of well than wells in granite. The average yield of all diameters for which information is available in diorite is 17.9 gallons a minute as compared with an average of 11.5 gallons a minute for wells in granite. If only 3-inch and larger wells are considered, those in diorite yield 22.6 gallons a minute and those in granite 14.8 gallons a minute.

Although granite occurs extensively throughout the county, the data on wells do not indicate that it yields more water at one place than another, if topography is disregarded. The same condition holds true for the diorite. According to topographic location, wells on hills yield less water than wells on any other topographic site, yielding only .068 gallons a minute per foot of well. This is slightly more than one-third of the yield of wells in the most favorable locations, draws, that yield .173 gallon a minute per foot of well. Thus wells in draws have an average depth of 144 feet and an average yield of 24.9 gallons a minute. The average yield might be appreciably higher if only 3-inch and larger wells were considered.

As no particular part of the county can be designated as unusually poor and no part as exceptionally good, it appears advisable to give considerable attention to local conditions in locating a well. West of the slate belt, diorite, the best aquifer, occurs sporadically in almost every square mile. Thus in many cases it is possible to locate a well in the dark-colored diorite or gabbro without sacrificing convenience of location. As topography is an important consideration, the location of wells in lowlands or especially in draws should be attempted if relatively large yields are desired.

The quality of ground water in Mecklenburg County is good almost everywhere. (See table of analysis.) Analyses of water from wells penetrating granite in Mecklenburg County vary considerably in the concentration of dissolved mineral solids. This is doubtless due to the penetration of one or more small bodies of dioritic material in the granite. By virtue of their relatively insoluble mineral constituents the granites should contain water lower in mineral matter. Analyses of water from wells 27, 133, and 180 suggest that, although the predominant rock is granite, a large part of the mineral matter in solution comes from dioritic or mafic bodies penetrated by the wells.

RECORDS OF WELLS IN MECKLENBURG COUNTY—*Continued*

Well no.	Location	Owner	Driller	Type of well	Depth of well (feet)	Diameter of well (inches)	Depth casing (feet)	Water level (feet below surface)	Yield (g.p.m.)	Total hardness (field tests) (p.p.m.)	Remarks
73	3¾ miles N. of Charlotte	G. V. Burris	W. A. Ivester	Cr-Dr	48	2			15		Moderately soft water. Draw.
74	do	C. T. Stallings	Robbins	Cr-Dr	71½	2	31		6		Slightly hard water. Draw.
75	3¼ miles N. of Charlotte	Mrs. Eva Mae Ellis		Cr-Dr	96	2			2½		Gneiss. Hard water. Hill.
76	2½ miles NE. of Charlotte	Interstate Granite Corporation	W. A. Kirkley	Cr-Dr	165	4			35		Granite. Slope.
77	do	do	do	Cr-Dr	200	4			35		Granite. Draw.
78	2½ miles NW. of Charlotte	G. V. Keller	Hinson	Dr	190	6	190	26	10-15	65	Diorite. Hill.
79	do	Planters Fertilizers & Phosph. Co.		Dug	31	30		25	5		
80	3 miles N. of Charlotte	I. T. Hutchison		Cr-Dr	110	2		22	5	25	Hill.
81	3½ miles NW. of Charlotte	T. P. Caldwell	Montgomery	Cr-Dr	158	2	83	30	3½		Diabase dike. 63° F. Soft water. Well was dynamited to increase yield. Hill.
82	4 miles N. of Charlotte	E. C. Glenn		Cr-Dr	150	2			5±	25	Hill.
83	4¾ miles N. of Charlotte	J. W. Buchanan		Cr-Dr	85	2			7½	50	Hill.
84	5½ miles N. of Charlotte	F. W. Dotzer		Cr-Dr	82	2	78		7	35	Diorite. Hill.
85	7 miles N. of Charlotte	P. V. Humphrey	Geo. Stephenson	Cr-Dr	100	2	99		5	35	
86	do	R. W. Parker	do	Cr-Dr	140	2	85	25	6		No water until well was dynamited.
87	do	H. T. Reavis	do	Cr-Dr	130	2	100	25	5		Do. Slope.
88	3½ miles NW. of Charlotte	Chadwick-Hoskins Co.	Sydnor	Dr	519	10			100	80	63° F. Well at plant 2 supplies both plants and school. Draw.
89	4 miles NW. of Charlotte	Mecklenburg Nurseries		Cr-Dr	135	2	90		4-5	60	Dug well, nearly went dry in 1941-1942. Hill.
90	do	Godley Bros.		Cr-Dr	80	3			6		Soft water. Hill.
91	4¼ miles NW. of Charlotte	National Carbon Co.	W. A. Kirkley	Cr-Dr	150	4	100		18	35	63° F. Company well 1. Draw
92	do	do	do	Cr-Dr	135	4	102		8		62° F. Company well 2. Draw
93	do	do	do	Cr-Dr	108	4	84		7		Company well 3. Slope.
94	1¼ miles NE. of Paw Creek	Leaksville Woolen Mill Co.	Sydnor	Dr	350	10			36	55	62½° F. Company well 4. Draw.
95	do	do		Dr	300	10			60	75	59° F. Company well 5. Temperature taken after pumping 35 minutes—7/17/45. Draw.
96	do	do	do	Dr	1,166½	10			68	170	63° F. Company well 6. Pumping level 173 feet below surface in 1942. Draw.
97	1¼ miles NE. of Paw Creek	Leaksville Woolen Mills Co.	Sydnor	Dr	1,074	10			67¼	72	61½° F. Company well 7. Temperature after pumping 20 minutes. Draw.
98	do	do	do	Dr	250	8			30		Company well 1. Not in use. Draw.
99	do	do		Dr	250	10-8			50		Company well 2. Never used Water too hard.
100	do	do		Dr	250	10			25		Company well 3. Not used. Originally yielded 100 g.p.m.
101	Paw Creek	High School	Carolina Drill. Co.	Dr	140	6			30		Slope.
102	do	Standard Oil Plant	J. S. Hinson	Dr	306	6			55	40	Draw.
103	do	Shell Oil Plant	Heater Well Co.	Dr	148	6	80½	21	36	40	61½° F. Draw.
104	do	American Oil Co. Plant		Cr-Dr	85	3				80	62° F. Draw.
105	do	Kendall Mills Thrift Plant		Dr	600	10-8	50	32	55	150	63° F. Slope.
106	do	do		Cr-Dr	33 to 65	2½	33 to 65	½ to 2	14	60	59½° F. Group of 6 wells. Valley.
107	2 miles N. of Paw Creek	McClure Lumber Co.		Cr-Dr	115	3	76		4		Granite. Hill.
108	3 miles NW. of Paw Creek	M. L. Dunn	Robbins	Cr-Dr	54	2			3	50	Granite. Flat.
109	3¼ miles NW. of Paw Creek	James Costevens		Dug	30	12	30	23.0			Adequate water supply. Soft water. Flat.
110	3¼ miles NW. of Paw Creek	R. C. Beatty	Geo. Stevenson	Cr-Dr	90	3			10	80	61½° F. Granite "sand". Draw.
111	do	C. O. Hager		Dug	80	36		65			Supplies 12 houses. Soft water. Hill.
112	4 miles NW. of Paw Creek	Southern Dyestuff Corp	Sydnor	Dr	221	6	60		38	450	61¼° F. Laboratory test.

Wells that existed in 1946

Dr- Drilled
Cr-Dr- Core Drilled

MEMO

DATE: April 12, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

I spoke with Barbara Wiggins, Mecklenburg County Department of Environmental Protection (MCDEP) (704) 336-5500. I asked her if any additional well sampling had occurred in the Paw Creek area. Most people have connected to city water, and MCDEP stops sampling when this occurs. She will check with Jerry Stahl to determine if any samples have been taken recently and she will forward these results to me.

Barbara transferred me to Lisa Corbitt within the same office. Lisa performed much of the 1993 Paw Creek drinking water well sampling when about 400 wells were sampled and about 90 were discovered to contain low levels of PCE. Lisa also worked in the Paw Creek area for several years prior to 1993. We discussed the G. J. Mingus well sampling (now named the Tom Sadler Road Wells site). She said that there was no stained grass between the garage and the well, but the well was within 5 feet of the garage. The well did not have a concrete slab and she thought that it was not grouted. There were a few areas about the property that had auto parts. She tested a well at a home directly across Tom Sadler Road from the Mingus well and it was clean. Lisa said that Chris DeRoller (NCDEM Mooresville Regional Office) had considered soil sampling on the Mingus property, but she was not sure if this had occurred.

I asked Lisa if she remembered any other pockets of well contamination in the Paw Creek area. She said that about four years ago, the Pine Island area (a golf course community about 3/4 mile west of the Mingus property) had about three wells that contained low levels of chlorinated solvents. One well was slightly above drinking water standards and two had detectable levels of chlorinated solvents below drinking water standards. MCDEP connected filters to the drinking water supplies and solvents were no longer detected. No wells along Stoneyridge Dr. were contaminated, just Littlefield and Pine Island. She said that a field between Littlefield Rd. and Mt. Holly Rd. has never been developed and an investigation of past activities on this property may be worthwhile. As an aside, she said that rock formations in the Pine Island area were blasted so that the septic tanks could be installed.

Lisa recalled a spill incident at Livingstone Coatings on Mt. Holly Road. Chris DeRoller (NCDEM Mooresville Regional Office) had tested the area and determined that the spill had not left the property. Lisa said that several drinking water wells in the Shuffletown area (about 2 miles north of the Tom Sadler Road area) were contaminated with gasoline constituents.

Another pocket of contamination discovered during the 1993 sampling was the Hansard Drive area. A number of drinking water wells contained PCE at levels slightly above drinking water standards. Lisa said that a fenced area at the corner of Lee Dr. and Hansard Dr. seemed unkept and could have been a source area, although this was never determined. The Bud Lee Paving Company is directly across the street from the Hansard Drive area. I informed her of the dump at the rear of the Bud Lee Property, along Tom Sadler Road, that was studied under CERCLA a number of years ago.

MEMO

DATE: December 20, 1993

TO: File

FROM: Jeanette Stanley, Environmental Chemist,
NC Superfund Section

RE: Consolidated Warehouse
Charlotte, Mecklenburg County, NC

I spoke with Doug Roberts, Hydrogeologist, NC Solid Waste Division (919) 733-2178. He stated that the Sandoz Chemical site has a wide variety of contaminants, including several chlorinated hydrocarbons. There is a small amount of tetrachloroethylene in the groundwater. This site has 115 recovery wells for groundwater remediation and 40 monitoring wells. The hydrogeology in the area is very well defined. The groundwater plume migrates to the Catawba River or to Long Creek.

MEMO

DATE: April 26, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

I spoke with Drew Bailey [(704) 374-3235], Assistant Vice President of Gainsborough Corporation, a single-use holding company of First Union Bank. Karen Walker, NC DEM, Mooresville Regional Office, sent information to me regarding a Phase II Environmental Evaluation in connection with the Mattox Development Corporation property on Mount Holly Road in Charlotte, NC.

First Union foreclosed on the 65-acre Mattox Development Corporation property and conducted this evaluation to determine if there were environmental problems. The consultant mistakenly reported that there were no chlorinated solvents in the groundwater, but there was toluene, lead, cadmium, and mercury in the groundwater. Analytical data showed that PCE was present in one well.

Mr. Bailey said that they were resampling the monitoring well that had 125 ppb PCE (MW-4) and that results should be available in about 10 working days. He asked if he should send these results to me or to Karen Walker. I said that I would ask Karen to forward a copy of these results to me.

N.C. DEPT. OF
ENVIRONMENT, HEALTH,
& NATURAL RESOURCES

NOV 10 1994

DIVISION OF ENVIRONMENTAL MANAGEMENT
MOORESVILLE REGIONAL OFFICE

Gainsborough Corporation
301 South College Street, TW-28
Charlotte, NC 28288-0666

November 9, 1994

Mr. Robert Krebs
North Carolina Department of Environment,
Health and Natural Resources
Groundwater Quality Division
919 North Main Street
Mooresville, NC 28115

RE: Gainsborough Corporation Property
Tom Saddler & Mount Holly Road
Charlotte, NC
Reports of groundwater investigation dated September 21, 1994 and October 26, 1994

Dear Mr. Krebs:

We are providing for your review the subject assessment reports which have been completed with regards to the subject property. Due to the difference in the level of filtered and unfiltered lead within the groundwater, we would like to request that a "No Further Action" be approved by the state. The level of lead detected within the unfiltered sample appears to be caused by the suspended sediment within the groundwater. Given these results and the area in which the property is located, we request a "No Further Action" letter from your department. Please let me know if you concur with our conclusion. Should you have any questions concerning the reports, please feel free to contact me at (704) 374-3235.

Sincerely,

Andrew C. Bailey
Assistant Vice President
Gainsborough Corporation

Enclosure

TRIGON
ENGINEERING CONSULTANTS, INC.
1920 Starita Road, Suite J • Charlotte, N.C. 28206 • (704) 598-1049

N.C. DEPT. OF
ENVIRONMENT, HEALTH,
AND NATURAL RESOURCES
SEP 23 1994

September 21, 1994

First Union National Bank
One First Union Center
Charlotte, North Carolina 28202

Attention: Mr. Drew Bailey

Reference: Limited Phase II Environmental Evaluation
Mattox Development Corporation Property
Charlotte, North Carolina
Trigon Project No. 025-94-081

Gentlemen:

Trigon Engineering Consultants, Inc. (Trigon) has completed a limited Phase II Environmental Evaluation at the Mattox Development Corporation site located between Mt. Holly Road and Tom Sadler Road in Charlotte, North Carolina. The purpose of our evaluation was to test the soil and water at strategic locations for possible contamination. The work was authorized by Ms. Ann W. Frodge, Vice President of First Union National Bank, by signed acceptance of our Proposal Nos. 025-94-084-P and 025-94-084A-P. The following sections of this report outline our completed services and the laboratory testing results.

BACKGROUND

The Mattox Development Corporation site is located between Mt. Holly Road and Tom Sadler Road in Charlotte, North Carolina. A July 25, 1994 "Phase I Environmental Site Audit" identified environmental concerns at the adjacent Bud Lee Paving and Asphalt Company property and the nearby and topographically upgradient Mingus Auto Repair facility and its associated residence. The Bud Lee Paving and Asphalt Company property is a potential Superfund property due to the presence of asphalt wastes containing trichloroethene which a chlorinated

solvent. The Mingus Auto Repair facility at 2128 Tom Sadler Road has been designated as a CERCLIS property due to the contamination of its water supply well by "chlorinated solvents".

INVESTIGATIVE PROCEDURES

Monitoring Well Installation: The subsurface exploration included the completion of four soil test borings and the installation of four monitoring wells. Mr. Prentice Tyndall of Trigon's Charlotte office was onsite August 17, 1994 to supervise the soil test borings and the installation of monitoring well MW-1. Mr. Harry Sideris of Trigon's Greenville office was onsite August 22-25, 1994 to supervise three soil test borings designated as MW-2, MW-3, and MW-4. At these three borings, auger refusal was experienced before encountering the water table requiring Mr. Mark Arcuri of Trigon's Charlotte office to return to the site on September 8, 1994 to supervise the installation of the monitoring wells MW-2 through MW-4 using air rotary drilling. The boring locations were established in the field by personnel from Trigon using the existing site features as references. The approximate boring locations are shown in Drawing No. 254081-1 in Appendix A.

The soil test borings were conducted with a CME four-wheel drive, truck mounted, rotary drill rig. The borings were advanced to depths ranging from 15.5 to 40.0 feet below the surface using 6.25" I.D. continuous-flight, hollow stem augers. The overburden soils were sampled at 5 foot intervals by driving a standard 2 inch O.D. split-barrel sampler into the undisturbed soil below the augers. The sampling was conducted in accordance with the ASTM D 1586 Standard Penetration Test procedures by driving the split barrel sampler into the soil below the augers with a 140 pound weight allowed to free fall 30 inches.

The soil samples obtained during the soil test borings were screened for volatile organic compounds by using a Foxboro 128 Organic Vapor Analyzer (OVA) flame ionization detector. The OVA is capable of detecting volatile organics if they are present in concentrations greater than the instrument's detection limit of 1 part per million. The hollow stem augers were decontaminated prior to drilling each soil test boring and the split barrel sampler was decontaminated prior to the collection of each sample.

A total of four monitoring wells were installed desingated as MW-1 through MW-4. The monitoring wells were constructed with 10 to 15 feet of 2 inch diameter, 0.010 inch slotted PVCC well screen. Solid PVC riser was used to extend the well to approximately 2.5 feet above the ground surface. Coarse sand was placed in the annular space between the well screen and the borehole from the bottom of the borehole to a depth one foot above the top of the well screen. A 2 foot bentonite seal was installed above the sand pack to minimize infiltration from above the surface surface at each well location. The remainder of the annular space was backfilled to the ground surface with Portland Cement grout. A protective steel well cover with

a locking cap was installed at the each location to deter tampering. The well constuction records are summarized in Table 1.

TABLE 1
WELL CONSTRUCTION RECORDS

Well	Depth (ft)	Slotted Screen Depth (ft)	Riser Pipe Depth (ft)	Sand Pack Depth (ft)	Bentonite Seal Depth (ft)	Grout Depth (ft)
MW-1	40	25 to 40	+2 to 25	23 to 40	21 to 23	0-21
MW-2	30	20 to 30	+2 to 20	18 to 30	16 to 18	0-16
MW-3	22	12 to 22	+2 to 12	10 to 22	8-10	0-8
MW-4	40	25 to 40	+2 to 25	23 to 40	21 to 23	0-21

A subsurface log was prepared for each test boring and monitoring well and these are included in Appendix B. The logs were prepared using observations made in the field by the driller as well as classifications by our Environmental Scientist. The lines designating the interfaces between various strata on the logs are approximate. The transition between strata may be gradual in both the vertical and horizontal directions.

Laboratory Analyses: A water sample was collected from monitoring well MW-1 on August 25, 1994 and submitted to an independent North Carolina certified analytical laboratory for EPA Methods 624 and 625 analyses as well as RCRA Metals (EPA Method 600). Monitoring wells MW-2 through MW-4 were collected on September 13, 1994 and submitted for the same analyses. In addition, one additional sample was obtained from the creek which traverses the site where the creek exits the site near Tom Sadler Road. Testing methods for the creek sample were consistent with the groundwater sample. Because no volatile organics were detected during screening of the soil samples with the OVA, no soil samples were submitted to the laboratory for testing as originally proposed.

The monitoring wells were developed at least 24 hours prior to sampling. Before sampling, the water level was measured, from the top of casing to the water surface, for each well. Then, one to three volumes of water were purged from the well depending upon the yield of the well. The wells were allowed to recover to at least 80 percent of the original water column height before sampling. The samples were collected using a new bailer for each well.

The Trigon representative wore a new pair of disposable latex gloves during the purging and sampling of each groundwater monitoring well.

The samples were collected and placed directly into containers provided by the analytical laboratory. The samples were stored on ice until their delivery to the lab. A Chain of Custody was maintained throughout the sampling events. Surface water samples were collected directly into the sample containers. The samples were handled and delivered with the groundwater samples.

FINDINGS

Field Results: None organic vapors were detected in any of the soil samples collected during the soil test borings.

Analytical Results: The analytical results for the samples submitted to the analytical laboratory are summarized in the following Tables 2 - 4. The test results and the Chain of Custody are also included in Appendix C.

Toluene was reported in MW-3 and MW-4 at concentrations less than the North Carolina Groundwater Standard of 1,000 parts per billion. Toluene is not a chlorinated solvent.

In addition, barium, cadmium, lead, and mercury were reported in the groundwater sample collected from MW-1 and barium was reported in the groundwater sample collected from MW-3. The cadmium and lead concentrations reported sample MW-1 exceed their respective North Carolina Groundwater Standard's. Barium, cadmium, and lead are naturally occurring in Piedmont soils at concentrations higher than those reported for the groundwater samples; therefore, the detection of these constituents in MW-1 are within the range that they may have been derived from soils in the groundwater sample. Except for those already stated, none of the other RCRA metals tested for were reported in any of the samples.

TABLE 2
METHOD 624 ANALYTICALRESULTS

Constituent	Method	Unit	MW-1	MW-2	MW-3	MW-4	S-1	NCGWS
VOLATILEORGANICS								
Benzene	624	ppb	BDL	BDL	BDL	BDL	BDL	1.0
Bromodichloromethane	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Bromoform	624	ppb	BDL	BDL	BDL	BDL	BDL	0.19
Bromomethane	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Carbon tetrachloride	624	ppb	BDL	BDL	BDL	BDL	BDL	0.3
Chlorobenzene	624	ppb	BDL	BDL	BDL	BDL	BDL	50.0
2-Chloroethyl vinyl ether	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Chloroethane	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Chloroform	624	ppb	BDL	BDL	BDL	BDL	BDL	0.19
Chloromethane	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Dibromochloromethane	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
1,2-Dichlorobenzene	624	ppb	BDL	BDL	BDL	BDL	BDL	620.0
1,3-Dichlorobenzene	624	ppb	BDL	BDL	BDL	BDL	BDL	620.0
1,4-Dichlorobenzene	624	ppb	BDL	BDL	BDL	BDL	BDL	75.0
1,1-Dichloroethane	624	ppb	BDL	BDL	BDL	BDL	BDL	700.0
1,2-Dichloroethane	624	ppb	BDL	BDL	BDL	BDL	BDL	0.38
cis-1,2-Dichloroethene	624	ppb	BDL	BDL	BDL	BDL	BDL	70.0
trans-1,2-Dichloroethene	624	ppb	BDL	BDL	BDL	BDL	BDL	70.0
1,1-Dichloroethene	624	ppb	BDL	BDL	BDL	BDL	BDL	710
1,2-Dichloropropane	624	ppb	BDL	BDL	BDL	BDL	BDL	0.56
cis-1,3-Dichloropropene	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
trans-1,3-Dichloropropene	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Ethylbenzene	624	ppb	BDL	BDL	BDL	BDL	BDL	29.0
Methylene chloride	624	ppb	BDL	BDL	BDL	BDL	BDL	5.0
1,1,1,2-Tetrachloroethane	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
1,1,2,2-Tetrachloroethane	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Tetrachloroethene	624	ppb	BDL	BDL	BDL	BDL	BDL	0.7
1,1,1-Trichloroethane	624	ppb	BDL	BDL	BDL	BDL	BDL	200.0
1,1,2-Trichloroethane	624	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Trichloroethene	624	ppb	BDL	BDL	BDL	BDL	BDL	2.8
Trichlorofluoromethane	624	ppb	BDL	BDL	BDL	BDL	BDL	2100.0
Toluene	624	ppb	BDL	BDL	6	125	BDL	1000.0
Vinyl chloride	624	ppb	BDL	BDL	BDL	BDL	BDL	0.015
Total xylenes	624	ppb	BDL	BDL	BDL	BDL	BDL	530.0

ppb = parts per billion
BDL = Below Detection Limit
NCGWS = North Carolina Groundwater Standard per Title 15A, Subchapter 2L, Section .0202 of the North Carolina Administrative Code

MW-4 Data incorrect - should be 125 ppb tetrachloroethene. See data sheets. Resample ordered NC DEM 5/95. Karen Connell.

TABLE 3
METHOD 625 ANALYTICALRESULTS

Constituent	Method	Unit	MW-1	MW-2	MW-3	MW-4	S-1	NCGWS
Acenaphthene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Acenaphthylene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Anthracene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Benzidine	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Benzo(a)anthracene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Benzo(b)fluoranthene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Benzo(k)fluoranthene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Benzo(a)pyrene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Benzo(g,h,i)perylene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
4-Bromophenyl-phenylether	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Butylbenzylphthalate	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
bis(2-Chloroethoxy)methane	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
bis(2-Chloroethyl)ether	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
bis(2-Chloroisopropyl)ether	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
4-Chloro-3-methylphenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
2-Chloronaphthalene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
2-Chlorophenol	625	ppb	BDL	BDL	BDL	BDL	BDL	0.1
4-Chlorophenyl-phenylether	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Chrysene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Di-n-butylphthalate	625	ppb	BDL	BDL	BDL	BDL	BDL	700.0
Di-n-octylphthalate	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Dibenz(a,h)anthracene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
trans-1,3-Dichloropropane	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
1,2-Dichlorobenzene	625	ppb	BDL	BDL	BDL	BDL	BDL	620
1,3-Dichlorobenzene	625	ppb	BDL	BDL	BDL	BDL	BDL	620
1,4-Dichlorobenzene	625	ppb	BDL	BDL	BDL	BDL	BDL	75
3,3'-Dichlorobenzidine	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
2,4-Dichlorophenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Diethylphthalate	625	ppb	BDL	BDL	BDL	BDL	BDL	5,000
2,4-Dimethylphenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Dimethylphthalate	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
4,6-Dinitro-o-cresol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
4,6-Dinitro-2-methylphenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
2,4-Dinitrophenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
2,4-Dinitrotoluene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
2,6-Dinitrotoluene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
1,2-Diphenylhydrazine	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
bis(2-Ethylhexyl)phthalate	625	ppb	BDL	BDL	BDL	BDL	BDL	3.0
Fluoranthene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Fluorene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Hexachlorobenzene	625	ppb	BDL	BDL	BDL	BDL	BDL	0.02
Hexachlorobutadiene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Hexachlorocyclopentadiene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Hexachloroethane	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Indeno(1,2,3-cd)pyrene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Isophorone	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
4-Methylphenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
N-Nitrosodimethylamine	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
N-Nitrosodiphenylamine	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
N-Nitroso-di-n-propylamine	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Naphthalene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Nitrobenzene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
2-Nitrophenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
4-Nitrophenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Pentachlorophenol	625	ppb	BDL	BDL	BDL	BDL	BDL	0.3
Phenanthrene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Phenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
Pyrene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
1,2,4-Trichlorobenzene	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated
2,4,6-Trichlorophenol	625	ppb	BDL	BDL	BDL	BDL	BDL	None Promulgated

ppb = parts per billion
BDL = Below Detection Limit
NCGWS = North Carolina Groundwater Standard per Title 15A, Subchapter 2L, Section .0202 of the North Carolina Administrative Code

TABLE 4
RCRA METAL ANALYTICALRESULTS

Constituent	Method	Unit	MW-1	MW-2	MW-3	MW-4	S-1	NCGWS
RCRA METALS								
Arsenic	206.2	ppm	BDL	BDL	BDL	BDL	BDL	0.050
Barium	200.7	ppm	0.8	BDL	0.1	BDL	BDL	2000.0
Cadmium	200.7	ppm	0.03	BDL	BDL	BDL	BDL	0.005
Chromium	200.7	ppm	BDL	BDL	BDL	BDL	BDL	0.050
Lead	200.7	ppm	2.06	BDL	BDL	BDL	BDL	0.015
Mercury	245.1	ppm	0.0003	BDL	BDL	BDL	BDL	0.0011
Selenium	239.2	ppm	BDL	BDL	BDL	BDL	BDL	0.050
Silver	200.7	ppm	BDL	BDL	BDL	BDL	BDL	0.018

ppm = parts per million
BDL = Below Detection Limit
NCGWS = North Carolina Groundwater Standard per Title 15A, Subchapter 2L, Section .0202 of the North Carolina Administrative Code

CONCLUSIONS

No chlorinated solvents were reported in any of the samples submitted for analysis; therefore, there is no evidence that surface water or shallow groundwater has been impacted by chlorinated solvents deriving from the Bud Lee Paving and Asphalt Company property or the Mingus Auto Repair facility. Toluene, which was reported in MW-3 and MW-4, is not a chlorinated solvent.

The metals concentrations reported in MW-1 are not at sufficiently high concentrations to conclusively establish that the North Carolina Groundwater Standards have been exceeded without additional sampling and analyses to corroborate these results.

error- MW-4 had tetrachloroethene. See Data Sheets

CLOSURE

Trigon Engineering Consultants, Inc. appreciates this opportunity to be of service to yourself. Should any questions arise concerning this report or if we can be of further service to you, please contact either of us at (704) 598-1049.

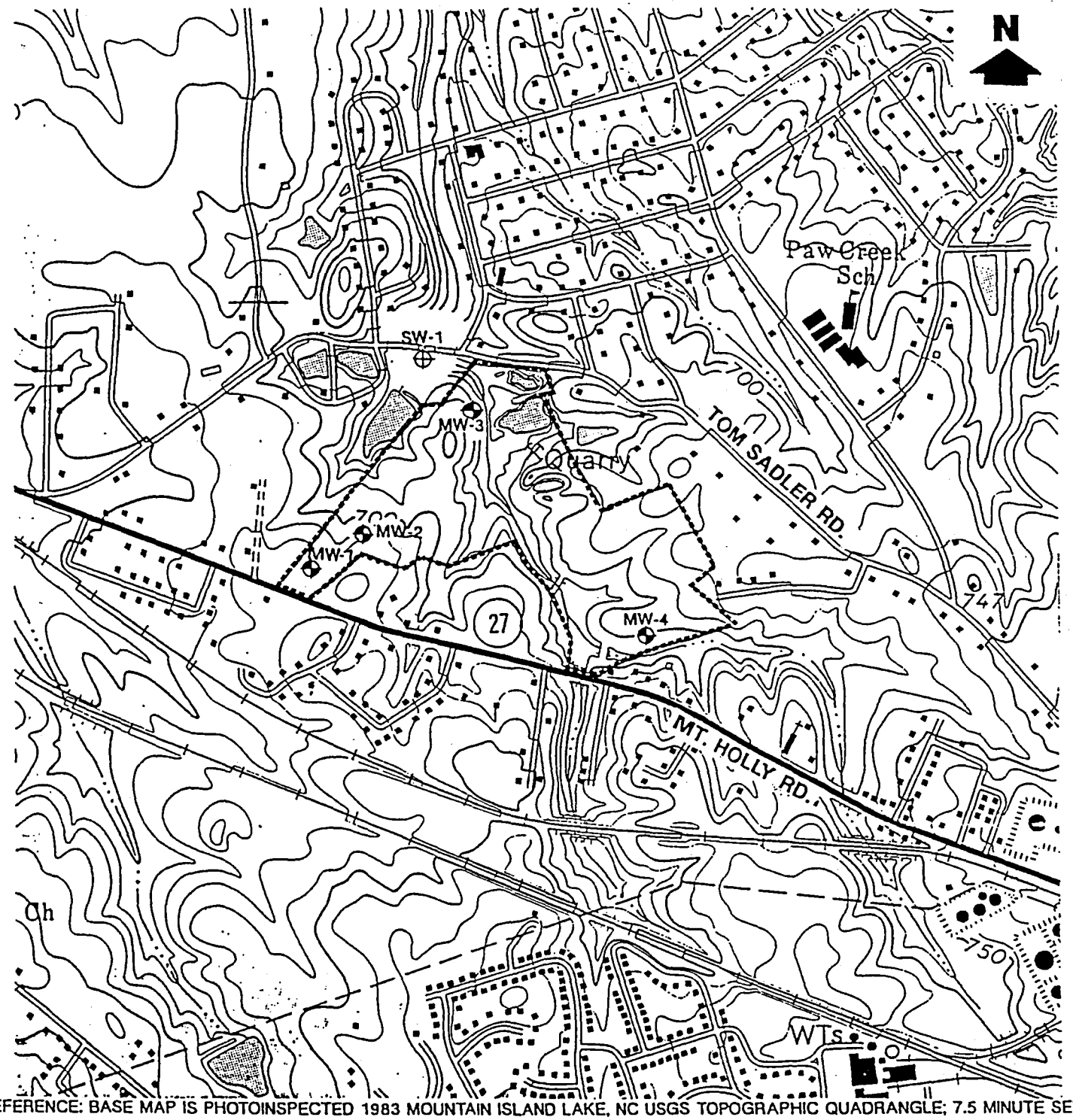
Very truly yours,
TRIGON ENGINEERING CONSULTANTS, INC.

Richard D. Griffiths
Environmental Manager

MTA/RDG:pkn
File:0250\254081S.RPT

APPENDIX A

FIGURES



REFERENCE: BASE MAP IS PHOTOINSPECTED 1983 MOUNTAIN ISLAND LAKE, NC USGS TOPOGRAPHIC QUADRANGLE; 7.5 MINUTE SERIES

LEGEND

- MONITORING WELL LOCATION
- SURFACE WATER SAMPLING LOCATION
- APPROXIMATE SITE BOUNDARIES

TRIGON ENGINEERING CONSULTANTS, INC.
CHARLOTTE, NORTH CAROLINA

SCALE: NOT TO SCALE	APPROVED BY:	DRAWN BY: PBJ
DATE: 9/21/94		

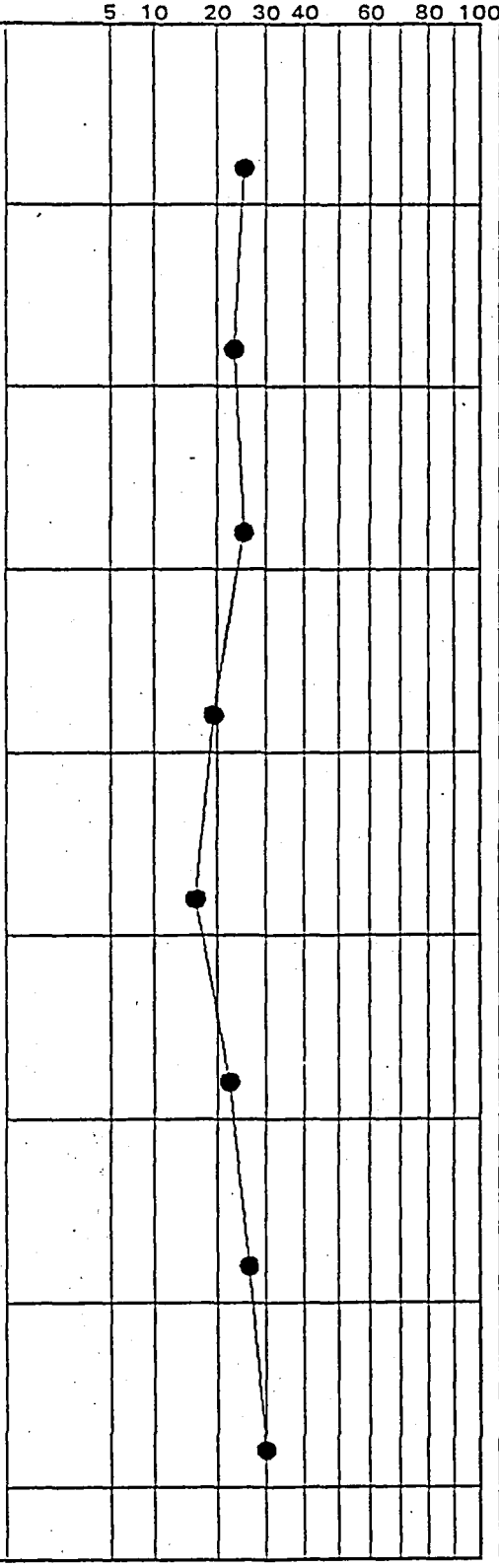
MATTOX DEVELOPMENT CORP. SITE

CHARLOTTE, NORTH CAROLINA

SAMPLE LOCATION DIAGRAM

DRAWING NUMBER
254081-1

DEPTH, FT.	DESCRIPTION	OVA Reading	Blow Count
0.0	Light Brown Fine Sandy SILT		25, 23, 25
13.0	Green-Brown Fine Sandy Silt CLAY		19
18.0	Green-Gray Silty CLAY		16
23.0	Green-Gray Fine Sandy SILT		22
28.0	Brown Clayey Fine Sandy SILT		26
33.0	Light Brown Gravelly Fine Sandy SILT		30
38.0	Light Brown Fine Sandy Clayey SILT		
40.0	Auger Refusal		



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D-1586

CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN, I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE-24 HR.
WATER TABLE-1 HR.
CAVE-IN DEPTH

BORING NO. MW-1
DATE DRILLED 08/17/94
JOB NO. 025-94-81
PAGE 1 of 1

TRIGON

APPENDIX B

TEST BORING AND WELL CONSTRUCTION RECORDS

DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-4064

W-1

WELL CONSTRUCTION RECORD

Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc. _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

DRILLING CONTRACTOR TRIKON
DRILLER REGISTRATION NUMBER 813

STATE WELL CONSTRUCTION PERMIT NUMBER: _____

WELL LOCATION: (Show sketch of the location below)
Nearest Town CHARLOTTE, N.C. County MECKLENBURG
(Road, Community, or Subdivision and Lot No.)
OWNER _____
ADDRESS _____
(Street or Route No.)
City or Town _____ State _____ Zip Code _____
DATE DRILLED 8-19-94 USE OF WELL MONITOR
TOTAL DEPTH 40' CUTTINGS COLLECTED ☐ Yes ☑ No
DOES WELL REPLACE EXISTING WELL? ☐ Yes ☑ No
STATIC WATER LEVEL 34.5 FT. ☑ above ☐ below TOP OF CASING.
TOP OF CASING IS 2.5 FT. ABOVE LAND SURFACE
YIELD (gpm) _____ METHOD OF TEST _____
WATER ZONES (depth) _____
CHLORINATION: Type _____ Amount _____

CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From 0	To 25'	Ft.	2"	SCH.40	PVC
From	To	Ft.			
From	To	Ft.			

GROUT:

	Depth		Material	Method
From 0	To 21'	Ft.	PORTLAND	SLURRY
From	To	Ft.		

SCREEN:

	Depth		Diameter	Slot Size	Material
From 25'	To 40	Ft.	2" in.	.010 in.	PVC
From	To	Ft.	in.	in.	
From	To	Ft.	in.	in.	

GRAVEL PACK:

	Depth		Size	Material
From 23	To 40'	Ft.	FILTER	SAND
From	To	Ft.		

REMARKS: _____

Depth From	Depth To	Formation Description
0	8"	TOPSOIL, GRASS, ROOT
8"	8.0'	TA-BRN-GRULY-FI-SA-SI
8.0'	18.0	BRN-ORN-FI-SA-SI-CL
18.0'	23.0	GRN-GR-SI-CL
23.0	28.0	GRN-GR-FI-SA-SI
28.0	33.0	SPECK-BRN-WHT-CL-FI-SA-SI
33.0	38.0	TA-BRN-GRULY-FI-SA-SI
38.0	40.0	TA-FI-SA-CL-SI

If additional space is needed use back of form.

LOCATION SKETCH
(Show direction and distance from at least two State Roads or other map reference points)

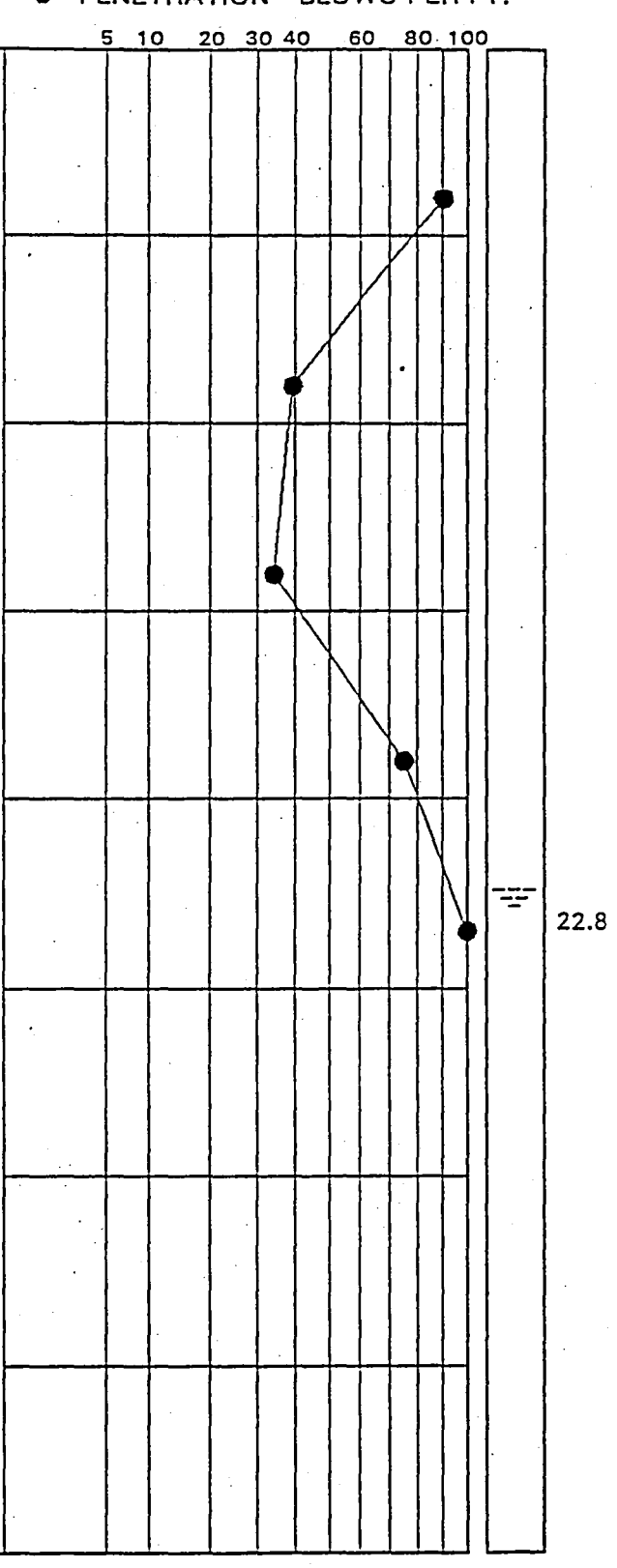
I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT _____ DATE _____

GW-1 Revised 11/84

Submit original to Division of Environmental Management and copy to well owner

DEPTH, FT.	DESCRIPTION	OVA Reading	Blow Count
0.0			
0.6	Topsoil		
	Tan Brown Slightly Sandy SILT		90
			39
			34
15.0	Tan Brown Partially Weathered Rock		75
			50/ 0.4
25.0	Boring Terminated		



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D-1586

CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN, I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE-24 HR.
WATER TABLE-1 HR.
CAVE-IN DEPTH

BORING NO. MW-2
DATE DRILLED 09/07/94
JOB NO. 025-94-81
PAGE 1 of 1

TRIGON

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

#mw2

WELL CONSTRUCTION RECORD

FOR OFFICE USE ONLY	
QUAD. NO.	SERIAL NO.
Lat.	Long. RO
Minor Basin	
Basin Code	
Header Ent.	GW-1 Ent.

DRILLING CONTRACTOR: McCall Bros # 401028

DRILLER REGISTRATION NUMBER: _____ STATE WELL CONSTRUCTION PERMIT NUMBER: _____

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Charlotte County: Mecklenburg
(Road, Community, or Subdivision and Lot No.)

2. OWNER _____
ADDRESS _____
(Street or Route No.)
City or Town State Zip Code

3. DATE DRILLED 9-7-94 USE OF WELL monitor
4. TOTAL DEPTH 30'
5. CUTTINGS COLLECTED YES ☐ NO ☑
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☑
7. STATIC WATER LEVEL Below Top of Casing: _____ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2' FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): _____ METHOD OF TEST blow
10. WATER ZONES (depth): 18'
11. CHLORINATION: Type — Amount _____
12. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	+2	20'	2"		PVC

13. GROUT:

	Depth From	Depth To	Material	Method
	0	16	cement	grout

14. SCREEN:

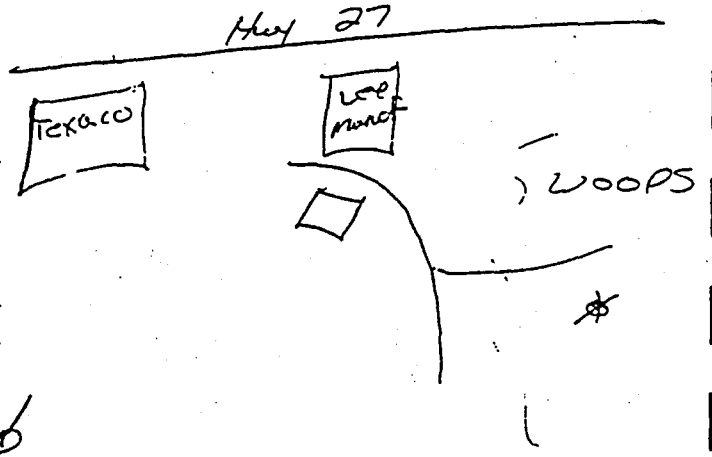
	Depth From	Depth To	Diameter	Slot Size	Material
	20'	30'	2"	.010	PVC

15. SAND/GRAVEL PACK:

	Depth From	Depth To	Size	Material
	18'	30'	#2	well gravel

16. REMARKS: _____

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)



If additional space is needed use back of form

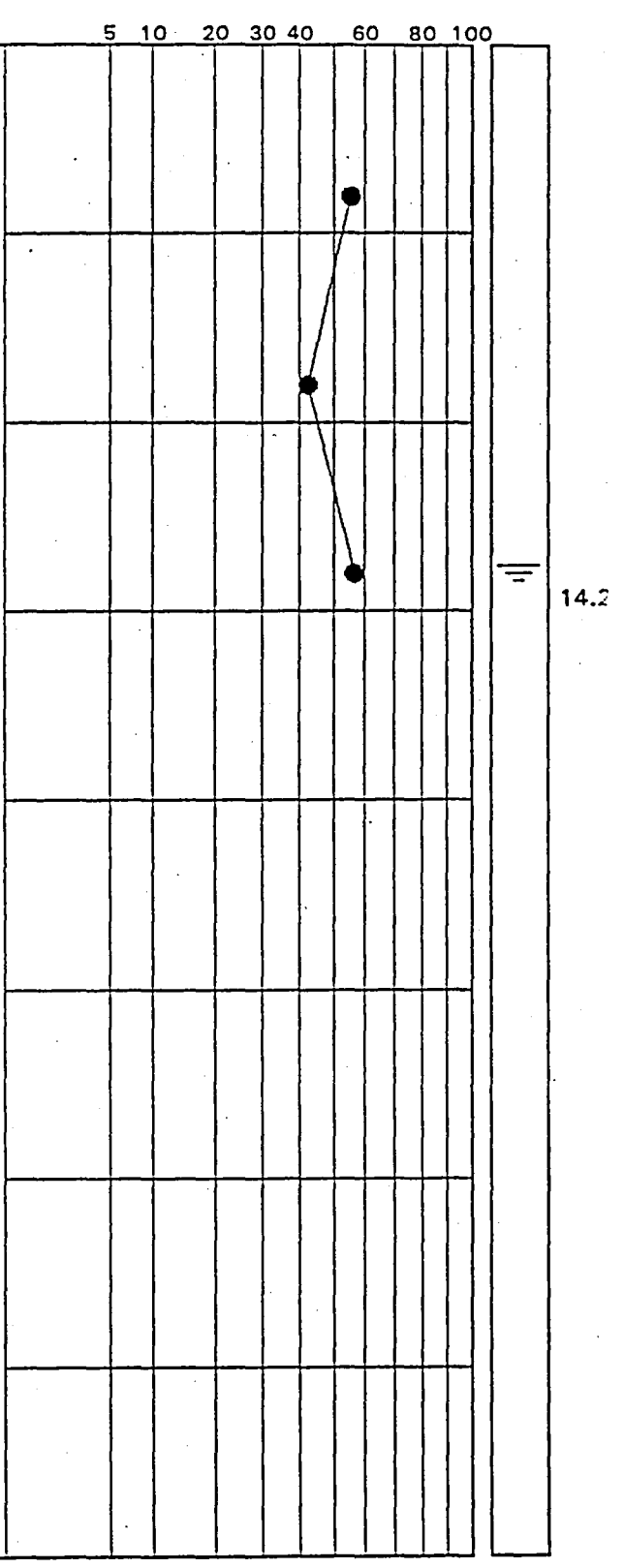
I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Gary McCall 9-7-94
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 9/91

DEPTH, FT.	DESCRIPTION	OVA Reading	Blow Count
0.0	Orange Brown Slightly Clayey SILT		55
5.0	Brown Fine SILT		42
10.0	Orange Brown Sandy SILT		56
17.0	Boring Terminated		



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D-1586

CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN, I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE-24 HR.
WATER TABLE-1 HR.
CAVE-IN DEPTH

BORING NO. MW-3
DATE DRILLED 09/07/94
JOB NO. 025-94-81
PAGE 1 of 1

TRIGON

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

mw 3

WELL CONSTRUCTION RECORD

FOR OFFICE USE ONLY	
QUAD. NO.	SERIAL NO.
Lat.	Long. RO
Minor Basin	
Basin Code	
Header Ent.	GW-1 Ent.

DRILLING CONTRACTOR: McCall Bros. #401028

STATE WELL CONSTRUCTION PERMIT NUMBER:

DRILLER REGISTRATION NUMBER: #3

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Charlotte County: Mecklenburg
(Road, Community, or Subdivision and Lot No.)

2. OWNER
ADDRESS
(Street or Route No.)
City or Town State Zip Code

3. DATE DRILLED 9-7-94 USE OF WELL monitor
4. TOTAL DEPTH 22'
5. CUTTINGS COLLECTED YES ☐ NO ☑
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☑
7. STATIC WATER LEVEL Below Top of Casing: _____ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS _____ FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): _____ METHOD OF TEST blow
10. WATER ZONES (depth): 15'

11. CHLORINATION: Type _____ Amount _____

12. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	+2	12'	2"		PVC

13. GROUT:

	Depth From	Depth To	Material	Method
	0	8'	cement	poured

14. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	12'	22'	2"	010	PVC

15. SAND/GRAVEL PACK:

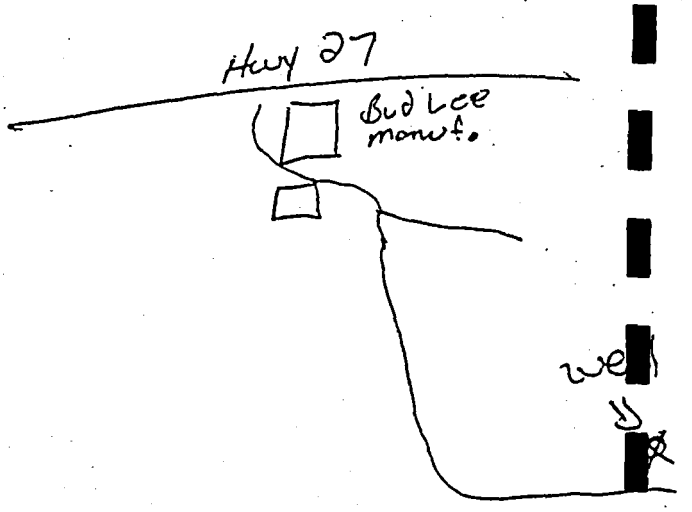
	Depth From	Depth To	Size	Material
	10'	22'	#2	well gravel

16. REMARKS:

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0	2'	Black soil
2'	4'	Orange Brown soil
4'	22'	Brown gravely soil

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)



I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Tracy McCall 9-7-94
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 9/91

DEPTH, FT.	DESCRIPTION	OVA Reading	Blow Count	● PENETRATION - BLOWS PER FT. (5 10 20 30 40 60 80 100)
0.0				
0.3	Topsoil			
	Tan Brown Slightly Sandy SILT		18	
8.0				
	Brown Tan Partially Weathered Rock		44	
			50/ 0.3	14.5
15.5				
	Boring Terminated			

TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D-1586

CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN, I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE

50% ROCK CORE RECOVERY

◄ LOSS OF DRILLING WATER

WATER TABLE-24 HR.

WATER TABLE-1 HR.

CAVE-IN DEPTH

BORING NO. MW-4

DATE DRILLED 09/07/94

JOB NO. 025-94-81

PAGE 1 of 1

TRIGON

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

WELL CONSTRUCTION RECORD

#MW 4

FOR OFFICE USE ONLY	
QUAD. NO.	SERIAL NO.
Lat.	Long. / RO
Minor Basin	
Basin Code	
Header Ent.	GW-1 Ent.

DRILLING CONTRACTOR: McCall Bros # 401028

STATE WELL CONSTRUCTION PERMIT NUMBER:

DRILLER REGISTRATION NUMBER: 3

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Charlotte County: Mecklenburg

(Road, Community, or Subdivision and Lot No.)

2. OWNER
ADDRESS
(Street or Route No.)

City or Town State Zip Code

3. DATE DRILLED 9-8-94 USE OF WELL monitor
4. TOTAL DEPTH 40'
5. CUTTINGS COLLECTED YES ☐ NO ☑
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☑
7. STATIC WATER LEVEL Below Top of Casing: _____ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS +2 FT. Above Land Surface*

* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): _____ METHOD OF TEST blow
10. WATER ZONES (depth): 35'

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0	4'	Brown soil
4'	40'	Brown gravelly soil

If additional space is needed use back of form

11. CHLORINATION: Type _____ Amount _____
12. CASING:

	Depth From	Depth To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	+2	25'		2"		PVC

13. GROUT:

	Depth From	Depth To	Ft.	Material	Method
	0'	21'		Cement	poured

14. SCREEN:

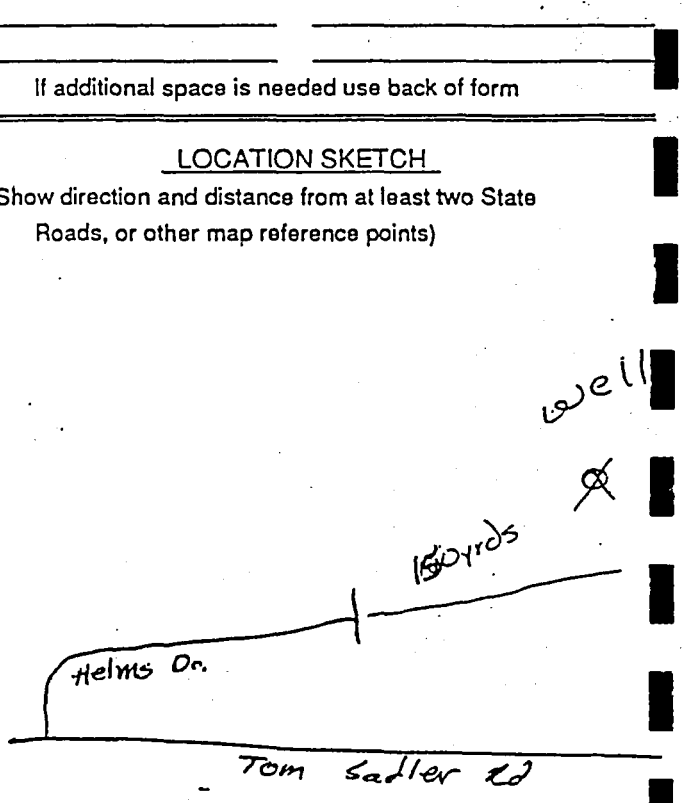
	Depth From	Depth To	Ft.	Diameter	Slot Size	Material
	25'	40'		2" in.	.010 in.	PVC
				in.	in.	
				in.	in.	

15. SAND/GRAVEL PACK:

	Depth From	Depth To	Ft.	Size	Material
	23'	40'		#2	well gravel

16. REMARKS:

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)



I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Barry McCall 9-7-94

SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 9/91

AquaChem
ENVIRONMENTAL LABORATORIES, INC.
11176 Downs Road
Pineville, NC 28134
704/588-5076
FAX 704/588-2454

NC Certification Number: 305
SC Certification Number: 99032

Client: Trigon Engineering Consultants
1920 Starita Road
Charlotte, N.C. 28206

Date of Report: 09/16/94
Received Date: 09/13/94

Approved By: Kenneth R. Richardson
Laboratory Supervisor

Contact: Mr. Richard Griffiths
Customer#: 5003

Laboratory Report

Lab ID: AA01779
Sample ID: MW-4

Parameter	Result	Detection Limit	Unit	Method	Time	Date	Analyst
Arsenic	BDL	0.005	ppm	EPA 206.2	08:30	09/14/94	KRR
Selenium	BDL	0.005	ppm	EPA 239.2	08:00	09/14/94	KRR
Cadmium	BDL	0.01	ppm	EPA 200.7	10:32	09/14/94	KRR
Chromium	BDL	0.05	ppm	EPA 200.7	10:32	09/14/94	KRR
Lead	BDL	0.05	ppm	EPA 200.7	10:32	09/14/94	KRR
Mercury	BDL	0.0005	ppm	EPA 245.1	11:00	09/16/94	KRR
Silver	BDL	0.01	ppm	EPA 200.7	10:32	09/14/94	KRR
Barium	BDL	0.1	ppm	EPA 200.7	14:51	09/14/94	KRR
Acenaphthene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Acenaphthylene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Anthracene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Benzoic Acid	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Benzo(a)anthracene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Benzo(b)fluoranthene	BDL	30	ppb	EPA 8270	20:17	09/14/94	ANM
Benzo(k)fluoranthene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Benzo(ghi)perylene	BDL	20	ppb	EPA 8270	20:17	09/14/94	ANM
Benzo(a)pyrene	BDL	19	ppb	EPA 8270	20:17	09/14/94	ANM
Benzyl alcohol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Bis(2-chloroethoxy) methane	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Bis(2-chloroethyl) ether	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Bis(2-chloroisopropyl) ether	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Bis(2-ethylhexyl) phthalate	BDL	19	ppb	EPA 8270	20:17	09/14/94	ANM
4-Bromophenyl phenyl ether	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Butyl benzyl phthalate	BDL	15	ppb	EPA 8270	20:17	09/14/94	ANM
4-Chloroaniline	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM

Lab ID: AA01779
Sample ID: MW-4

Parameter	Result	Detection Limit	Unit	Method	Time	Date	Analyst
2-Chloronaphthalene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
4-Chloro-3-methylphenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2-Chlorophenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
4-Chlorophenyl phenyl ether	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Chrysene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Dibenzo(a,h)anthracene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Dibenzofuran	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Di-n-butyl phthalate	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
1,3-Dichlorobenzene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
1,4-Dichlorobenzene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
1,2-Dichlorobenzene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
3,3-Dichlorobenzidine	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2,4-Dichlorophenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Diethylphthalate	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2,4-Dimethylphenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Dimethylphthalate	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
4,6-Dinitro-2-methylphenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2,4-Dinitrophenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2,4-Dinitrotoluene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2,6-Dinitrotoluene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Di-n-octyl phthalate	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Fluoranthene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Fluorene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Hexachlorobenzene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Hexachlorobutadiene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Hexachlorocyclopentadiene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Hexachloroethane	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Indeno(1,2,3-cd)pyrene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Isophorone	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2-Methylnaphthalene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2-Methylphenol (o-cresol)	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
4-Methylphenol (p-cresol)	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Naphthalene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2-Nitroaniline	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
3-Nitroaniline	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
4-Nitroaniline	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Nitrobenzene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2-Nitrophenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
4-Nitrophenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
N-nitroso-di-n-propylamine	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
N-nitrosodiphenylamine	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Pentachlorophenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Phenanthrene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM

Trigon Engineering Consultants

Date of Report: 09/16/94

Lab ID: AA01779

Sample ID: MW-4

Parameter	Result	Detection Limit	Unit	Method	Time	Date	Analyst
Phenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Styrene	BDL	13	ppb	EPA 8270	20:17	09/14/94	ANM
1,2,4-Trichlorobenzene	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2,4,5-Trichlorophenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
2,4,6-Trichlorophenol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
4,6-Dinitro-o-cresol	BDL	10	ppb	EPA 8270	20:17	09/14/94	ANM
Acetone	BDL	16	ppb	EPA 8240	10:55	09/14/94	ANM
Benzene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Bromodichloromethane	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Bromoform	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Bromomethane	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
2-Butanone	BDL	12	ppb	EPA 8240	10:55	09/14/94	ANM
Carbon disulfide	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
Carbon tetrachloride	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Chlorobenzene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Chlorodibromomethane	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
Chloroethane	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
2-Chloroethylvinyl ether	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
Chloroform	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Chloromethane	BDL	20	ppb	EPA 8240	10:55	09/14/94	ANM
1,1-Dichloroethane	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
1,2-Dichloroethane	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
1,1-Dichloroethene	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
trans-1,2-Dichloroethene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
1,2-Dichloropropane	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
cis-1,3-Dichloropropene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
trans-1,3-Dichloropropene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Ethylbenzene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
2-Hexanone	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Methylene chloride	BDL	14	ppb	EPA 8240	10:55	09/14/94	ANM
4-Methyl-2-Pentanone	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
Stryene	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
1,1,2,2-Tetrachloroethane	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
Tetrachloroethene	125	5	ppb	EPA 8240	10:55	09/14/94	ANM
Toluene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
1,1,1-Trichloroethane	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
1,1,2-Trichloroethane	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Trichloroethene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
Vinyl acetate	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
Vinyl chloride	BDL	10	ppb	EPA 8240	10:55	09/14/94	ANM
Total Xylenes	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM
1,1,1,2-Tetrachloroethane	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM

Trigon Engineering Consultants

Date of Report: 09/16/94

Lab ID: AA01779
Sample ID: MW-4

Parameter	Result	Detection Limit	Unit	Method	Time	Date	Analyst
cis-1,2-Dichloroethene	BDL	5	ppb	EPA 8240	10:55	09/14/94	ANM

RECEIVED
JAN 16 1984
SOLID & HAZARDOUS WASTE MANAGEMENT BRANCH

P.O. Box 421
Paw Creek, North Carolina 28130
January 13, 1983

Mr. Frank Moore
North Carolina Solid Waste Disposal
Division of Health Services
Box 2091
Raleigh, North Carolina 27602

Dear Mr. Moore:

Pursuant to our telephone conversation of January 10th, I have made Xerox copies of several color photographs of the property you inquired about. Although these copies leave much to be desired, I believe you will be able to see the area well enough to see much rubble, tires, barrels, etc. As described in the attached letters, this dump was a pond, whose waters ultimately empty into the Catawba River, via Long Creek, and Gum Branch, and everything imaginable has been emptied into it over the years. When the area was cleaned up as directed by the Mecklenburg County Department of Environmental Health, the rubble was buried on the property, and although the owners were directed to record the buriel site with the Register of Deeds as required by law, that office cannot find any record of such registration.

The photograph I have marked exhibit 'B' that appears to be a grassy field has the same history as the dump described in the above paragraph, and is the location of the abandoned bus referred to in one of the attached letters. This property is located on Tom Sadler Road, and all manner of tires, drums, discarded appliances, demolished buildings, construction refuse, etc., was dumped into it. Several years ago on a hot summer day, there was an explosion of something that had been deposited in this site, and the resulting fires was of such magnitude that it took the volunteer fire department several hours to extinguish the blaze. After this accident, the owner of the property had the debris buried with the exception of the abondoned bus. The Register of Deeds office likewise cannot find any record of the registration of this dump. I have no information that assures that a soil sample of this area was taken, but I feel it is certainly warranted, and hereby request that this be done.

January 13, 1983

Mr. Frank Moore
Raleigh, North Carolina 27602

I hope this information and my enclosures will benefit you in your investigation of this property.

Yours truly,

Cletus W. Goodwin

CWG/bjg

cc: Gov. Jim Hunt, Raleigh, North Carolina
cc: Lt. Gov. Jimmy Greene, Raleigh, North Carolina
cc: Sen. Craig Lawing, Raleigh, North Carolina
cc: Hon. Liston Ramsey, Raleigh, North Carolina
cc: Mr. Russell S. Rozzelle, Environmental Health Supervisor, Mecklenburg County
cc: Mr. D. Rex Gleason, P.E., Water Quality Regional Engineer, Mooresville, N.C.

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

WASTEWATER MANAGEMENT

POST OFFICE BOX 950

MOORESVILLE, NORTH CAROLINA 28115

REPORT OF Complaint Investigation

PLACE VISITED Residence of C. W. Goodwin DATE 6/9/83

ADDRESS 1415 Tom Saddler Rd., Paw Creek, NC RIVER BASIN

BY WHOM Charlotte Greenlee TIME SPENT 3½ hours

PERSONS CONTACTED Mr. C. W. Goodwin

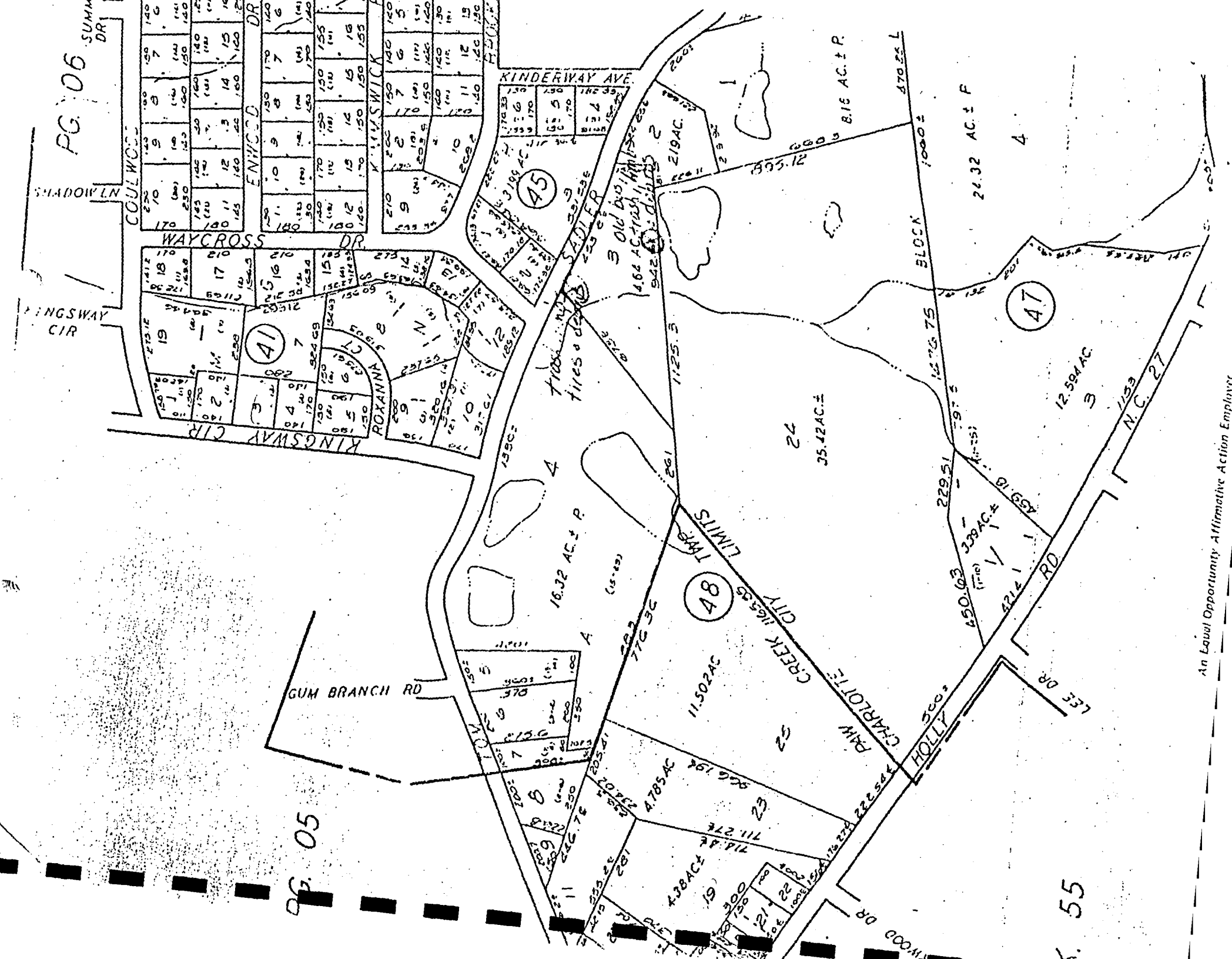
REASON FOR VISIT Mr. Goodwin reported old gravel pits containing trash, drums and fill material were to be used as a construction site. He does not believe the area to be suitable for such.

COPIES TO: Mecklenburg County Health Department
Rick Doby-Solids and Hazardous Wastes-Human Resources
C. W. Goodwin

REPORT: (704) 663-1699

On June 9, 1983 Charlotte Greenlee of this Office investigated the subject complaint, which was received on May 26, 1983 from Mr. C. W. Goodwin. Upon arrival at the site, it was found that the abandoned pit area was approximately 1½-2½ acres in size and filled with water which flows from the lower end of the pools (water filled abandoned gravel pits) into a tributary of Gum Creek. The land area was covered in refuse, fill materials, drums, old construction materials, etc. This type of material was also contained in the water filled pits. On some sections of the water there was a visible oily scum. The water was capable of supporting life since there were various algaes and minnows abundant in the water. Water samples from the ponds and stream were taken for analysis.

This appears to be a situation which warrants investigation by both the Mecklenburg County Health Department and the Department of Human Resources Solids and Hazardous Wastes Division. A copy of this report will be sent to those agencies, as well as the results of the laboratory analysis when it is completed. Upon completion of analysis that report will also be sent to Mr. Goodwin.



An Equal Opportunity Affirmative Action Employer

COUNTY OF MECKLENBURG

The undersigned, Mattox Parts Supply, Inc., owner of property located at Hwy. 27 west- 2 miles from Meck. Co. line, ("the site"), and described in instrument recorded in Book 4105 at Page 304, Mecklenburg Public Registry, on _____ 19 buried or caused to be buried solid waste on the above property, in accordance with regulations promulgated by the North Carolina Department of Human Resources as 10 NCAC 0100 et seq., and the Mecklenburg County Board of Commissioners as the Mecklenburg County Solid Waste Management Regulations.

The precise location of this burial site is shown on the attached plat as prepared and certified by a North Carolina registered surveyor. The average depth of the disposal site is 20 ft. (Measured from ground level).

The exact composition of the solid waste buried on the attached site is listed below in terms as defined in the Mecklenburg County Solid Waste Management Regulations. If the solid waste composition is not described in the above-referenced regulations please specify:

stumps, concrete, steel, all shapes and sizes of lumber, telephone poles, bath tubs, commode, rugs, cloth, paper, cardboard, plastic, glass, leaves, tree limbs, large rocks, aluminum siding, gutters

This document shall be placed on the public records of the Register of Deeds of Mecklenburg County and indexed therein under the Grantor Index in the name or names of the undersigned, and the foregoing acknowledgements shall henceforth be binding on all persons claiming any right, title, or interest in the site.

Use of the singular masculine pronoun forms herein shall be deemed also to include the plural and feminine forms as the context may require.

This 31 day of Oct, 19 83

By: [signature] (seal)

Attest: [signature] (seal)
Secretary

STATE OF NORTH CAROLINA
COUNTY OF MECKLENBURG

I, Edward Johnston, a Notary Public for said County and State, do hereby certify that Eddie L. Mattox and Linda Mattox personally appeared before me this date and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and notarial seal, this 31 day of Oct. 19 83

[signature]
Notary Public
My Commission Expires: 4-30-86

STATE OF NORTH CAROLINA
COUNTY OF MECKLENBURG

I, Edward Johnston, a Notary Public for said County and State, do hereby certify that Eddie L. Mattox personally came before me this day and acknowledged that he is President of Mattox Parts Supply, Inc., and that by authority duly given and as the act and deed of said corporation, the foregoing instrument was signed in its name by its President, sealed with its corporate seal and attested by Linda D. Mattox.

WITNESS my hand and notarial seal, this 31 day of Oct. 19 83

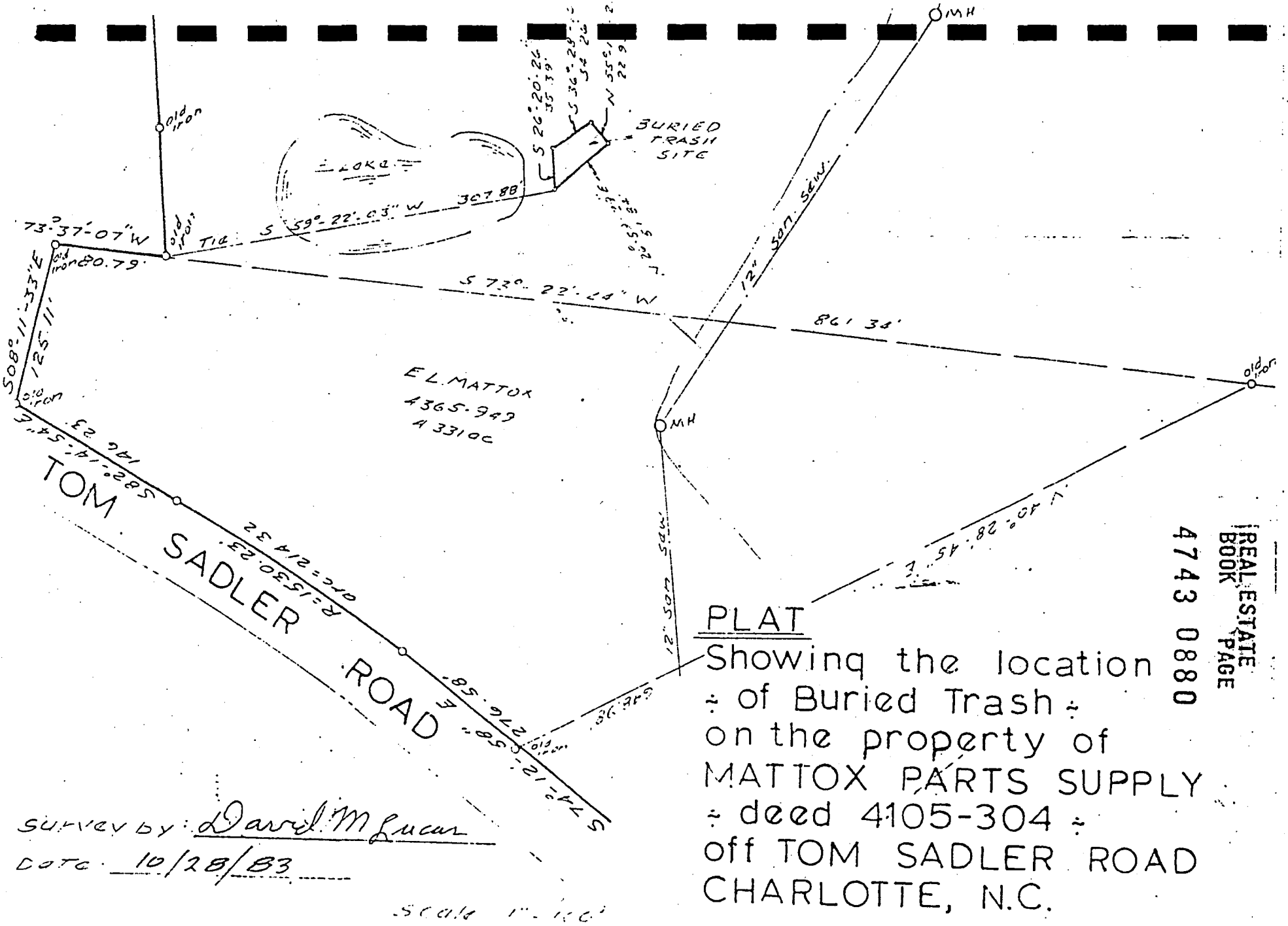
[signature]
Notary Public
My Commission Expires: 4-30-86

DRAWN By:

REGISTER OF DEEDS; after recording send to:
Mecklenburg County Department of
Environmental Health
1200 Blythe Boulevard
Charlotte, NC 28203

PRESENTED FOR REGISTRATION
OCT 31 2 05 PM 83
CHARLES E. CROWDER
REGISTER OF DEEDS
MECKLENBURG COUNTY

REAL ESTATE BOOK 4743 PAGE 0877



PLAT
Showing the location
÷ of Buried Trash ÷
on the property of
MATTOX PARTS SUPPLY
÷ deed 4105-304 ÷
off TOM SADLER ROAD
CHARLOTTE, N.C.

REAL ESTATE BOOK 4743 PAGE 0880

P.O. Box 421
Paw Creek, North Carolina 28130
January 20, 1984

Mr. Frank E. Moore, Geologist
Solid & Hazardous Waste Management Branch
Environmental Health Section
Division of Health Services
P.O. Box 2091
Raleigh, North Carolina 27602-2091

RECEIVED
JAN 23 1984
SOLID & HAZARDOUS WASTE MANAGEMENT BRANCH

Dear Mr. Moore:

I appreciate your letter concerning the 'Budd Lee Paving Company dump site', however, my concern is for the property belonging to Mattox Auto Parts, and to Ed Mattox, both of which I identified on the map enclosed with my letter.

Also, I would appreciate your response to my request that a soil sample be taken from the Ed Mattox property that fronts on Tom Sadler Road.

Thank you.

Yours truly,

Cletus W. Goodwin

Cletus W. Goodwin

CWG/bjg

Called 1-23-84
Explained that he should return complaint to County Solid Waste Personnel (Mr. Rozzelle)
D. Moore

MEMO

DATE: April 27, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

On June 30, 1994, I spoke with Jerry Stahl, Environmental Hygienist, Mecklenburg County Department of Environmental Protection (704) 336-5500. I asked him to interpret some information on a list of sampled wells received from his office on 9/13/93 (attached). He said that the fourth column (having either D or N) indicates if any contaminants were detected (D) or not detected (N). The Y in the fifth column indicates that the person has been notified. Mr. Stahl also sent me the follow-up analyses of the contaminated wells in the area. This information is attached.

On April 12, 1995, I spoke with Barbara Wiggins, of the same department. She spoke with Jerry Stahl and forwarded the latest well sampling data to me. This information is also attached. On April 26, 2995, I spoke with Rusty Rozzelle of the same department. He said that Mecklenburg County has recently produced a map of tested water supply wells in the Paw Creek area. The well locations have been indicated by use of the GIS system. A copy of this map is attached.

Paw Creek
Mecklenburg Co., NC

N

Scale: 1" equals 675'

Ground Water

- Wells contaminated with chlorinated compounds
- Wells contaminated with gasoline compounds
- Wells with no contamination
- Wells tested twice (different results)
- Wells over the drinking water standard
- Petroleum ground water contamination associated with the terminals

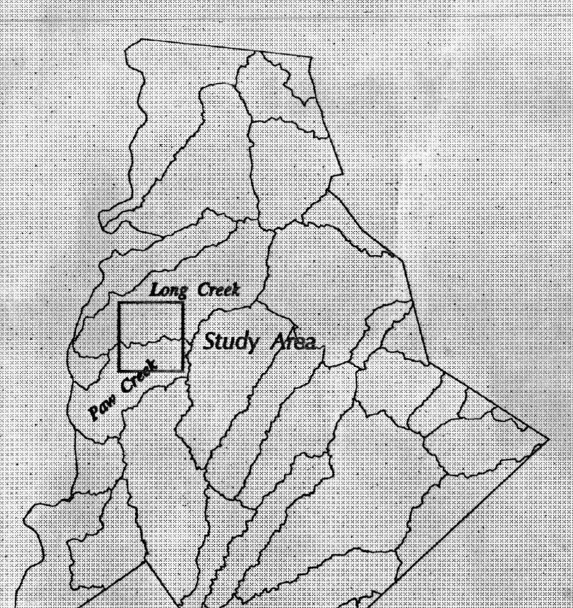
Surface Water

- Stream sampling locations
- Permitted discharge points

General

- Above ground petroleum storage tanks
- Streams
- Street centerlines
- Railroads
- Petroleum pipelines
- Watershed boundary
- Water lines (greater than 12" diameter)
- Sewer lines

Watershed Boundaries



Produced for Mecklenburg County Environmental Protection Agency
By Mecklenburg County GIS

MECKLENBURG COUNTY
Department of Environmental Protection

April 13, 1995

Mr. Jack Bennett
7212 Old Mount Holly Road
Charlotte, NC 28214

RE: Water Sample

Dear Mr. Bennett:

On March 21, 1995, Mecklenburg County Department of Environmental Protection (MCDEP) resampled your well. The samples were analyzed for volatile organic compounds. Volatile organic compounds include a wide range of manmade compounds including, but not limited to gasoline components and chlorinated solvents (i.e. degreasers, etc.).

Laboratory results from these samples indicate at the time of sampling there were no volatile organic compounds present in your drinking water.

If you have any questions, please call me at 336-5500.

Sincerely,

William (Jerry) Stahl, R.S.
Environmental Hygienist
Water Quality Section

700 N. Tryon Street • Suite 205 • Charlotte, NC 28202-2236 • (704) 336-5500 • FAX (704) 336-4391

MECKLENBURG COUNTY ENVIRONMENTAL PROTECTION LABORATORY

Field I.D.#: 188705 Dept.: WQ Lab I.D. #: 1075

Site Sampled: JACK BENNETT Project: Rec'd By: [illegible]

Address: 7214 Old Mt. Holly Road / Trailer Date Rec'd: MAR 21 1995

Source Sampled: Kitchen Sink Delivered to Lab On: Time: 1505 ☐AM ☐PM

Sampled By: Stahl Date: 3/21/95 Time: 1130 ☐AM ☒PM

Date Sampled: 3/21/95 Time: 1105 ☒AM ☐PM Delivered By:

Chemical Composition

Inorganic ☐ _____ %

Organic ☐ _____ %

Moisture ☐ _____ %

Radioactivity

Air

Gross Alpha ☐ _____ pCi/m³

Gross Beta ☐ _____ pCi/m³

Water

Gross Alpha ☐ _____ pCi/L

Gross Beta ☐ _____ pCi/L

Miscellaneous

Asbestos ☐ _____ %

Chlorophyll a ☐ _____ ppb

Corrosivity ☐ _____ SI

Dissolved Oxygen ☐ _____ ppm

Formaldehyde ☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

Inorganic Non Metals

Acidity ☐ _____ ppm

Alkalinity ☐ _____ ppm

Bicarbonate ☐ _____ ppm

Carbonate ☐ _____ ppm

Chloride ☐ _____ ppm

Chlorine, Residual ☐ _____ ppm

Color ☐ _____ units

Cyanide, Total ☐ _____ ppm

Fluoride ☐ _____ ppm

Hardness ☐ _____ ppm

Nitrogen, Ammonia ☐ _____ ppm

Nitrogen, Nitrate + Nitrite ☐ _____ ppm

Nitrogen, Nitrate ☐ _____ ppm

Nitrogen, Nitrite ☐ _____ ppm

Nitrogen, Total Kjeldahl ☐ _____ ppm

pH ☐ _____ units

Phosphorus, Ortho ☐ _____ ppm

Phosphorus, Total ☐ _____ ppm

Phosphorus, Total Dissolved ☐ _____ ppm

Residue, Filterable ☐ _____ ppm

Residue, Suspended ☐ _____ ppm

Residue, Total ☐ _____ ppm

Specific Conductance ☐ _____ umho/cm

Sulfate ☐ _____ ppm

Sulfide ☐ _____ ppm

Turbidity ☐ _____ NTU

Aggregate Organics

BOD_5 ☐ _____ ppm

COD ☐ _____ ppm

Oil and Grease ☐ _____ ppm

Phenol ☐ _____ ppm

Surfactant ☐ _____ ppm

Organics

Acid Herbicide ☐ Report attached

Organic Acid ☐ _____ ppm

PCB ☐ Report attached

Pesticide ☐ Report attached

Semivolatile ☐ Report attached

TPH ☐ _____ ppm

VOC ☒ Report attached

Mineral Metals

Al ☐	_____ ppm	_____ ppb
Ca ☐	_____ ppm	_____ ppb
Co ☐	_____ ppm	_____ ppb
Cu ☐	_____ ppm	_____ ppb
Fe ☐	_____ ppm	_____ ppb
Mg ☐	_____ ppm	_____ ppb
Mn ☐	_____ ppm	_____ ppb
K ☐	_____ ppm	_____ ppb
Si ☐	_____ ppm	_____ ppb
Na ☐	_____ ppm	_____ ppb
Sn ☐	_____ ppm	_____ ppb
Zn ☐	_____ ppm	_____ ppb
☐	_____ ppm	_____ ppb

Toxic Metals

TCLP Metals ☐

Sb ☐	_____ ppb	_____ ppm
As ☐	_____ ppb	_____ ppm
Ba ☐	_____ ppb	_____ ppm
Be ☐	_____ ppb	_____ ppm
Cd ☐	_____ ppb	_____ ppm
Cr ☐	_____ ppb	_____ ppm
Pb ☐	_____ ppb	_____ ppm
Hg ☐	_____ ppb	_____ ppm
Ni ☐	_____ ppb	_____ ppm
Se ☐	_____ ppb	_____ ppm
Ag ☐	_____ ppb	_____ ppm
Tl ☐	_____ ppb	_____ ppm
☐	_____ ppb	_____ ppm

NOTE: **ALL FIELD DATA MUST BE RECORDED TO MAINTAIN CHAIN OF CUSTODY**

Remarks: Resample for 2-Butanone (MEK)

Date Completed: APR 10 1995

Laboratory Director: [illegible]

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MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 1675
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
Acetone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrolein	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrylonitrile	< 100	100	8240B (f), 524.1 (i), 624 (g)
Benzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromodichloromethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromoform	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Butanone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Carbon Disulfide	< 5	5	8240B (f), 524.1 (i), 624 (g)
Carbon Tetrachloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroform	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorodibromomethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
2-Chloroethyl Vinyl Ether	< 10	10	8240B (f), 524.1 (i), 624 (g)
1,2-Dichlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,3-Dichlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,4-Dichlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,2-Dichlorethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,2-Dichloroethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloropropane	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Ethylbenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Hexanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
4-Methyl-2-Pentanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
Methyl Bromide	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 1071
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics(cont)

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
Methylene Chloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
MTBE	< 5	5	8240B (f), 524.1 (i), 624 (g)
Styrene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,2,2 Tetrachloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Tetrachloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Toluene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,1-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,2-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichlorofluoromethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
Vinyl Acetate	< 50	50	8240B (f), 524.1 (i), 624 (g)
Vinyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Xylenes (total)	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY ENVIRONMENTAL PROTECTION LABORATORY

Field I.D.#: [illegible] Dept.: WQ Lab I.D. #: 764

Site Sampled: JACK BENNETT Project: Rec'd By: Bergner

Address: 7212 OLD MT Holly Rd. Date Rec'd: 2-14-95

Source Sampled: OUTSIDE Delivered to Lab On: Time: 1535 ☐AM ☐PM

Sampled By: STAHL Date: 02/13/95 Time: 355 ☐AM ☒PM

Date Sampled: 02/13/95 Time: 1245 ☐AM ☒PM Delivered By: STAHL

Chemical Composition

Inorganic ☐ _____ %

Organic ☐ _____ %

Moisture ☐ _____ %

Radioactivity

Air

Gross Alpha ☐ _____ pCi/m³

Gross Beta ☐ _____ pCi/m³

Water

Gross Alpha ☐ _____ pCi/L

Gross Beta ☐ _____ pCi/L

Miscellaneous

Asbestos ☐ _____ %

Chlorophyll a ☐ _____ ppb

Corrosivity ☐ _____ SI

Dissolved Oxygen ☐ _____ ppm

Formaldehyde ☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

Inorganic Non Metals

Acidity ☐ _____ ppm

Alkalinity ☐ _____ ppm

Bicarbonate ☐ _____ ppm

Carbonate ☐ _____ ppm

Chloride ☐ _____ ppm

Chlorine, Residual ☐ _____ ppm

Color ☐ _____ units

Cyanide, Total ☐ _____ ppm

Fluoride ☐ _____ ppm

Hardness ☐ _____ ppm

Nitrogen, Ammonia ☐ _____ ppm

Nitrogen, Nitrate + Nitrite ☐ _____ ppm

Nitrogen, Nitrate ☐ _____ ppm

Nitrogen, Nitrite ☐ _____ ppm

Nitrogen, Total Kjeldahl ☐ _____ ppm

pH ☐ _____ units

Phosphorus, Ortho ☐ _____ ppm

Phosphorus, Total ☐ _____ ppm

Phosphorus, Total Dissolved ☐ _____ ppm

Residue, Filterable ☐ _____ ppm

Residue, Suspended ☐ _____ ppm

Residue, Total ☐ _____ ppm

Specific Conductance ☐ _____ umho/cm

Sulfate ☐ _____ ppm

Sulfide ☐ _____ ppm

Turbidity ☐ _____ NTU

Aggregate Organics

BOD_5 ☐ _____ ppm

COD ☐ _____ ppm

Oil and Grease ☐ _____ ppm

Phenol ☐ _____ ppm

Surfactant ☐ _____ ppm

Organics

Acid Herbicide ☐ Report attached

Organic Acid ☐ _____ ppm

PCB ☐ Report attached

Pesticide ☐ Report attached

Semivolatile ☐ Report attached

TPH ☐ _____ ppm

VOC ☒ Report attached

Mineral Metals

Al ☐	_____ ppm	_____ ppb
Ca ☐	_____ ppm	_____ ppb
Co ☐	_____ ppm	_____ ppb
Cu ☐	_____ ppm	_____ ppb
Fe ☐	_____ ppm	_____ ppb
Mg ☐	_____ ppm	_____ ppb
Mn ☐	_____ ppm	_____ ppb
K ☐	_____ ppm	_____ ppb
Si ☐	_____ ppm	_____ ppb
Na ☐	_____ ppm	_____ ppb
Sn ☐	_____ ppm	_____ ppb
Zn ☐	_____ ppm	_____ ppb
☐	_____ ppm	_____ ppb

Toxic Metals

TCLP Metals ☐

Sb ☐	_____ ppb	_____ ppm
As ☐	_____ ppb	_____ ppm
Ba ☐	_____ ppb	_____ ppm
Be ☐	_____ ppb	_____ ppm
Cd ☐	_____ ppb	_____ ppm
Cr ☐	_____ ppb	_____ ppm
Pb ☐	_____ ppb	_____ ppm
Hg ☐	_____ ppb	_____ ppm
Ni ☐	_____ ppb	_____ ppm
Se ☐	_____ ppb	_____ ppm
Ag ☐	_____ ppb	_____ ppm
Tl ☐	_____ ppb	_____ ppm
☐	_____ ppb	_____ ppm

NOTE: **ALL FIELD DATA MUST BE RECORDED TO MAINTAIN CHAIN OF CUSTODY**

Remarks: _____

FEB 23 1995

Date Completed: _____

Laboratory Director: _____

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MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 764
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
Acetone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrolein	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrylonitrile	< 100	100	8240B (f), 524.1 (i), 624 (g)
Benzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromodichloromethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromoform	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Butanone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Carbon Disulfide	< 5	5	8240B (f), 524.1 (i), 624 (g)
Carbon Tetrachloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroform	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorodibromomethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
2-Chloroethyl Vinyl Ether	< 10	10	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,2-Dichlorethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,2-Dichloroethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloropropane	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Ethylbenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Hexanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
4-Methyl-2-Pentanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
Methyl Bromide	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methylene Chloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
MTBE	< 5	5	8240B (f), 524.1 (i), 624 (g)
Styrene	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 764
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics(cont)

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
1,1,2,2 Tetrachloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Tetrachloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Toluene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,1-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,2-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichlorofluoromethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
Vinyl Acetate	< 50	50	8240B (f), 524.1 (i), 624 (g)
Vinyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Xylenes (total)	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY
Department of Environmental Protection

April 13, 1995

Mr. J.G. Marion
452 Kimmswick Road
Charlotte, NC 28214

RE: Water Sample

Dear Mr. Marion:

On February 13, 1995, Mecklenburg County Department of Environmental Protection (MCDEP) resampled your well. The samples were analyzed for volatile organic compounds. Volatile organic compounds include a wide range of manmade compounds including, but not limited to gasoline components and chlorinated solvents (i.e. degreasers, etc.).

Laboratory results from these samples indicate at the time of sampling there were no volatile organic compounds present in your drinking water.

If you have any questions, please call me at 336-5500.

Sincerely,

William (Jerry) Stahl, R.S.
Environmental Hygienist
Water Quality Section

700 N. Tryon Street • Suite 205 • Charlotte, NC 28202-2236 • (704) 336-5500 • FAX (704) 336-4391

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MECKLENBURG COUNTY ENVIRONMENTAL PROTECTION LABORATORY

Field I.D.#: _____ Dept.: WQ

Site Sampled: JG Martin Project: _____

Address: 4515 Kingston

Source Sampled: OUTSIDE Delivered to Lab On:

Sampled By: STAHL Date: 02/13/95 Time: 1350 ☐AM ☒PM

Date Sampled: 02/13/95 Time: 1505 ☐AM ☒PM Delivered By: STAHL

Lab I.D. #: 761

Rec'd By: Bergman

Date Rec'd: ~~1535~~ 2-14-

Time: 1535 ☐AM ☐PM

Chemical Composition

Inorganic ☐ _____ %

Organic ☐ _____ %

Moisture ☐ _____ %

Radioactivity

Air

Gross Alpha ☐ _____ pCi/m³

Gross Beta ☐ _____ pCi/m³

Water

Gross Alpha ☐ _____ pCi/L

Gross Beta ☐ _____ pCi/L

Miscellaneous

Asbestos ☐ _____ %

Chlorophyll a ☐ _____ ppb

Corrosivity ☐ _____ SI

Dissolved Oxygen ☐ _____ ppm

Formaldehyde ☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

Inorganic Non Metals

Acidity ☐ _____ ppm

Alkalinity ☐ _____ ppm

Bicarbonate ☐ _____ ppm

Carbonate ☐ _____ ppm

Chloride ☐ _____ ppm

Chlorine, Residual ☐ _____ ppm

Color ☐ _____ units

Cyanide, Total ☐ _____ ppm

Fluoride ☐ _____ ppm

Hardness ☐ _____ ppm

Nitrogen, Ammonia ☐ _____ ppm

Nitrogen, Nitrate + Nitrite ☐ _____ ppm

Nitrogen, Nitrate ☐ _____ ppm

Nitrogen, Nitrite ☐ _____ ppm

Nitrogen, Total Kjeldahl ☐ _____ ppm

pH ☐ _____ units

Phosphorus, Ortho ☐ _____ ppm

Phosphorus, Total ☐ _____ ppm

Phosphorus, Total Dissolved ☐ _____ ppm

Residue, Filterable ☐ _____ ppm

Residue, Suspended ☐ _____ ppm

Residue, Total ☐ _____ ppm

Specific Conductance ☐ _____ umho/cm

Sulfate ☐ _____ ppm

Sulfide ☐ _____ ppm

Turbidity ☐ _____ NTU

Aggregate Organics

BOD_5 ☐ _____ ppm

COD ☐ _____ ppm

Oil and Grease ☐ _____ ppm

Phenol ☐ _____ ppm

Surfactant ☐ _____ ppm

Organics

Acid Herbicide ☐ Report attached

Organic Acid ☐ _____ ppm

PCB ☐ Report attached

Pesticide ☐ Report attached

Semivolatile ☐ Report attached

TPH ☐ _____ ppm

VOC ☒ Report attached

Mineral Metals

Al ☐	_____ ppm	_____ ppb
Ca ☐	_____ ppm	_____ ppb
Co ☐	_____ ppm	_____ ppb
Cu ☐	_____ ppm	_____ ppb
Fe ☐	_____ ppm	_____ ppb
Mg ☐	_____ ppm	_____ ppb
Mn ☐	_____ ppm	_____ ppb
K ☐	_____ ppm	_____ ppb
Si ☐	_____ ppm	_____ ppb
Na ☐	_____ ppm	_____ ppb
Sn ☐	_____ ppm	_____ ppb
Zn ☐	_____ ppm	_____ ppb
☐	_____ ppm	_____ ppb

Toxic Metals

TCLP Metals ☐

Sb ☐	_____ ppb	_____ ppm
As ☐	_____ ppb	_____ ppm
Ba ☐	_____ ppb	_____ ppm
Be ☐	_____ ppb	_____ ppm
Cd ☐	_____ ppb	_____ ppm
Cr ☐	_____ ppb	_____ ppm
Pb ☐	_____ ppb	_____ ppm
Hg ☐	_____ ppb	_____ ppm
Ni ☐	_____ ppb	_____ ppm
Se ☐	_____ ppb	_____ ppm
Ag ☐	_____ ppb	_____ ppm
Tl ☐	_____ ppb	_____ ppm
☐	_____ ppb	_____ ppm

NOTE: **ALL FIELD DATA MUST BE RECORDED TO MAINTAIN CHAIN OF CUSTODY**

Remarks: _____

FEB 23 1995

Date Completed: _____

Laboratory Director: _____

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MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 761
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
Acetone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrolein	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrylonitrile	< 100	100	8240B (f), 524.1 (i), 624 (g)
Benzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromodichloromethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromoform	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Butanone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Carbon Disulfide	< 5	5	8240B (f), 524.1 (i), 624 (g)
Carbon Tetrachloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroform	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorodibromomethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
2-Chloroethyl Vinyl Ether	< 10	10	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,2-Dichlorethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,2-Dichloroethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloropropane	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Ethylbenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Hexanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
4-Methyl-2-Pentanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
Methyl Bromide	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methylene Chloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
MTBE	< 5	5	8240B (f), 524.1 (i), 624 (g)
Styrene	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 761
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics(cont)

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
1,1,2,2 Tetrachloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Tetrachloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Toluene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,1-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,2-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichlorofluoromethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
Vinyl Acetate	< 50	50	8240B (f), 524.1 (i), 624 (g)
Vinyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Xylenes (total)	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY
Department of Environmental Protection

April 13, 1995

Mr. John Oates
1032 Gum Branch Road
Charlotte, NC 28214

RE: Water Sample

Dear Mr. Oates:

On February 13, 1995, Mecklenburg County Department of Environmental Protection (MCDEP) resampled your well. The samples were analyzed for volatile organic compounds. Volatile organic compounds include a wide range of manmade compounds including, but not limited to gasoline components and chlorinated solvents (i.e. degreasers, etc.).

Laboratory results from these samples indicate at the time of sampling there were no volatile organic compounds present in your drinking water.

If you have any questions, please call me at 336-5500.

Sincerely,

William (Jerry) Stahl, R.S.
Environmental Hygienist
Water Quality Section

700 N. Tryon Street • Suite 205 • Charlotte, NC 28202-2236 • (704) 336-5500 • FAX (704) 336-4391

MECKLENBURG COUNTY ENVIRONMENTAL PROTECTION LABORATORY

Field I.D.#: [illegible] Dept.: WQ Lab I.D. #: 762

Site Sampled: JOHN DATES Project: Rec'd By: Ramona

Address: 10300 GUM BRANCH Date Rec'd: 2-14-95

Source Sampled: OUTSIDE Delivered to Lab On: Time: 1535 ☐AM ☐PM

Sampled By: STAHL Date: 02/13/95 Time: 355 ☐AM ☒PM

Date Sampled: 02/13/95 Time: 1000 ☐AM ☒PM Delivered By: STAHL

Chemical Composition

Inorganic ☐ _____ %

Organic ☐ _____ %

Moisture ☐ _____ %

Radioactivity

Air

Gross Alpha ☐ _____ pCi/m³

Gross Beta ☐ _____ pCi/m³

Water

Gross Alpha ☐ _____ pCi/L

Gross Beta ☐ _____ pCi/L

Miscellaneous

Asbestos ☐ _____ %

Chlorophyll a ☐ _____ ppb

Corrosivity ☐ _____ SI

Dissolved Oxygen ☐ _____ ppm

Formaldehyde ☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

Inorganic Non Metals

Acidity ☐ _____ ppm

Alkalinity ☐ _____ ppm

Bicarbonate ☐ _____ ppm

Carbonate ☐ _____ ppm

Chloride ☐ _____ ppm

Chlorine, Residual ☐ _____ ppm

Color ☐ _____ units

Cyanide, Total ☐ _____ ppm

Fluoride ☐ _____ ppm

Hardness ☐ _____ ppm

Nitrogen, Ammonia ☐ _____ ppm

Nitrogen, Nitrate + Nitrite ☐ _____ ppm

Nitrogen, Nitrate ☐ _____ ppm

Nitrogen, Nitrite ☐ _____ ppm

Nitrogen, Total Kjeldahl ☐ _____ ppm

pH ☐ _____ units

Phosphorus, Ortho ☐ _____ ppm

Phosphorus, Total ☐ _____ ppm

Phosphorus, Total Dissolved ☐ _____ ppm

Residue, Filterable ☐ _____ ppm

Residue, Suspended ☐ _____ ppm

Residue, Total ☐ _____ ppm

Specific Conductance ☐ _____ umho/cm

Sulfate ☐ _____ ppm

Sulfide ☐ _____ ppm

Turbidity ☐ _____ NTU

Aggregate Organics

BOD_5 ☐ _____ ppm

COD ☐ _____ ppm

Oil and Grease ☐ _____ ppm

Phenol ☐ _____ ppm

Surfactant ☐ _____ ppm

Organics

Acid Herbicide ☐ Report attached

Organic Acid ☐ _____ ppm

PCB ☐ Report attached

Pesticide ☐ Report attached

Semivolatile ☐ Report attached

TPH ☐ _____ ppm

VOC ☒ Report attached

Mineral Metals

Al ☐	_____ ppm	_____ ppb
Ca ☐	_____ ppm	_____ ppb
Co ☐	_____ ppm	_____ ppb
Cu ☐	_____ ppm	_____ ppb
Fe ☐	_____ ppm	_____ ppb
Mg ☐	_____ ppm	_____ ppb
Mn ☐	_____ ppm	_____ ppb
K ☐	_____ ppm	_____ ppb
Si ☐	_____ ppm	_____ ppb
Na ☐	_____ ppm	_____ ppb
Sn ☐	_____ ppm	_____ ppb
Zn ☐	_____ ppm	_____ ppb
☐	_____ ppm	_____ ppb

Toxic Metals

TCLP Metals ☐

Sb ☐	_____ ppb	_____ ppm
As ☐	_____ ppb	_____ ppm
Ba ☐	_____ ppb	_____ ppm
Be ☐	_____ ppb	_____ ppm
Cd ☐	_____ ppb	_____ ppm
Cr ☐	_____ ppb	_____ ppm
Pb ☐	_____ ppb	_____ ppm
Hg ☐	_____ ppb	_____ ppm
Ni ☐	_____ ppb	_____ ppm
Se ☐	_____ ppb	_____ ppm
Ag ☐	_____ ppb	_____ ppm
Tl ☐	_____ ppb	_____ ppm
☐	_____ ppb	_____ ppm

NOTE: **ALL FIELD DATA MUST BE RECORDED TO MAINTAIN CHAIN OF CUSTODY**

Remarks: _____

FEB 23 1995

Date Completed: _____

Laboratory Director: _____

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MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 762
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
Acetone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrolein	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrylonitrile	< 100	100	8240B (f), 524.1 (i), 624 (g)
Benzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromodichloromethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromoform	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Butanone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Carbon Disulfide	< 5	5	8240B (f), 524.1 (i), 624 (g)
Carbon Tetrachloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroform	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorodibromomethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
2-Chloroethyl Vinyl Ether	< 10	10	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,2-Dichlorethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,2-Dichloroethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloropropane	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Ethylbenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Hexanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
4-Methyl-2-Pentanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
Methyl Bromide	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methylene Chloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
MTBE	< 5	5	8240B (f), 524.1 (i), 624 (g)
Styrene	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 712
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics(cont)

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
1,1,2,2 Tetrachloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Tetrachloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Toluene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,1-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,2-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichlorofluoromethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
Vinyl Acetate	< 50	50	8240B (f), 524.1 (i), 624 (g)
Vinyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Xylenes (total)	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY
Department of Environmental Protection

April 13, 1995

Ms. Becky Bennett
1526 Summerville Road
Charlotte, NC 28214

RE: Water Sample

Dear Ms. Bennett:

On February 13, 1995, Mecklenburg County Department of Environmental Protection (MCDEP) resampled your well. The samples were analyzed for volatile organic compounds. Volatile organic compounds include a wide range of manmade compounds including, but not limited to gasoline components and chlorinated solvents (i.e. degreasers, etc.).

Laboratory results from these samples indicate at the time of sampling there were no volatile organic compounds present in your drinking water.

If you have any questions, please call me at 336-5500.

Sincerely,

William (Jerry) Stahl, R.S.
Environmental Hygienist
Water Quality Section

700 N. Tryon Street • Suite 205 • Charlotte, NC 28202-2236 • (704) 336-5500 • FAX (704) 336-4391

MECKLENBURG COUNTY ENVIRONMENTAL PROTECTION LABORATORY

Field I.D.#: 100-86 Dept.: WQ Lab I.D. #: 766

Site Sampled: Billy Bennett Project: Rec'd By: Burgwo

Address: 15726 Summerville / Mint Date Rec'd: 2-14-95

Source Sampled: OUTSIDE Delivered to Lab On: Time: 1535 ☐AM ☐PM

Sampled By: STAHL Date: 2/13/95 Time: 255 ☐AM ☒PM

Date Sampled: 2/13/95 Time: 105 ☐AM ☒PM Delivered By: STAHL

Chemical Composition

Inorganic ☐ _____ %

Organic ☐ _____ %

Moisture ☐ _____ %

Radioactivity

Air

Gross Alpha ☐ _____ pCi/m³

Gross Beta ☐ _____ pCi/m³

Water

Gross Alpha ☐ _____ pCi/L

Gross Beta ☐ _____ pCi/L

Miscellaneous

Asbestos ☐ _____ %

Chlorophyll a ☐ _____ ppb

Corrosivity ☐ _____ SI

Dissolved Oxygen ☐ _____ ppm

Formaldehyde ☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

Inorganic Non Metals

Acidity ☐ _____ ppm

Alkalinity ☐ _____ ppm

Bicarbonate ☐ _____ ppm

Carbonate ☐ _____ ppm

Chloride ☐ _____ ppm

Chlorine, Residual ☐ _____ ppm

Color ☐ _____ units

Cyanide, Total ☐ _____ ppm

Fluoride ☐ _____ ppm

Hardness ☐ _____ ppm

Nitrogen, Ammonia ☐ _____ ppm

Nitrogen, Nitrate + Nitrite ☐ _____ ppm

Nitrogen, Nitrate ☐ _____ ppm

Nitrogen, Nitrite ☐ _____ ppm

Nitrogen, Total Kjeldahl ☐ _____ ppm

pH ☐ _____ units

Phosphorus, Ortho ☐ _____ ppm

Phosphorus, Total ☐ _____ ppm

Phosphorus, Total Dissolved ☐ _____ ppm

Residue, Filterable ☐ _____ ppm

Residue, Suspended ☐ _____ ppm

Residue, Total ☐ _____ ppm

Specific Conductance ☐ _____ umho/cm

Sulfate ☐ _____ ppm

Sulfide ☐ _____ ppm

Turbidity ☐ _____ NTU

Aggregate Organics

BOD_5 ☐ _____ ppm

COD ☐ _____ ppm

Oil and Grease ☐ _____ ppm

Phenol ☐ _____ ppm

Surfactant ☐ _____ ppm

Organics

Acid Herbicide ☐ Report attached

Organic Acid ☐ _____ ppm

PCB ☐ Report attached

Pesticide ☐ Report attached

Semivolatile ☐ Report attached

TPH ☐ _____ ppm

VOC ☒ Report attached

Mineral Metals

Al ☐	_____ ppm	_____ ppb
Ca ☐	_____ ppm	_____ ppb
Co ☐	_____ ppm	_____ ppb
Cu ☐	_____ ppm	_____ ppb
Fe ☐	_____ ppm	_____ ppb
Mg ☐	_____ ppm	_____ ppb
Mn ☐	_____ ppm	_____ ppb
K ☐	_____ ppm	_____ ppb
Si ☐	_____ ppm	_____ ppb
Na ☐	_____ ppm	_____ ppb
Sn ☐	_____ ppm	_____ ppb
Zn ☐	_____ ppm	_____ ppb
☐	_____ ppm	_____ ppb

Toxic Metals

TCLP Metals ☐

Sb ☐	_____ ppb	_____ ppm
As ☐	_____ ppb	_____ ppm
Ba ☐	_____ ppb	_____ ppm
Be ☐	_____ ppb	_____ ppm
Cd ☐	_____ ppb	_____ ppm
Cr ☐	_____ ppb	_____ ppm
Pb ☐	_____ ppb	_____ ppm
Hg ☐	_____ ppb	_____ ppm
Ni ☐	_____ ppb	_____ ppm
Se ☐	_____ ppb	_____ ppm
Ag ☐	_____ ppb	_____ ppm
Tl ☐	_____ ppb	_____ ppm
☐	_____ ppb	_____ ppm

NOTE: **ALL FIELD DATA MUST BE RECORDED TO MAINTAIN CHAIN OF CUSTODY**

Remarks: _____

FEB 23 1995

Date Completed: _____

Laboratory Director: _____

Laboratory Director

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MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 76
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
Acetone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrolein	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrylonitrile	< 100	100	8240B (f), 524.1 (i), 624 (g)
Benzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromodichloromethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromoform	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Butanone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Carbon Disulfide	< 5	5	8240B (f), 524.1 (i), 624 (g)
Carbon Tetrachloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroform	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorodibromomethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
2-Chloroethyl Vinyl Ether	< 10	10	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,2-Dichlorethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,2-Dichloroethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloropropane	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Ethylbenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Hexanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
4-Methyl-2-Pentanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
Methyl Bromide	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methylene Chloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
MTBE	< 5	5	8240B (f), 524.1 (i), 624 (g)
Styrene	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 766
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics(cont)

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
1,1,2,2 Tetrachloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Tetrachloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Toluene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,1-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,2-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichlorofluoromethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
Vinyl Acetate	< 50	50	8240B (f), 524.1 (i), 624 (g)
Vinyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Xylenes (total)	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY
Department of Environmental Protection

April 13, 1995

Ms. Sapp
122 Hansard Drive
Charlotte, NC 28214

RE: Water Sample

Dear Ms. Sapp:

On February 13, 1995, Mecklenburg County Department of Environmental Protection (MCDEP) resampled your well. The samples were analyzed for volatile organic compounds. Volatile organic compounds include a wide range of manmade compounds including, but not limited to gasoline components and chlorinated solvents (i.e. degreasers, etc.).

Laboratory results from these samples indicate at the time of sampling there were no volatile organic compounds present in your drinking water.

If you have any questions, please call me at 336-5500.

Sincerely,

William (Jerry) Stahl, R.S.
Environmental Hygienist
Water Quality Section

700 N. Tryon Street • Suite 205 • Charlotte, NC 28202-2236 • (704) 336-5500 • FAX (704) 336-4391

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MECKLENBURG COUNTY ENVIRONMENTAL PROTECTION LABORATORY

Field I.D.#: [illegible] Dept.: WQ Lab I.D. #: 763

Site Sampled: N/A. SAPP Project: Rec'd By: [illegible]

Address: 122 HANSARD Date Rec'd: 2-14-95

Source Sampled: OUTSIDE Delivered to Lab On: Time: 1535 ☐AM ☐PM

Sampled By: STAHL Date: 02/13/95 Time: 355 ☐AM ☒PM

Date Sampled: 02/13/95 Time: 1235 ☐AM ☒PM Delivered By: STAHL

Chemical Composition

Inorganic ☐ _____ %

Organic ☐ _____ %

Moisture ☐ _____ %

Radioactivity

Air

Gross Alpha ☐ _____ pCi/m³

Gross Beta ☐ _____ pCi/m³

Water

Gross Alpha ☐ _____ pCi/L

Gross Beta ☐ _____ pCi/L

Miscellaneous

Asbestos ☐ _____ %

Chlorophyll a ☐ _____ ppb

Corrosivity ☐ _____ SI

Dissolved Oxygen ☐ _____ ppm

Formaldehyde ☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

☐ _____ ppm

Inorganic Non Metals

Acidity ☐ _____ ppm

Alkalinity ☐ _____ ppm

Bicarbonate ☐ _____ ppm

Carbonate ☐ _____ ppm

Chloride ☐ _____ ppm

Chlorine, Residual ☐ _____ ppm

Color ☐ _____ units

Cyanide, Total ☐ _____ ppm

Fluoride ☐ _____ ppm

Hardness ☐ _____ ppm

Nitrogen, Ammonia ☐ _____ ppm

Nitrogen, Nitrate + Nitrite ☐ _____ ppm

Nitrogen, Nitrate ☐ _____ ppm

Nitrogen, Nitrite ☐ _____ ppm

Nitrogen, Total Kjeldahl ☐ _____ ppm

pH ☐ _____ units

Phosphorus, Ortho ☐ _____ ppm

Phosphorus, Total ☐ _____ ppm

Phosphorus, Total Dissolved ☐ _____ ppm

Residue, Filterable ☐ _____ ppm

Residue, Suspended ☐ _____ ppm

Residue, Total ☐ _____ ppm

Specific Conductance ☐ _____ umho/cm

Sulfate ☐ _____ ppm

Sulfide ☐ _____ ppm

Turbidity ☐ _____ NTU

Aggregate Organics

BOD_5 ☐ _____ ppm

COD ☐ _____ ppm

Oil and Grease ☐ _____ ppm

Phenol ☐ _____ ppm

Surfactant ☐ _____ ppm

Organics

Acid Herbicide ☐ Report attached

Organic Acid ☐ _____ ppm

PCB ☐ Report attached

Pesticide ☐ Report attached

Semivolatile ☐ Report attached

TPH ☐ _____ ppm

VOC ☒ Report attached

Mineral Metals

Al ☐	_____ ppm	_____ ppb
Ca ☐	_____ ppm	_____ ppb
Co ☐	_____ ppm	_____ ppb
Cu ☐	_____ ppm	_____ ppb
Fe ☐	_____ ppm	_____ ppb
Mg ☐	_____ ppm	_____ ppb
Mn ☐	_____ ppm	_____ ppb
K ☐	_____ ppm	_____ ppb
Si ☐	_____ ppm	_____ ppb
Na ☐	_____ ppm	_____ ppb
Sn ☐	_____ ppm	_____ ppb
Zn ☐	_____ ppm	_____ ppb
☐	_____ ppm	_____ ppb

Toxic Metals

TCLP Metals ☐

Sb ☐	_____ ppb	_____ ppm
As ☐	_____ ppb	_____ ppm
Ba ☐	_____ ppb	_____ ppm
Be ☐	_____ ppb	_____ ppm
Cd ☐	_____ ppb	_____ ppm
Cr ☐	_____ ppb	_____ ppm
Pb ☐	_____ ppb	_____ ppm
Hg ☐	_____ ppb	_____ ppm
Ni ☐	_____ ppb	_____ ppm
Se ☐	_____ ppb	_____ ppm
Ag ☐	_____ ppb	_____ ppm
Tl ☐	_____ ppb	_____ ppm
☐	_____ ppb	_____ ppm

NOTE: **ALL FIELD DATA MUST BE RECORDED TO MAINTAIN CHAIN OF CUSTODY**

Remarks: _____

FEB 23 1995

Date Completed: _____

Laboratory Director: _____

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MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 763
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
Acetone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrolein	< 100	100	8240B (f), 524.1 (i), 624 (g)
Acrylonitrile	< 100	100	8240B (f), 524.1 (i), 624 (g)
Benzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromodichloromethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Bromoform	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Butanone	< 100	100	8240B (f), 524.1 (i), 624 (g)
Carbon Disulfide	< 5	5	8240B (f), 524.1 (i), 624 (g)
Carbon Tetrachloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorobenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroform	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chlorodibromomethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Chloroethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
2-Chloroethyl Vinyl Ether	< 10	10	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1-Dichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,2-Dichlorethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,2-Dichloroethene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,2-Dichloropropane	< 5	5	8240B (f), 524.1 (i), 624 (g)
cis-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
trans-1,3-Dichloropropene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Ethylbenzene	< 5	5	8240B (f), 524.1 (i), 624 (g)
2-Hexanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
4-Methyl-2-Pentanone	< 50	50	8240B (f), 524.1 (i), 624 (g)
Methyl Bromide	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Methylene Chloride	< 5	5	8240B (f), 524.1 (i), 624 (g)
MTBE	< 5	5	8240B (f), 524.1 (i), 624 (g)
Styrene	< 5	5	8240B (f), 524.1 (i), 624 (g)

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

MECKLENBURG COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL LABORATORY

Project: _____ Field I.D.#: _____
Lab I.D.#: 763
Site Sampled: _____ Date Sampled: _____

Sample Matrix: Water

Volatile Organics(cont)

Organics-Volatiles Parameter	Sample Results (ug/l)	Detection Limits (ug/l)	Method
1,1,2,2 Tetrachloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Tetrachloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Toluene	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,1-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
1,1,2-Trichloroethane	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichloroethylene	< 5	5	8240B (f), 524.1 (i), 624 (g)
Trichlorofluoromethane	< 10	10	8240B (f), 524.1 (i), 624 (g)
Vinyl Acetate	< 50	50	8240B (f), 524.1 (i), 624 (g)
Vinyl Chloride	< 10	10	8240B (f), 524.1 (i), 624 (g)
Xylenes (total)	< 5	5	8240B (f), 524.1 (i), 624 (g)

RECEIVED
APR 17 1995
SUPERFUND SECTION

(f) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846
(g) 40 CFR, part 136
(i) Methods for the Determination of Organic Compounds (EPA 1988)

POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

Department of Environment, Health, Natural Resources
Division of Environmental Management
GROUNDWATER SECTION

Confirm. GW Contamination (Y/N) Y
Major Soil Contamination (Y/N) ____
Minor Soil Contaminatin (Y/N) ____

Incident # 10437

Date Incident Occurred or Leak Detected 6/18/93

INCIDENT DESCRIPTION

Incident Location/Name: Mingus Residence

Address: 2128 Tom Sadler Road (Charlotte) 28214

City/Town: Paw Creek | County: Mecklenburg | Region: MRO

Briefly Describe Incident: County sampled well and detected Carbon tetrachloride and 1,1,1-Trichloroethane and its breakdown products

POTENTIAL SOURCE OWNER-OPERATOR

Potential Source Owner-Operator | Telephone

Company | Street Address

City | County | State | Zip Code

DEPARTMENT
JUN 24 1993
POLLUTION CONTROL BRANCH

OWNERSHIP
0. N/A 1. Municipal 2. Military 3. Unknown 4.Private 5.Federal 6. County 7. State

OPERATION TYPE
0. N/A 1. Public Service 2. Agricultrural 3. Residential 4. Educational/Relig. 5. Industrial 6. Commercial 7. Mining

POLLUTANTS INVOLVED

MATERIALS INVOLVED	AMOUNT LOST	AMOUNT RECOVERED
Carbon tetrachloride	unk	unk
1,1,1-TCA	unk	unk

SOURCE OF POLLUTION

PRIMARY SOURCE OF POLLUTION (Select one)
1. Intentional dump
2. Pit, pond, lagoon
3. Leak-underground
4. Spray irrigation
5. Land application
6. Animal feedlot
7. Source unknown
8. Septic tank
9. Sewer line
10. Stockpile
11. Landfill
12. Spill-surface
13. Well
14. Dredge spoil
15. Nonpoint source

PRIMARY POLLUTANT TYPE (Select one)
1. Pesticide/herbicide
2. Radioactive waste
3. Gasoline/diesel
4. Heating oil
5. Other petroleum prod.
6. Sewage/septage
7. Fertilizers
8. Sludge
9. Solid waste leachate
10. Metals
11. Other inorganics
12. Other organics

LOCATION
1. Facility
2. Railroad
3. Waterway
4. Pipeline
5. Dumpsite
6. Highway
7. Residence
8. Other

SETTING
1. Residential
2. Industrial
3. Urban
4. Rural

Site Priority Ranking: 730A

D.E.M. Regional Contact: Chris DeRoller | Signature: [signature] | Date: 6/22/93

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IMPACT ON DRINKING WATER SUPPLIES

WELLS AFFECTED (1.) YES 2. NO

NUMBER OF WELLS AFFECTED 1

Well(s) Contaminated: (Users Name)

1. Mr. Mingus 2128 Tom Sadler
2.
3.
4.
5.

Circle Appropriate Responses

Lab Samples Taken By: (1.) DEM 2. DHS 3. Responsible Party (4.) Other MCDEP 5. None

Samples Taken Include: (1.) Groundwater 2. Soil

LOCATION OF INCIDENT

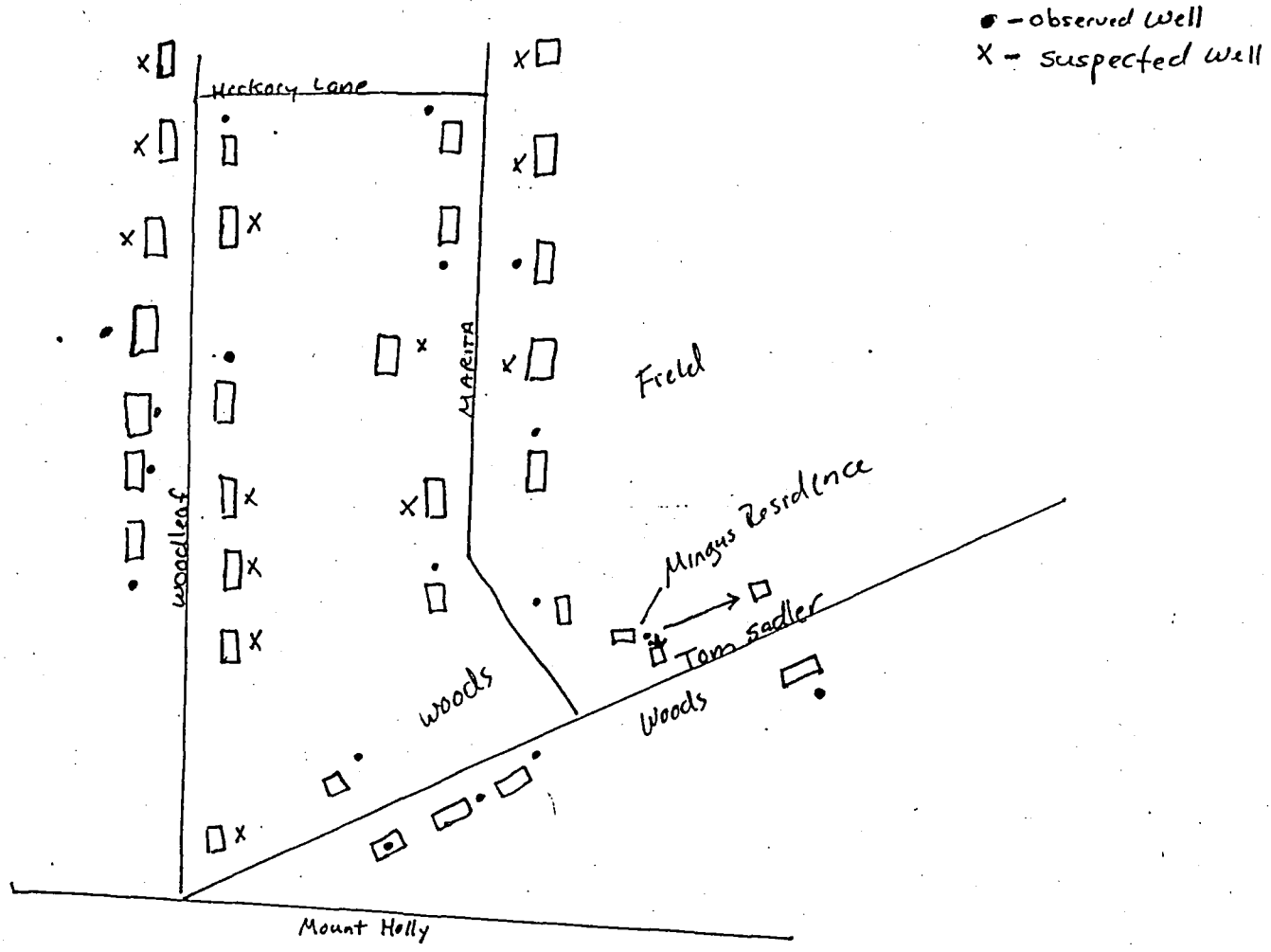
7 1/2 Min. Quad Name: Mountain Island Lake

5 Min. Quad Number: Q67m-9

Lat. : Deg : Min : Sec : 35° 17' 23"

Long. : Deg : Min : Sec : 80° 57' 39"

Draw Sketch of Area or Attach Additional Maps



Department of Environmental Health and Natural Resources

Division of Environmental Management

Groundwater Field/Lab Form

CHAIN OF CUSTODY

LAB NUMBER [redacted]

DATE RECEIVED 6/23/93 Time 9:00

Rec'd by: DS From: Bus Courier

Other

DATA ENTRY BY: JH CK: DS

DATE REPORTED: 7/19/93

QU[redacted] -8 [redacted] SERIAL [redacted]

LAT. 35° 17' 17" LONG. 80° 57' 43"

Mecklenburg

Report to: ARO, FRO, MRO, RRO, WaRO, WiRO, WSRO, Kinston FO Other

Shipped by: Bus, Courier, Other

SAMPLE PRIORITY: ☐ ROUTINE ☒ EMERGENCY

#10437

COLLECTOR(S): DeBoller DATE 6/22/93 TIME PURPOSE: BASELINE, COMPLAINT, COMPLIANCE, LUST, OTHER Pollution Inc. (circle one)

(Mingus Residence - Incident)

FIELD ANALYSES

pH 400 ____ Spec. Cond. 94 ____ at 25°C

Temp. 10 ____ °C Odor

Appearance ____ Taste

Field Analysis By:

Owner Marian Culp

Location or site 2303 Tom Sadler Rd. Pineville Charlotte 28214

Description of sampling point Tap at front of house

Sampling Method Pump (pump, bailer, etc.) Sample Interval Unk

Remarks (pumping time, air temp, etc.)

LABORATORY ANALYSES

	BOD_5 310	mg/l
	COD High 340	mg/l
	COD Low 335	mg/l
	Coliform:MF Fecal 31616	/100ml
	Coliform:MF Total 31504	/100ml
	TOC 680	mg/l
	Turbidity 76	NTU
	pH 403	units
	Alkalinity to pH 4.5 410	mg/l
	Alkalinity to pH 8.3 415	mg/l
	Carbonate 445	mg/l
	Bicarbonate 440	mg/l
	Arsenic:Total 1002	ug/l
	Carbon dioxide 405	mg/l
	Chloride 940	mg/l
	Chromium:Hex 1032	ug/l
	Color:True 80	PtCo
	Cyanide 720	mg/l

	Diss. Solids 70300	mg/l
	Fluoride 951	mg/l
	Hardness:Total 900	mg/l
	Hardness (non-carb) 902	mg/l
	Phenols 32730	ug/l
	Specific Cond. 95	uMhos/cm²
	Sulfate 945	mg/l
	Sulfide 745	mg/l
	NH_3 as N 610	mg/l
	TKN as N 625	mg/l
	$NO_2 + NO_3$ as N 630	mg/l
	P:Total as P 665	mg/l

	Ag - Silver 1077	ug/l
	Al - Aluminum 1105	ug/l
	Ba - Barium 1007	ug/l
	Ca - Calcium 916	mg/l
	Cd - Cadmium 1027	ug/l
	Chromium:Total 1034	ug/l
	Cu - Copper 1042	ug/l
	Fe - Iron 1045	ug/l
	Hg - Mercury 71900	ug/l
	K - Potassium 937	mg/l
	Mg - Magnesium 927	mg/l
	Mn - Manganese 1055	ug/l
	Na - Sodium 929	mg/l
	Ni - Nickel 1067	ug/l
	Pb - Lead 1051	ug/l
	Se - Selenium 1147	ug/l
	Zn - Zinc 1092	ug/l

	Organochlorine Pesticides
	Organophosphorus Pesticides
	Acid Herbicides
	Base / Neutral Extractable Organics
	Acid Extractable Organics
X	Purgeable Organics (VOA bottle)
	1,2 - Dibromoethane (EDB)

RECEIVED JUL 22 1993 POLLUTION CONTROL BRANCH

Lab Comments:

7-26

W-54 REV. 8/90

For Dissolved Analysis - submit filtered sample and write "DIS" in block

White Copy - Groundwater Central Office Yellow Copy - Regional Office Pink Copy - Central Files Goldenrod Copy - Lab

EHNR/DEM LABORATORY
VOLATILE ANALYTICAL REPORT

LAB NO. 3G 963

REPORTED BY
CHECKED BY
REVIEWED BY

SUPERVISOR REK
DATE 7/18/93
ENTERED BY
CHECKED BY

SAMPLE TYPE: WATER

ANALYSIS RESULTS

CAS#	VOA TARGET COMPOUND	TQL ug/l	DETECTED ug/l
75-35-4	1,1-Dichloroethene	0.75	U
75-09-2	Methylene Chloride	0.25	U
156-60-5	trans-1,2-Dichloroethene	0.75	U
75-34-3	1,1-Dichloroethane	0.25	U
590-20-7	2,2-Dichloropropane	0.25	U
156-59-4	cis-1,2-Dichloroethene	0.25	U
67-66-3	Chloroform	0.25	U
74-97-5	Bromochloromethane	0.75	U
71-55-6	1,1,1-Trichloroethane	0.25	0.25
563-58-6	1,1-Dichloropropene	0.25	U
56-23-5	Carbon Tetrachloride	0.75	U
107-06-2	1,2-Dichloroethane	0.25	U
79-01-6	Trichloroethene	0.25	U
78-87-5	1,2-Dichloropropane	0.25	U
75-27-4	Bromodichloromethane	0.25	U
74-95-3	Dibromomethane	1	U
10061-01-5	cis-1,3-Dichloropropene	0.25	U
10061-02-6	trans-1,3-Dichloropropene	0.25	U
79-00-5	1,1,2-Trichloroethane	0.25	U
127-18-4	Tetrachloroethene	0.25	U
142-28-9	1,3-Dichloropropane	0.25	U
124-48-1	Dibromochloromethane	0.75	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	0.25	U
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U
75-25-2	Bromoform	0.5	U
79-34-5	1,1,2,2-Tetrachloroethane	0.75	U

CAS#	VOA TARGET COMPOUND	TQL ug/l	DETECTED ug/l
96-18-4	1,2,3-Trichloropropane	0.25	U
108-86-1	Bromobenzene	1	U
95-49-8	2-Chlorotoluene	0.25	U
106-43-4	4-Chlorotoluene	0.25	U
541-73-1	1,3-Dichlorobenzene	0.25	U
106-46-7	1,4-Dichlorobenzene	0.25	U
95-50-1	1,2-Dichlorobenzene	0.25	U
96-12-8	1,2-Dibromo-3-Chloropropane	1	U
120-82-1	1,2,4-Trichlorobenzene	0.25	U
87-68-3	Hexachlorobutadiene	0.25	U
87-61-6	1,2,3-Trichlorobenzene	0.75	U
1634-04-4	Methyl-tert-butyl ether	5	U
71-43-2	Benzene	1	U
108-88-3	Toluene	1	U
100-41-4	Ethyl benzene	1	U
108-38-3	m,p-Xylenes	2	U
95-47-6	o-Xylene	1	U
100-42-5	Styrene	1	U
98-82-8	Isopropylbenzene	1	U
103-65-1	n-Propylbenzene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	p-isopropyltoluene	1	U
104-51-8	n-Butylbenzene	1	U
91-20-3	Naphthalene	1	U

TQL- Target Quantitation Limit- Subject to change due to instrument sensitivity
T- Tentatively Identified, not confirmed
E- Estimated Value
U- Samples analyzed for this compound but not detected
N- Sample not analyzed for this compound
D- Detected below quantitation limit
M- GC/MS Analysis performed

Other purgeables detected (up to 10 highest peaks) — Detected ug/l

NO VOLATILE ORGANIC COMPOUNDS DETECTED BY GC/PID.

COMMENTS:

MECKLENBURG COUNTY
Department of Environmental Protection

May 19, 1994

PAW CREEK SAMPLING REPORT

The Mecklenburg County Department of Environmental Protection sampled many private wells in the Paw Creek community in the spring and summer of 1993. The community was concerned that groundwater was possibly being contaminated from the neighboring petroleum storage tanks. The Paw Creek sampling program concentrated on analyzing private well samples for any volatile organic compounds (VOC) present. The laboratory results indicated that the majority of the wells at the time of sampling were absent of VOC contamination. The reported contaminated wells indicated that chlorinated solvents such as Tetrachloroethylene or Trichloroethylene were present. Many of these chlorinated solvents were detected below the United States Environmental Protection Agency's (USEPA) drinking water standards of 5 parts per billion. The contaminated well sample analyses were sent to Dr. Luanne Williams, The State Toxicologist for a health risk evaluation.

Our department recently resampled twenty one wells in the area. The sampled wells were selected due to elevated levels of contamination or were designated by our department to be resampled. The attached chart illustrates the sampling history of these twenty one sites. When municipal connections were noted, no samples were collected as indicated in the chart's results column.

The Mecklenburg County Department of Environmental Protection will continue to monitor the status of groundwater in the Paw Creek area. Our goal is to provide the citizens of Mecklenburg County with safe and clean drinking water.

William (Jerry) Stahl, R.S.

Environmental Hygienist

700 N. Tryon Street • Suite 205 • Charlotte, NC 28202-2236 • (704) 336-5500 • FAX (704) 336-4391

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MAY 16, 1994

In April the Mecklenburg County Department of Environmental Protection, Water Quality section resampled many private wells in the Paw Creek Community. The following results are indicated below:

	Results		Results
• Mr. Clyde Peek 108 Chanticleer Ct.	city	• Ms. Libby Stogner 1840 Marita Dr.	city
• Mr. George Pickett 6012 Elmwood Cr.	city	• Ms. Debbie Gaddy 8827 Mt. Holly Rd.	neg.
• Mr. C. Price 221 Fielding Rd.	neg.	• Ms. Becky Bennett 1526 Summerville Rd.	neg.
• Ms. Kim Collins 5852 Freedom Dr.	city	• Mr. G. J. Mingus 2128 Tom Sadler Rd.	city
• Ms. B. Davenport 520 Glasglow Rd.	city	• Ms. Betty Tucker 2013 Tom Sadler Rd.	neg.
• Mr. I. A. Abernathy 634 Gumbranch Rd.	city	• Mr. Joe Evans 131 Valleydale Rd.	neg.
• Mr. John J. Oates 1032 Gum Branch Rd.	neg.	• Ms. Rhonda Davis 1101 Walden Rd.	neg.
• Ms. Sheila Hord 1830 Gumbranch Rd.	city	• Ms. McCurry 2120 Wildlife Rd.	neg.
• Mr. Wm. McClanahan 212 Hansard Dr.	city	• Ms. Margaret Shaw 215 Hansard Dr.	city
• Ms. Sharyn Sapp 122 Hansard Dr.	*	• Mr. James White 100 Lee Dr.	city
		• Ms. W. Abercrombie 115 Kensett Av.	city

* 1 ppb Tetrachloroethylene below detection & drinking water standards.

neg. = negative/none detected
city = city water

PAW CREEK SAMPLING REPORT

NAME & ADDRESS	SAMPLE DATE	RESULTS	SOURCE
Mr. Clyde Peak 108 Chanticleer Ct. Charlotte, N.C. 28214	07/15/93	8 ppb Tetrachloroethylene 1 ppb Trichloroethylene	Private Well
	08/03/93	8 ppb Tetrachloroethylene	Private Well
	04/21/94	No Sample Collected	City Water
Mr. George Pickett 6012 Elmwood Cr. Charlotte, N.C. 28214	08/02/93	8 ppb Tetrachloroethylene	Private Well
	04/21/94	No Sample Collected	City Water
Mr. C. Price 221 Fielding Rd. Charlotte, N.C. 28214	06/01/93	No Contamination Detected	Private Well
	06/23/93	1 ppb Tetrachloroethylene	Private Well
	04/21/94	No Contamination Detected	Private Well
Ms. Kim Collins 5852 Freedom Dr. Charlotte, N.C. 28214	06/23/93	6 ppb Tetrachloroethlene	Private Well
	04/21/94	No Sample Collected	City Water
Ms. Beatrice Davenport 520 Glasglow Rd. Charlotte, N.C. 28214	08/23/93	9 ppb 1,1-Dichloroethylene 1565 ppb Tetrachloroethylene 17 ppb Trichloroethylene	Private Well
	04/21/94	No Sample Collected	City Water
Mr. John J. Oates 1032 Gum Branch Rd. Charlotte, N.C. 28214	07/02/93	17.3 ppb Carbon Tetrachloride 49.3 ppb 1,1-Dichloroethylene. 69.6 ppb 1,1,1-Trichloroethylene	Private Well
	04/21/94	No Contamination Detected	Private Well

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NAME & ADDRESS	SAMPLE DATE	RESULTS	SOURCE
Mr. I. A. Abernathy 634 Gum Branch Rd. Charlotte, N.C. 28214	06/23/93	1 ppb Tetrachloroethylene	Private Well
	04/21/94	7 ppb Bromodichloromethane 37 ppb Chloroform	City Water
Ms. Sheila Hord 1830 Gum Branch Rd. Charlotte, N.C. 28214	06/23/93	1 ppb Tetrachloroethylene	Private Well
	04/21/94	No Sample Collected	City Water
Ms. Sharyn Sapp 122 Hansard Dr. Charlotte, N.C. 28214	07/06/93	1 ppb Tetrachloroethylene 1 ppb Trichloroethylene	Private Well
	07/09/93	1 ppb Tetrachloroethylene	Private Well
	04/21/94	1 ppb Tetrachloroethylene	Private Well
Mr. William McClanahan 212 Hansard Dr. Charlotte, N.C. 28214	07/22/93	2 ppb 1,2-Dichloroethylene 6 ppb Tetrachloroethylene 8 ppb Trichloroethylene	Private Well
	04/21/94	No Sample Collected	City Water
Ms. Margaret Shaw 215 Hansard Dr. Charlotte, N.C. 28214	07/06/93	3 ppb 1,2-Dichloroethylene 7 ppb Tetrachloroethylene	Private Well
	04/21/94	No Sample Collected	City Water
Ms. Wanda Abercrombie 115 Kensett Av. Charlotte, N.C. 28214	06/29/93	1 ppb Tetrachloroethylene 2 ppb Chloroform	Private Well
	04/21/94	No Sample Collected	City Water
Mr. James White 100 Lee Dr. Charlotte, N.C. 28214	06/24/93	1 ppb Tetrachloroethylene	Private Well
	04/21/94	No Sample Collected	City Water

NAME & ADDRESS	SAMPLE DATE	RESULTS	SOURCE
Ms. Libby Stogner 1840 Marita Dr. Charlotte, N.C. 28214	06/24/93	2 ppb Tetrachloroethylene	Private Well
	04/21/94	No Sample Collected	City Water
Ms. Debbie Gaddy 8827 Mt. Holly Rd. Charlotte, N.C. 28214	06/23/93	1 ppb Tetrachloroethylene	Private Well
	04/05/94	No Contamination Collected	Private Well
Ms. Becky Bennett 1526 Summerville Rd. Charlotte, N.C. 28214	06/24/93	1 ppb Tetrachloroethylene	Private Well
	04/05/94	1 ppb Tetrachloroethylene	Private Well
Mr. G. J. Mingus 2128 Tom Sadler Rd. Charlotte, N.C. 28214	06/15/93	58 ppb Carbon Tetrachloride 13 ppb Chloroethane 75 ppb 1,1-Dichloroethane 205 ppb 1,1-Dichloroethylene 307 ppb 1,1,1-Trichloroethane	Private Well
	06/22/93	48 ppb Carbon Tetrachloride 8 ppb Chloroethane 59 ppb 1,1-Dichloroethane 1 ppb 1,2-Dichloroethane 219 ppb 1,1-Dichloroethylene 612 ppb 1,1,1-Trichloroethane	Private Well
	08/31/93	1 ppb 1,1-Dichloroethylene	Private Well Kitchen Sink
	08/31/93	No Contamination Detected	Private Well After Filter
	04/05/94	No Sample Collected	City Water
Ms. Betty Tucker 2013 Tom Sadler Rd. Charlotte, N.C. 28214	06/23/93	1 ppb Tetrachloroethylene	Private Well
	04/05/94	No Contamination Detected	Private Well

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NAME & ADDRESS	SAMPLE DATE	RESULTS	SOURCE
Mr. Joe Evans 131 Valleydale Rd. Charlotte, N.C. 28214	06/24/93	1 ppb Chloroform	Private Well
	04/05/94	No Contamination Detected	Private Well
Ms. Rhonda Davis 1101 Walden Dr. Charlotte, N.C. 28214	07/24/93	1 ppb Tetrachloroethylene	Private Well
	04/05/94	No Contamination detected	Private Well
Ms. McCurry 2120 Wildlife Rd. Charlotte, N.C. 28214	07/12/93	1 ppb Tetrachlorcethylene	Private Well
	04/05/94	No Contamination Detected	Private Well

PAW CREEK - SAMPLING
Non-contaminated Sites

RECEIVED
MAY 1 0 1995
SUPERFUND SECTION

	Date	Owner/Location & Address	Results (ppb)
1	06/25/87	Fred Gillenwater 335 Fielding Rd.	Not Available
2	06/25/87	Ms. Helderman 665 Fielding Rd.	Not Available
3	06/25/87	Fred Sparks 815 Tom Sadler Rd.	Not Available
4	06/25/87	H.R. Suddreth 6901 Mt. Holly Rd.	Not Available
5	08/31/88	Wayne Deal 4913 Mt. Holly Rd.	VOC's Absent
6	11/02/88	David Dilling 178 Tom Sadler Rd.	VOC's Absent
7	11/07/88	Troy Green 117 Hugh Caldwell Rd.	VOC's Absent
8	01/04/89	Owner Unknown 717 Tom Sadler Rd.	VOC's Absent
9	01/04/89	Mary Miller 8120 Metts Rd.	VOC's Absent
10	01/04/89	Owner Unknown 131 Hugh Caldwell Rd.	VOC's Absent
11	03/29/89	Mary Miller 8120 Metts Rd.	VOC's Absent
12	03/29/89	Amoco Recovery Well Mt. Holly Rd.	VOC's Absent
13	01/09/90	Tara Reep 6915 Moore's Chapel Rd.	VOC's Absent
14	03/08/90	Sarah Wilson 7300 Old Mt. Holly Rd.	VOC's Absent
15	03/08/90	Anna Crosby 527 Carole Ln.	VOC's Absent
16	03/08/90	Ron Griggs 601 Carole Ln.	VOC's Absent
17	03/08/90	Ken Moore 612 Carole Ln.	VOC's Absent
18	03/08/90	Marvin Taylor 614 Carole Ln.	VOC's Absent
19	03/08/90	Sam Williams 707 Little Rock Rd.	VOC's Absent
20	03/08/90	Mrs. J.B. Harrison 712 Little Rock Rd.	VOC's Absent
21	03/08/90	Mrs. John G. Bradley 724 Little Rock Rd.	VOC's Absent

22	03/08/90	C.M. Yandle 6300 Freedom Dr.	VOC's Absent
23	03/09/90	Jeannette Wray 161 Hansard Dr.	VOC's Absent
24	03/09/90	Mrs. Steven Coleman 115 Valleydale Rd.	VOC's Absent
25	03/09/90	Mrs. Dan Seagle 5948 Elmwood Cir.	VOC's Absent
26	03/09/90	Mrs. Robert Holt 6501 Elmwood Cir.	VOC's Absent
27	03/09/90	Mrs. Prather 6701 Elmwood Cir.	VOC's Absent
28	03/09/90	Donnie Seagle 8827 Mt. Holly Rd.	VOC's Absent
29	03/09/90	Cindy Price 9011 Mt. Holly Rd.	VOC's Absent
30	03/09/90	Dwayne Woodrow 210 Lee Dr.	VOC's Absent
31	03/09/90	Joe Reid 1118 Howard Cir.	VOC's Absent
32	03/09/90	A.J. Parsons 305 Fielding Rd.	VOC's Absent
33	03/09/90	Tonya Stack 7208 Mack St.	VOC's Absent
34	03/12/90	Linda Kelly 1708 Brim St.	VOC's Absent
35	03/12/90	Janice Maynor 1804 Brim St.	VOC's Absent
36	03/12/90	Paula Davis 9406 Moore's Chapel Rd.	VOC's Absent
37	03/12/90	Geneva Furr 1115 Waldon Rd.	VOC's Absent
38	03/12/90	Kathy Calebro 1201 Waldon Rd.	VOC's Absent
39	03/12/90	Betty Cox 225 Lee St.	VOC's Absent
40	03/12/90	Pansy Swaim 1226 Valleydale Rd.	VOC's Absent
41	03/12/90	Evelyn McGee 1308 Valleydale Rd.	VOC's Absent
42	03/12/90	Harold Caudell 1025 Coulwood Dr.	VOC's Absent
43	03/12/90	Marvin Kiser 464 Kimmswick Rd.	VOC's Absent
44	03/12/90	Dallas Townsend 230 Kingsway Cir.	VOC's Absent
45	03/12/90	Harry Graham 211 Birchwood Dr.	VOC's Absent

46	03/12/90	J.D. Reames 6416 Hoover Cir.	VOC's Absent
47	03/12/90	Carolyn Howard 726 Rhyne Rd.	VOC's Absent
48	03/12/90	Jean Pendleton 1825 Daytona Dr.	VOC's Absent
49	03/12/90	Nancy Garner 10112 Mt. Holly Rd.	VOC's Absent
50	03/12/90	Jim King 10209 Mt. Holly Rd.	VOC's Absent
51	03/13/90	John Camp 1330 Stoneyridge Dr.	VOC's Absent
52	03/13/90	Teresa Mombulo 7217 Mack St.	VOC's Absent
53	03/14/90	Tim Hewell 2023 Woodtop Ct.	VOC's Absent
54	03/14/90	John White 1006 Rhyne Rd.	VOC's Absent
55	03/14/90	Mita Chapman 700 Wingate Dr.	VOC's Absent
56	03/14/90	Sheila Lucas 1707 Woodlea Rd.	VOC's Absent
57	04/20/90	Pipe in field between 6711 & 6701 Freedom Dr.	VOC's Absent
58	07/23/90	Jerry Camp 10119 Littlefield Rd.	VOC's Absent
59	07/23/90	Thomas Volpe 10147 Littlefield Rd.	VOC's Absent
60	08/06/90	Bobby Lawing 101 Pine Island Dr.	VOC's Absent
61	08/06/90	Erroll Sult 317 Pine Island Dr.	VOC's Absent
62	08/06/90	Anthony Lingerfelt 325 Pine Island Dr.	VOC's Absent
63	08/06/90	Thomas Giacometti 336 Pine Island Dr.	VOC's Absent
64	08/06/90	Troy Harkey 343 Pine Island Dr.	VOC's Absent
65	08/06/90	Lovise King 10009 Mt. Holly Rd.	VOC's Absent
66	08/06/90	Betty Sheppard 10039 Mt. Holly Rd.	VOC's Absent
67	08/06/90	Don Man Associates 10129 Mt. Holly Rd.	VOC's Absent
68	08/06/90	James King 10209 Mt. Holly Rd.	VOC's Absent

69	08/07/90	James Stepnenson 135 Stoneyridge Dr.	VOC's Absent
70	08/07/90	Mark Bowen 1200 Stoneyridge Dr.	VOC's Absent
71	08/07/90	Phillip Thompson 1226 Stoneyridge Dr.	VOC's Absent
72	08/07/90	W.W. Gatnings 1314 Stonevridge Dr.	VOC's Absent
73	08/07/90	E.G. Dickens 1322 Stoneyridge Dr.	VOC's Absent
74	08/07/90	John Camp 1330 Stoneyridge Dr.	VOC's Absent
75	08/07/90	Paul Mullis 1335 Stoneyridge Dr.	VOC's Absent
76	08/07/90	Fisher Residence 1400 Stoneyridge Dr.	VOC's Absent
77	08/07/90	P.S. Clarke 1401 Stoneyridge Dr.	VOC's Absent
78	08/07/90	Huggin Residence 1419 Stoneyridge Dr.	VOC's Absent
79	08/07/90	W.C. Jones 1422 Stoneyridge Dr.	VOC's Absent
80	08/07/90	Yount Residence 1428 Stoneyridge Dr.	VOC's Absent
81	08/07/90	Caskey Residence 1434 Stoneyridge Dr.	VOC's Absent
82	08/07/90	Starnes Residence 1447 Stoneyridge Dr.	VOC's Absent
83	08/07/90	Owner Unknown 10006 Mt. Holly Rd.	VOC's Absent
84	08/07/90	Nancy Garner 10112 Mt. Holly Rd.	VOC's Absent
85	08/07/90	Virginia Hovis 10321 Mt. Holly Rd.	VOC's Absent
86	08/07/90	Long Creek Hwy 27	VOC's Absent
87	08/22/90	Pine Island Country Club 1701 Stoneyridge Dr.	VOC's Absent
88	08/22/90	Yarlie Stephenson 1227 Littlefield Dr.	VOC's Absent
89	08/17/90	Page Robbins 1736 Woodlea Rd.	VOC's Absent
90	08/28/90	John Underwood 1326 Valleydale Rd.	VOC's Absent
91	09/06/90	Ms. Blair Walker 335 Pine Island Dr.	VOC's Absent
92	09/06/90	Page Robbins 1736 Woodlea Rd.	VOC's Absent

93	09/06/90	W.C. Jones 1422 Stoneyridge Dr.	VOC's Absent
94	12/11/90	Vernon Lassiter 438 Rhyne Rd.	VOC's Absent
95	12/11/90	Carter's Lumberyard Hwy 27	VOC's Absent
96	12/11/90	Mary Barton 317 Rhyne Rd.	VOC's Absent
97	12/11/90	Harry Ross 325 Rhyne Rd.	VOC's Absent
98	12/11/90	A. Propes 452 Rhyne Rd.	VOC's Absent
99	12/11/90	Don Cleveland 460 Rhyne Rd.	VOC's Absent
100	04/10/91	Russell Mauney 225 Pine Island Dr.	VOC's Absent
101	04/10/91	Robert Barnes 301 Pine Island Dr.	VOC's Absent
102	04/10/91	Jack Park 10146 Littlefield Rd.	VOC's Absent
103	08/26/91	Jean Davis 6343 Freedom Dr.	VOC's Absent
104	12/30/91	Frank Digh 209 Pine Island Dr.	VOC's Absent
105	01/10/92	Earl Stikeleather 7115 Mack St.	VOC's Absent
106	01/30/92	Bob Cloninger 1111 Tom Sadler Rd.	VOC's Absent
107	02/06/92	Betty Killman 200 Lee Dr.	Not Available
108	03/09/92	Mary Barton 317 Rhyne Rd.	VOC's Absent
109	03/09/92	Fontaine Modification Co. 9827 Mt. Holly Rd.	VOC's Absent
110	03/16/92	Harriett White 9218 Mt. Holly Rd.	VOC's Absent
111	03/26/92	Bill's Transmission 6701 Freedom Dr.	VOC's Absent

MECKLENBURG COUNTY · ENVIRONMENTAL PROTECTION

TELECOPIER TRANSMITTAL COVER SHEET

TO: J. Stanley

TELECOPIER NUMBER: (919) 733-4811

FROM: Jerry Stahl

TELECOPIER NUMBER: (704) 336-4391

DATE: June 30, 1994

PAGES TRANSMITTED INCLUDING COVER SHEET: 7

MESSAGE: Paw Creek

700 North Tryon Street · Charlotte, North Carolina 28202-2236 · (704) 336-5500

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Restaxno	Map	Resident	R	L	Number	Strname	Ty	Telephone
0 .03314	5	Mr. Troy Green	D	Y	117	Hugh Caldwell	Rd	
03104603	112	Mr. Jim Helms	N	Y	1020	Helms	Rd	392-8105
05506305	113	Ted Mauch	N	Y	241	I. K. Beatty	st	372-3295w
05515708	114	Teresa Evans	N	Y	6510	Hoover	Cr	529-3300
05515711	115	Linda Reams	N	Y	6416	Hoover	Cr	392-4961
03107918	116	Thomas Lineberger	N	Y	1301	Valleydale	Rd	3362914 W
03101322	117	Andy Cheek	N	Y	7129	Mack	St	392-2017
05920100	118	Don Schueller	N	Y	6109	Paw Creek	Rd	394-5827
05522108	119	Bess Thompson	N	Y	2807	Wildlife	RD	394-0210
03107706	120	R.O. Price	D	Y	221	Fielding	Rd	399-3288
03101229	121	Holly Bottenfield	N	Y	7100	Mt. Holly	Rd	394-7173
05547202	122	Roswell Ramsuer	N	Y	6512	Sullins	Rd	399-1105
05301130	123	Vernette Price	N	Y	708	Rhyne	Rd	357-1147
03104610	124	Pam Scott	N	Y	1001	Tom Sadler	Rd	392-1703
03105421	125	Lucille Fisher	N	Y	2310	Tom Sadler	Rd	392-5838
03105612	126	C.J. Mingus	D	Y	2128	Tom Sadler	Rd	392-3507
05916105	127	Harry Gosey	D	Y	5956	Elmwood	Cr	399-0127
03101215	128	Earl Strikeleather	D	Y	714	Mack	St	399-5521
05302304	129	Charles Moore	N		10039	Mt Holly	Rd	543-5878
03103315	130	Robert Ferrell	N	Y	131	Hugh Caldwell	Rd	
03104811	131	Jimmie Auten	D	Y	2105	Tom Sadler	Rd	392-2609
05723204	132	Elizabeth Gray	N	Y	6312	Freedom	Dr	399-3414
6	133	Gene Locklair	N		1840	Stoney Ridge	Dr	
03101223	134	Tabitha Brunk	D	Y	124	Morningside	Dr	393-2190
03101101	135	Bob Jeffery	D	Y	6932	Mt Holly	Rd	596-0035
' 14114	136	Anna Sherril	D	Y	527	Carole	Ln	393-2799
0 03128	137	Ruby Shever	N	Y	213	Ventner	Ct	393-5117
03105610	138	Minnie Brigman	D	Y	1722	Marita	Dr	
03101217	139	Marie Holder	N	Y	200	Morningside	Rd	398-0121
03104308	140	J.N. Richardson	N		275	Enwood	Dr	399-0305
05506106	142	James White	D	Y	100	Lee	Dr	392-3805
	143	Mr. Tom Volpe	N		10147	Littlefield	Dr	
05506212	144	Debbie Gaddy	D	Y	8827	Mt. Holly	Rd	398-2920
03106709	145	Nancy Abernathy	D	Y	634	Gum Branch	Rd	392-5707
05512205	146	Rhonda Davis	D	Y	1101	Walden	Rd	398-3122
03510422	147	Thelma Gardner	N	Y	821	Oak	St	392-4141
03105419	148	Ann Smith	N	Y	1829	Marita	Dr	~~398-9999~~
05506308	149	Mrs. William Powers	N	Y	121	Hansard	Dr	393-2030
03105617	150	Sheila Hord	D	Y	1830	Gum Branch	Rd	398-0188
	151	Winfred Nance			1208	Toddville	Rd	399-9049
05503110	152	Joy Sons	N	Y	239	Lee	St	394-0322
05922102	153	Jeanette Helton	N	Y	6518	Elmwood	Cr	392-4341
05302306	154	Mike King	N	Y	10209	Mt. Holly	Rd	391-0670
03101106	155	Joe Evans	D	Y	131	Valleydale	Rd	392-0097
03105420	156	Libby Stogner	D	Y	1840	Marita	Dr	392-4211
03107908	157	George Spinks	N	Y	151	Birchwood	Dr	193-3881
05910201	158	Sandy Setzer	N		5232	Pinebrook	Dr	399-0365
05914518	159	Ms. Booker		Y	5624	Paw Creek	Rd	394-7491
05503113	160	Dabra Lawing	N	Y	216	Ventner	Ct	393-5117
05917209	161	James Summerville	N		6006	Tuckaseegee	Rd	399-5862
03106713	162	Judy Holder	N		600	Lovvorn	Dr	399-2024
23203	163	Laura Wingate	N		721	Wingate	Dr	398-2312

RECEIVED
SEP 16 1993
SUPERFUND SECTION

estaxno	Map	Resident	R	L	Number	Strname	Ty	Telephone
1572	164	Alisa Mullis	D	Y	712	Little Rock	Rd	399-1168
05310102	165	Jack Dine	N		4708	Charlie Hipps	Rd	
5907202	166	Sid Hartley	D	Y	6000	Tuckaseegee	Rd	392-8042
03505101	167	Becky Bennett	D	Y	1526	Summerville	Rd	392-6690
05520707	168	Carol Bishop	N	Y	1900	Wildlife	Rd	392-2969
3104119	169	Harold Caudle		Y	1025	Coulwood	Dr	399-3717
3101303	170	Teresa Castro	N		7224	Mt Holly	Rd	none
05923111	171	Angela Harris	N		6315	Freedom	Dr	398-0810
5717201	172	Gary Green	D	Y	5852	Freedom	Dr	
3109113	173	Elizabeth Sult	N		317	Pine Island	Dr	399-7839
03105120	174	Forest McIntosh	N		1726	Stoney Ridge	Rd	394-3730
12	175	Evageline Hedrick	N		214	Morningside	Rd	393-2194
5514113	176	Robin Winslow	N		521	Carole	Ln	391-7951
03109108	177	Celia Digh	N			Pine Island	Dr	
16	178	Rhonda Phipps			2018	Stoney Ridge	Dr	
3102118	179	Courtney Munn	N		600	Tom Sadler	Rd	394-8200
9921228	180	Brenda Hendrick	N		6112	Paw Creek	Rd	386-9308wk
03107615	181	Wanda Abercrombie	D	Y	115	Kensett	Av	399-0003
3515401	182	Mrs. Joe Tyson	N		7301	Vineleaf	Rd	
3104806	183	Betty Tucker	D	Y	2013	Tom Sadler	Rd	
17	184	Johnny Fisher	D	Y	8200	Mt. Holly	Rd	
05723201	185	Jean Joy			633	Wingate	Dr	
5521101	186	Ms. McCurry	D	Y	2120	Wildlife	RD	
5547201	187	Sherry Hudson	N		6520	Sullins	Rd	393-3762
05506314	188	Peter Kaloudis	N	Y	169	Hansard	Dr	
	189	Clyde Peaks	D	Y	108	Chanticleer	Ct	399-1624
511412	190	Mamie McCleary	N		9529	Moores Chapel	Rd	392-2902
03102115	191	Ben Rogers	N		720	Tom Sadler	Rd	393-3475
5922103	192	Leola Shaw	D	Y	6514	Elmwood	Cr	522-5000
5916114	193	Susie Sheryl	N					382-6905
05506304	194	Barbara Green	N		210	IK Beatty	St	399-2770
05506315	195	Margaret Shaw	D	L	215	Hansard	Dr	394-2770Ch
3104814	196	Marion Culp	D	Y	2303	Tom Sadler	Rd	
Y05506104	197	Beatty Killman			200	Lee	Dr	
03106107	198	Deloras Wood	N	Y	1417	Gumbranch	Rd	392-6945
3106704	199	John Oats	D	Y	1032	Gumbranch	Rd	394-6502
3106104	200	Mary Moore	N		1225	Gumbranch	Rd	399-8485
03105606	201	Carol Lee	D		1812	Marita	Rd	394-3834
3105605	202	Warren Vancroft(Ann	N	Y	1824	Marita	Rd	392-1082
3106204	203	Mardelle Smith	N	Y	1509	Gumbranch	Rd	394-5641
05713106	204	Forest Smith	N	Y	1024	Lundy	Ln	392-7193
05813117	205	Paul Williams	N	Y	1125	Lundy	Ln	377-2155
5709607	206	Elaine Marke	D	Y	5916	Old Mount Holly	Rd	393-8005
3101222	207	Charles Black	D	Y	7216	Mack	St	392-0428
03106105	208	Frank Pingley	N	Y	1315	Gumbranch	Rd	399-5351
5506311	209	Mark Wilkinson			147	Hansard	Dr	392-5210
3106226	210	Mell Deck	N	Y	1809	Gumbranch	Dr	394-7763
05506105	211	Virgie Starnes	D	Y	120	Lee	Dr	392-6536
5914524	212	Olga Brown	N	Y	5516	Paw Creek	Rd	392-7267
3106102	213	Mrs. Harry White	D	Y	1201	Gumbranch	Rd	392-3111
5920103	214	Mark Lisy			6133	Paw Creek	Rd	399-4848
104805	215	W.H. Rodden	N		1917	Tom Sadler	Rd	392-1020

Restaxno	Map	Resident	R	L	Number	Strname	Ty	Telephone
[illegible]03347	216	Cherie Bisnette			8036	Mt. Holly	Rd	399-9348
03104613	217	Mrs. W.G. Cloninger	N		1121	Tom Sadler	RD	399-3164
05713115	218	Gearld Ferguson (Mrs)	D	Y	1033	Lundy	Ln	394-7591
05920103	219	Anna Williams	N	Y	6133	Paw Creek	Rd	392-5478
	220	Teresa Mumbulo	D	Y	7217	Mack	St	394-5736
	221	Grace Redmond	N	Y	2006	Stoney Ridge	Dr	383-3990
03101102	222	Betty Williams	D	Y	6924	Mount Holly	Rd	392-3585
03105616	223	Eddie Coates	N	Y	2020	Tom Sadler	Rd	399-7042
03103101	224	Robert Bowen	N	Y	1300	Tom Sadler	RD	392-6876
05510219	225	Ricky Morrison	N	Y	8821	Moores Chapel	Rd	398-3295
05312217	226	Kyle Hyde	N	Y	4711	Charlie Hipp	Rd	399-8652
	227	Mrs. John Sides	D	Y	336	Fielding	Rd	399-6957
05511403	228	Richard Epply	N	Y	9407	Eleanor	Dr	398-3334
	229	Margaret Hogan	N		8810	Moores Chapel	Rd	392-0260
	230	Frances Hagler	N	Y	2118	Little Rock	Rd	392-3919
03103340	231	Wayne Thompkins	N	Y	120	Hugh Caldwell	Rd	
05916110	232	Bernard Hickok	D	Y	1516	Niagara	Cr	392-8756
03133204	233	Ted Woods	N	Y	413	Fielding	Rd	392-7288
05506211	234	Sharyn Sapp	D	Y	122	Hansard	Dr	537-7134
05512311	235	Fred Williams	N	Y	1235	Kiker	Cr	392-6705
05922503	236	Judy Kulsica	N	Y	6517	Elmwood	Cr	391-8501
03106201	237	Clyde Gordon	N	Y	1501	Gum Branch	Rd	392-6060
05922209	238	J.B. Barrett	D	Y	1133	Regehr	Av	392-6038
03103332	239	Ed Burns			533	Tom Sadler	Rd	398-1490
	240	Elizabeth Harris	N		901	Rhyne	Rd	398-0609
[illegible]04822	241	Frank Thornburg	N	Y	9110	Mount Holly	Rd	392-0329
	242	Cheryl Holt			6501	Elmwood	Cr	399-0648
	243	Roy Abernathy	D		1805	Valleydale	Rd	399-8230
05506312	244	Henry Linker	D	Y	155	Hansard	Dr	399-8815
03109101	245	W.H. Robinson	N	Y	10500	Mount Holly	Rd	392-4740
05913140	246	Myrtle Haney	N	Y	5913	Paw Creek	Rd	392-3139
05503102	247	Bobby Atkinson	N	Y	121	Lee	St	399-3279
	248	Lisa Troutman	D	Y	6304	Sullins	Rd	392-8947
05721106	249	Rosa Rodriguez	N		7230	Old Mount Holly	Rd	394-4982
05916101	250	G.R. Summerville	N		5721	Freedom	DR	399-5868
	251	Lisa Mace	N	Y	6419	Sullins	Rd	399-5166
	252	Ralph Wingate	D	Y	711	Wingate	Dr	
05507406	253	Adrian Laye	N	Y	201	Rockwood	Dr	392-0410
03510107	254	Phoebe Long	N	Y	1109	Lakehill	Rd	3937409
05916104	255	Jean Howard	D	Y	5937	Elmwood	Cr	392-9209
	256	William E Parnell			1608	Browns	Av	399-5023
03106208	257	Benjamin Morgan	N	Y	1810	Tom Sadler	RD	~~399-7713~~
	258	Rod Berry			2023	Belmeade	Dr	394-6168
03106106	259	Ruth Autry	N	Y	1337	Gum Branch	Rd	394-3335
	260	Sam Williams	D		707	Little Rock	Rd	392-1059
	261	Les Plemmons	D	Y	233	Laburn	Av	399-1014
	262	Wayne Robbins	D	Y	5410	Pinebrook	Dr	831-4191
03105420	263	Cynthia Cook			1841	Marita	Dr	~~391-1214~~
05920106	264	Patricia Kelly	N		6333	Paw Creek	Rd	392-6596
05920105	265	Becky Woodrow	D		6329	Paw Creek	Rd	399-6038
05920107	266	Edith Horton	N		6425	Paw Creek	Rd	392-3061
	267	Cindy Emory	D	Y	611	Carole	Ln	786-3111

estaxno	Map	Resident	R	L	Number	Strname	Ty	Telephone
516107	268	Ricardo Sockwell			1212	Marietta	St	336-6425
03309135	269	Bill Beck			3215	Oakdale	Rd	394-6924
5507201	270	Grace Wagner	D	Y	9109	Mount Holly	Rd	~~392-7286~~
05508103	271	Michael Auten	N		317	Rhyne	Rd	399-4742
05512125	272	John Wheeler	N		1126	Walden	Rd	394-1211
5516107	273	Denise Coffey			1212	Marietta	St	336-6425
5510209	274	Ernest Isacc Alexander	N		318	Nance	RD	392-8847
03101214	275	Shirley B Manus	N		230	Morningside	Dr	399-5094
5913110	276	Lynn Nivens	N		2008	Woodtoc	Ct	399-4460
5510206	277	Lilly Lineberger	N		322	Nance	Rd	392-9036
03104106	278	Robert Ritter	D	Y	123	Roxanne	Ct	382-3100
05923310	279	W.W. Plummer	D	Y	6000	Elmwood	Cr	392-5195
5507407	280	Donna Reitzel			207	Rockwood	Dr	392-9868
5303202	281	Sheila Clark	D		2035	Belmeade	Rd	392-3839
05520207	282	Mrs. D.D. Hughes			3305	Kim	Dr	392-8218
5504503	283	Mrs. B. Davenport	D	Y	520	Glasgow	Rd	392-7439
3105410	284	Ollie Brooks	N		2400	Tom Sadler	Rd	399-1656
03303206	285	Mrs. McClure	D	Y	7712	Pleasant Grove	Rd	394-7256
5309333	286	Scott Cornwell	N		1241	Hawfield	Rd	394-3685
5512206	287	Mrs. Furr	D		1115	Walden	Rd	394-2121
05507403	288	Martha Godfrey	N		9037	Mount Holly	Rd	392-7441
05913139	289	Melton Dotson	N	Y	6025	Paw Creek	Rd	
5309329	356	Roxanne McCloud	D		1114	Hawfield	Rd	398-0689
3104813	151	Ms. Anne Boyd	N	Y	2223	Tom Sadler	Rd	392-8585
03104316	290	J.G. Marion	D		452	Kimmswick	Rd	393-2715
506300	291	William McClanahan	D		212	Hansard	Dr	394-2752
506315	292	Mrs. C.H. Craig	D		207	Hansard	Dr	392-2617
05506206	293	Charles Hoare	D		220	Hansard	DR	392-3513
5922506	294	William Callander	D		6607	Elmwood	Cr	393-2286
	295	C.M. Yandle			6300	Freedom	Dr	392-2691
3105302	296	Ola Chapman	D		1715	Woodlea	Rd	394-5830
05506317	297	Rita Lee	D		217	Hansard	Dr	394-1986
5503109	298	Donnie Cox	N	Y	225	Lee	St	
	299	William Elam	D	Y	2701	Daleview	Dr	
05503120	300	Michael Wilson	N	Y	230	Lee	St	392-7868
5503106	301	Pat Miles	D	Y	207	Lee	St	394-0024
5503104	302	Tim Suggs	D	Y	201	Lee	St	455-6461wk
05715110	303	Mrs. Ray Suddreth	N		6901	Old Mt Holly	Rd	392-6446
	304	Jerry Christopher			120	Rhyne	Rd	399-7467
3514611	305	Evelyn McGee	N		1308	Valleydale	Rd	392-5753
5910314	306	Mrs. Dorthy Rue	N		5401	Lew Haven	Dr	392-2638
05512101	307	Barbara Davis	D		1334	Waldon	Rd	399-0655
5516104	308	Carl Lawing	D		1200	Little Rock	Rd	399-8502
3104825	309	Jim Spangler	D		9000	Mt Holly	Rd	394-5075
03107903	310	Marilyn Lineberger	N		1501	Valleydale	Rd	399-7735
3105146	311	Royce McNeill	N		1824	Stoneyridge	Dr	399-1134
3105113	312	Greg Carbin	N		1904	Stoneyridge	Dr	394-2461
05709511	313	Lander Lewis	N		6113	Old Mt Holly	Rd	391-9170
03106813	314	Glenn Laney			523	Belmarrow	Dr	392-4640
5717104	315	Joanne Hoffman	N		5620	Freedom	Dr	392-1609
3107605	316	John Childers	N		127	Laburn	Av	392-0642
107622	317	Geneveieve Messimer	D		140	Kensett	Av	399-6088

Restaxno	Map	Resident	R	L	Number	Strname	Ty	Telephone
0. 22207	318	Chiscelde Osborne	N		6600	Elmwood	Cr	399-3929
05709512	319	Ida Murphy	D		6177	Old Mount Holly	Rd	392-9256
03126318	320	Bertha Green	N		1820	Gum Branch	Rd	392-4185
05507407	321	Raymond Reitzel	N		207	Rockwood	Dr	392-9868
05721105	322	Andrea Hilley	C	Y	7304	Old Mount Holly	Rd	565-4514
03103322	323	Sarah Cox	D		839	Tom Sadler	Rd	394-1952
03104505	324	Ralph Cox	D		114	Kinderway	Av	399-1374
05511201	325	Ruth Beatty	N	Y	9301	Moores Chapel	Rd	399-7076
03105407	326	Robert Broome	D	Y	1632	Woodlea	Rd	399-6239
03104816	327	Kelly Longshore	D		9228	Mt. Holly	Rd	394-2875
03101104	328	Ms. S. Coleman	N	Y	115	Valleydale	Rd	
03107803	329	Jack Hagler	N	Y	133	Coulwood	Dr	
03108506	330	Mrs. James Cathy	N	Y	155	Scotsmoor	Dr	
03106703	331	Billie D. Staton	D	Y	1034	Gumbranch	Rd	
03106705	332	Barbara Tomlinson	D	Y	1016	Gumbranch	Rd	
05514103	333	Marvin Taylor	N	Y	614	Carole	Ln	
	334	J. Christopher	N		120	Rhyne	Rd	
05506201	335	Susan Eaker	D	Y	8813	Mt. Holly	RD	
05711210	336	Ralph Long	N	Y	423	Toddville	Rd	399-0663
05922311	337	George Pickett	D		6012	Elmwood	Cr	
05506210	338	Stephen Clewis	D		132	Hansard	Dr	
05712209	339	Sherree Huit	D		6235	Pine	St	393-2303
05711216	340	Margie Hunter			424	West	Av	399-5498
03107707	341	Jack Parsons	D		305	Fielding	Rd	399-5736
03106108	342	Terri Hines	N	Y	1433	Gum Branch	Rd	399-4378
(12216	343	C.K. Attaway	N	Y	4621	Charlie Hipps	Rd	551-4596
05310102	344	Michaele Harlowe	N	Y	4700	Charlie Hipps	Rd	398-1991
	345	Nina Chapman	N	Y	700	Wingate	Rd	392-1075
03101109	346	Francis King	N	Y	213	Valley Dale	RD	392-2006
	347	Sandra Gouge	N	Y	839	Lundy	Ln	391-0133
	348	Sarah Barbee	N	Y	6301	Macon	St	596-1929
	349	Edna H Derrick	D		810	Tom Sadler	Rd	399-5800
	350	Helen Sigmon	N	Y	7217	Mack	St	394-3428
	351	Dan Seagel	D		5948	Elmwood	Cr	392-8294
	352	Genezy Ramsey			5723	Paw Creek	Rd	
	353	Wayne Ramsey			5723	Paw Creek	Rd	
	354	Gladys Camp	N		2119	Mount Holly	Rd	
05911320	355	Nancy Mowery	N		2743	Daleview	Dr	
	357	Nancy Bell	D		7138	Mt Holly	Rd	
	358	Virginia Oats	D		1136	Gum Barnch	Rd	
	359	Jarvis Midgett	D		6237	Freedom	Dr	399-0263
	360	Litha Porter			6740	Sullins	Rd	336-5295
	361	C.M. Yandle			6300	Freedom	Dr	392-2691
	362	Giles Foxx	D		1400	Niagra	Cr	399-9055
	363	Ms. Rothwell			527	Fielding	Rd	399-3119
	364	Ms Rothwell	D		5930	Old Mt Holly	Rd	399-3119
	365	Mr Woodard	D		1440	Niagra	Cr	
	366	James Blackwood	D		1418	Niagra	Cr	382-6518
	367	Mr. Stack			109	Lee	Dr	394-4338
	368	Mr Clyde Perkins			9207	Elgin	Dr	853-8661
	369	C.M. Yandle			6300	Freedom	Dr	392-2691
	370	Winfred Nance			1208	Toddville	Rd	399-9049

Restaxno	Map	Resident	R	L	Number	Strname	Ty	Telephone
	371	Doris Lawing	N	Y	1804	Gum Branch	Rd	
	372	Connie Garretson	N	Y	8500	Mount Holly	Rd	
	373	Sybil Tesenairs	D	Y	6020	Elmwood	Cr	
	374	Julia Smith			1800	Marita	Dr	
	375	H.L. Helms			1010	Little Rock	Rd	
	376	Grace Redmond	N	Y	2006	Stoney Ridge	Dr	
	377	Pauline Huffstetler	N	Y	4612	Charlie Hipps	Rd	
	378	Vickie Daughtry	D	Y	8232	Westborne	Dr	
	379	Mr Satterfield	N	Y	1916	Marita	Dr	
	380	Pat Henderson	N	Y	1600	Gumbranch	Rd	
	381	Perry Gary	D	Y	1415	Niagara	Cr	
	382	Andrea Hilley	N	Y	7304	Old Mount Holly	Rd	
	383	Becky Bennett	D	Y	1622	Valleydale	Rd	
	384	Elaine Randell	C		325	Brooklain	Dr	399-1602
	385	Kay Jones			1005	Hawfield	Rd	567-6252
	386	Jean McCorkle			1201	Kiker	Cr	393-8159
	387	Claude Armstrong	D		174	Mellwood	Dr	399-8020
	388	Ernestine Williams	D		1731	Woodlea	Rd	596-2932
	389	J.J. Warren			2205	Tom Sadler	Rd	399-7613
	390	J J Warren			2223	Tom Sadler	Rd	399-7613
	391	J J Warren			1801	Woodlea	Rd	399-7613
	392	Emmett Thomas			6518	Freedom	Dr	394-7669
	393	Steve Watts			6213 B	Pine	St	382-6065wk
	394	Vernon Lassiter			438	Rhyne	Rd	392-5704
	395	Elaine Randalls			325	Brooklain	Dr	399-1602
	396	Yvone Legate			138	Hansard	Dr	529-5765
	397	Linda Saunders			1725	Marita	Dr	399-3570
	398	Marsha Buff			532	Carole	Ln	392-5290
	399	Ruth Grouse			200	Hansard	Dr	399-4213
	400	Mr Barnes	N		6522	Freedom	Dr	392-2784
	401	Margaret Hogan			8810	Moores Chapel	Rd	
	402	Bills Transmission	D		6701	Freedom	Dr	391-1635
	403	Joe Reid	d		1118	Howard	Cr	399-0732
	404	Page Robbins	D	Y	1736	Woodlea	Rd	399-7853
	405	Iris Mc Swain			1708	Woodlea	Rd	378-8513
	406	Kelly Gribbs	N		601	Carole	Ln	
	407	Ray Dimmer			7206	Mack Street		393-3477
	408	Mrs Clary			6229	Elmwood	Cr	394-8906
	409	Nellie Williams			229	Valleydale	Rd	
	410	Mr Evans	N	Y	230	IK Beatty	St	
	411	H.L. Lutz	D	Y	1720	Woodlea	Rd	
	412	Mary Brotherton	D	Y	9201	Mount Holly	Rd	
	413	Lynn Freeman			310	Glenhaven	Dr	393-1252
	414	Kathy Furr			1118	Walden	Rd	391-9855
	415	Charles Hewes			320	Kingsway	Cr	399-7668
	416	Donald Sides			1201	Regehr	Av	391-6876
	417	J C Powers	N		1905	Woodlea	Rd	
	418	Jeanette Reames			161	Hansard	Dr	598-8953
	419	Avis Graybeal			1636	Ravenswood	Rd	529-3300
	420	Glenda Haynes			1047	Marietta St		393-8372
	421	Kathy Calebro			1201	Walden	Rd	399-8017
	422	Gary Sheely			5701	Paw Creek	Rd	399-8017

Restaxno	Map	Resident	R L	Number	Strname	Ty	Telephone
	423	Rose Almond		6447	Elmwood	Cr	392-5957
	424	George Pickett		6012	Elmwood	Cr	392-8294
	425	Donald Sides		1201	Regher	Av	391-6876
	426	Charles Hewes		320	Kingsway	Cr	399-7668
	427	Kathy Furr		1118	Walden	Rd	391-9855
	428	Cheryl Holt		6501	Elmwood	Cr	399-0648
	429	Elaine Randall		325	Brooklain	Dr	
	430	Karen Guy		6417	Elmwood	Cr	392-5062
	431	George Alvis		8325	Mount Holly	Rd	398-2821
	432	Carol Hall		1410	Niagra	Cr	393-0752
	433	Wanda Mauch		241	I K Beatty	St	355-2110
	434	Fred Gillenwater		335	Fielding	Rd	399-0389
	435	Ernest Clewis		1112	Regher	Av	392-4472
	436	Robert Kiker		1118	Kiker	Cr	399-0334
	437	Phyllis Ashe		1234	Kiker	Cr	343-6041
	438	Jay Almond		2001	Toddville	Rd	399-1388
	439	Jim Mullis		1929	Toddville	Rd	399-1388

Paw Creek Sampling
Contaminated Sites
1993
Complete As Of 11/03/93

Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
1	4/17/91	Debbie Ashe 1100 Kiker Cir.	Trichloroethene Tetrachloroethylene	trace trace	5 5
3*	4/19/90	Ceramic Design 7929 Old Mt. Holly Rd.	Chloroform (city water)	45.9	100
	3/30/92	(well sample)	Trichloroethene Tetrachloroethene	58.0 280	5 5
5	4/20/90	Mr. Troy Green 117 Hugh Caldwell Rd	1,2-Dichloroethylene Tetrachloroethylene	trace 1	70 5
	6/22/93		1,2-Dichloroethylene	1	70
6	4/20/90	Betty Killman 200 Lee Drive	Tetrachloroethylene	trace	5
	9/9/93		Tetrachloroethylene	5	5
7*	11/07/88	S.H. Killman 8026 Mt. Holly Road	2-Methoxy, 2 Methylpropane	(est) 50-100	--
	11/17/88		MTBE Isopropyl Ether	432.0 1	-- --
	3/29/89		MTBE	96	--
10	8/22/92	Mary Miller 8120 Metts Road	Trichloroethene	trace	5
	9/3/91		1,1 Dichloroethane Trichloroethane	trace trace	-- 5
11*	4/19/90	Ted Moise/Private Club 6711 Freedom Drive	Tetrachloroethylene Trichloroethylene	32.3 4.7	5 5
[illegible]	4/20/90	Mr. Morrow 6601 Old Mt. Holly Rd.	Tetrachloroethylene	trace	5
[illegible]*	4/2/90	Naomi Stogner 7911 Old Mt. Holly Rd.	Tetrachloroethylene Trichloroethylene 1,2 Dichloroethylene	2033 450 199	5 5 70
	4/24/90		Tetrachloroethylene Trichloroethylene 1,2 Dichloroethylene	1984 673 193	5 5 70
17*	7/23/90	John Underwood 1326 Valleydale Rd.	Toluene	7.3	1000
	8/90		No Toluene		

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Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
115		Linda Reams 6416 Hoover Cr	Tetrachloroethylene	1	5
120	6/23/93	R.O. Price 221 Fielding Rd.	Tetrachloroethylene	1	5
126	6/15/93	C.J. Mingus 2128 Tom Sadler Rd.	Carbon Tetrachloride	58	5
			Chloroethane	13	--
			1,1-Dichloroethane	75	--
			1,2-Dichloroethane	1	5
			1,1-Dichloroethylene	205	7
			1,1,1-Trichloroethane	307	200
127	6/15/93	Harry Gosey 5956 Elmwood Circle	Ethylbenzene	1	700
			Tetrachloroethylene	1	5
			Toluene	2	1000
			Xylenes	1	10,000
128	6/15/93	Earl Strikeleather 714 Mack St	Tetrachloroethylene	1	5
			Trichloroethylene	1	5
131	6/22/93	Jimmie Auten 2105 Tom Sadler Rd	Tetrachloroethylene	1	5
[illegible]	6/15/93	Tabitha Brunk 124 Morningside Dr	Trichloroethylene	1	5
			Chloroform	1	100
135	6/15/93	Bob Jeffery 6932 Mt Holly Rd.	Chloroform	1	100
136	6/15/93	Anna Sherril 527 Carole Ln	Tetrachloroethylene	1	5
			Chloroform	1	100
138	6/22/93	Mimmie Brigman 1722 Marita Dr	Tetrachloroethylene	1	5
142	6/24/93	James White 100 Lee Drive	Tetrachloroethylene	1	5
144	6/23/93	Debbie Gaddy 8827 Mount Holly Rd.	Tetrachloroethylene	1	5
145	6/23/93	Nancy Abernathy 634 Gumbranch	Tetrachloroethylene	1	5
146	6/24/93	Rhonda Davis 1101 Walden RD	Tetrachloroethylene	1	5

Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
150	6/23/93	Sheila Hord 1830 Gumbranch Rd	Tetrachloroethylene	1	5
155	6/24/93	Joe Evans 131 Valleydale Rd	Chloroform	1	100
156	6/24/93	Libby Stogner 1840 Marita Dr	Tetrachloroethylene	2	5
164	6/30/93	Alisa Mullis 712 Little Rock Rd.	Trichloroethylene	1	5
166*	7/16/93	Sid Hartley 6000 Tuckaseegee Rd.	Tetrachloroethylene	4	5
	8/2/93		Chloroform	44	100
			Bromodichloromethane	6	100
167	6/24/93	Becky Bennett 1526 Summerville Rd	Tetrachloroethylene	1	5
172	6/23/93	Gary Green 5852 Freedom Dr	Tetrachloroethylene	6	5
[illegible]	6/29/93	Wanda Abercrombie 115 Kensett Ave.	Tetrachloroethylene	1	5
			Chloroform	1	100
183	6/23/93	Betty Tucker 2013 Tom Sadler Rd	Tetrachloroethylene	1	5
184	7/28/93	Johnny Fisher 8200 Mt Holly RD	Tetrachloroethylene	1	5
189	7/15/93	Clyde Peak 108 Chanticleer Ct.	Tetrachloroethylene	8	5
			Trichloroethylene	1	5
	8/3/93		Tetrachloroethylene	8	5
192	7/1/93	Leola Shaw 6514 Elmwood Cr.	Tetrachloroethylene	4	5
			Trichloroethylene	1	5
195	7/6/93	Margaret Shaw 215 Hansard Dr.	1,2 Dichloroethylene	3	70
			Tetrachloroethylene	7	5
			Trichloroethylene	1	5
196	6/22/93	Marion Culp 2303 Tom Sadler Rd.	Trichloroethylene	.25	5
199	7/2/93	John Oats 1032 Gumbranch Rd.	Carbon Tetrachloride	17.3	5
			1,1 Dichloroethylene	43.9	7
			Trichloroethane	69.6	200

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Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinkin Water Standard (ppb)
201	7/16/93	Carole Lee 1812 Marita Rd.	Tetrachloroethylene	1	5
206	7/1/93	Davis & Delco Co. 5916 Old Mt. Holly Rd.	Chloroform	2	100
207	7/1/93	Charles Black 7216 Mack St.	Chloroform	15	100
211	7/8/93	Virgie Starnes 120 Lee Dr	Tetrachloroethylene	1	5
213	8/3/93	Harry White 1201 Gumbranch Rd.	Tetrachloroethylene	1	5
218	7/8/93	Gearld Ferguson 1033 Lundy Ln	Tetrachloroethylene	2	5
220	7/8/93	Teresa Mumbulo 7217 Mack St	Chloroform	1	100
222	7/16/93	Betty William 6924 Mount Holly Rd	Chloroform	1	100
	8/3/93		None Detected		
227	7/13/93	John Sides 336 Fielding Rd.	Tetrachloroethylene 1,2 Dichloroethylene Trichloroethylene	1 4 3	5 70 5
	8/2/93		1,2 Dichloroethylene Tetrachloroethylene	1 1	70 5
232	7/19/93	Bernard Hickok 1516 Niagara	Tetrachloroethylene	3	5
	8/4/93		Tetrachloroethylene	3	5
234	7/9/93	Sharon Sapp 122 Hansard Dr.	Tetrachloroethylene Trichloroethylene	1 1	5 5
238	7/16/93	JB Barrett 1133 Regcher Ave	Tetrachloroethylene	1	5
	8/2/93		Tetrachloroethylene	1	5
243	7/13/93	Roy Abernathy 1805 Valleydale Rd.	1,2 Dichloroethane	2	5
244	7/15/93	Henry Linker 155 Hansard DR	Chloroform	1	100
	8/4/93		None Detected		

Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
248	7/13/93	Lisa Troutman 6304 Sullins RD	Tetrachloroethylene	3	5
	8/4/93		Tetrachloroethylene	2	5
252	7/16/93	Ralph Wingate 711 Wingate Dr.	Tetrachloroethylene	1	5
	8/2/93		None Detected		
255	7/16/93	Mr. Albert 5937 Elmwood Circle	Tetrachloroethylene	2	5
	8/2/93		Tetrachloroethylene	2	5
258	9/16/93	Rod Berry 2023 Belmeade	Tetrachloroethylene	2	5
260	7/22/93	Sam Williams 707 Little Rock Rd	Tetrachloroethylene	3	5
261	7/15/93	Les Plemmons 233 Laburn Ave.	Tetrachloroethylene	2	5
			Trichloroethylene	1	5
	8/2/93		Tetrachloroethylene	1	5
262	7/16/93	Wayne Robbins 5410 Pinebrook Dr.	Tetrachloroethylene	1	5
	8/2/93		Tetrachloroethylene	1	5
265	7/16/93	Becky Woodrow 6329 Paw Creek Rd	MTBE	4	--
267	7/16/93	Cindy Emory 611 Carole Ln.	Tetrachloroethylene	1	5
	8/2/93		None Detected		
270	7/16/93	Grace Wagner 9109 Mt. Holly Rd.	Tetrachloroethylene	1	5
	8/2/93		None Detected		
278	7/15/93	Mr. Ritter 123 Roxanna Ct.	Tetrachloroethylene	1	5
	8/3/93		Tetrachloroethylene	1	5
279	7/15/93	Mr. Plummer 6000 Elmwood Circle	Tetrachloroethylene	2	5
	8/2/93		Tetrachloroethylene	1	5
281	7/22/93	Sheila Clark 2035 Belmeade Rd	Tetrachloroethylene	1	5

Map	Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
283	7/15/93	Beatrice Davenport 520 Glasglow Rd	Carbon Tetrachloride	2.0	–
			Chloroform	9.0	100
			1,1 Dichloroethane	4.0	--
			1,1 Dichloroethylene	9.0	7
			1,2 Dichloroethylene	14.0	70
			Tetrachloroethylene	>75.0	5
			1,1,1 Trichloroethane	2.0	200
			Trichloroethylene	20.0	5
	8/3/93		Chloroform	6.0	100
			1,1 Dichloroethane	4.0	--
			1,1 Dichloroethylene	8.0	7
			1,2 Dichloroethylene	10.0	70
			Tetrachloroethylene	1565.0	5
			Trichloroethylene	17.0	5
285	7/15/93	Ms. McClure 7712 Pleasant Grove Road	Tetrachloroethylene	1	5
	8/4/93		None Detected		
287	7/15/93	Ms. Furr 1115 Walden Rd.	Tetrachloroethylene	2	5
			Trichloroethylene	1	5
290	7/21/93	J.D. Marion 452 Kimmswich Rd.	Tetrachloroethylene	1	5
291	7/22/93	Willaim McClanahan 212 Hansard Dr.	1,2 Dichloroethylene	2	70
			Tetrachloroethylene	6	5
			Trichloroethylene	8	5
292	7/22/93	C.H. Craig 207 Hansard Dr	Tetrachloroethylene	1	5
293	7/22/93	Charles Hoare 220 Hansard Dr.	Tetrachloroethylene	2	5
294	7/21/93	William Callander 6607 Elmwood Circle	Tetrachloroethylene	1	5
296	7/21/93	Ola Chapman 1715 Woodlea Rd.	Tetrachloroethylene	1	5

Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
297	7/22/93	Rita Lee 217 Hansard Dr	Tetrachloroethylene	1	5
299	7/16/93	Willliam Elam 2710 Daleview Dr	Tetrachloroethylene	1	5
301	7/19/93	Pat Miles 207 Lee St	Tetrachloroethylene	1	5
	8/4/93		Tetrachloroethylene	1	5
302	7/15/93	Tim Suggs 201 Lee St.	Tetrachloroethylene	1	5
	8/2/93		Tetrachloroethylene	1	5
307	7/20/93	Barbara Davis 1334 Walden Rd	Tetrachloroethylene	1	5
308	7/19/93	Carl Lawing 1200 Little Rock Rd	Tetrachloroethylene	1	5
309	7/19/93	Jim Spangler (Oak grove Baptist Church) 9000 Mount Holly Rd	Tetrachloroethylene	1	5
	7/19/93	Glen Laney 523 Belmorrow DR	Tetrachloroethylene	1	5
	8/4/93		Tetrachloroethylene	2	5
317	7/20/93	Genevieve Messimer 140 Kensett Ave	Chloroform 1,1 Dichloroethylene Tetrachloroethylene	5 1 2	100 7 5
319	7/21/93	Ida Murphy 6117 Old Mount Holly Rd	Tetrachloroethylene	1	5
323	7/20/93	Sarah Cox 839 Tom Sadler Rd	1,1 Dichloroethane	1	--
324	7/20/93	Ralph Cox 114 Kinderway Ave	Tetrachloroethylene	1	5
25	7/22/93	Ruth Beatty 9301 Moores Chapel Rd	Tetrachloroethylene	1	5
26	7/22/93	Robert Broome 1632 Woodlea Rd	Tetrachloroethylene	1	5
27	8/2/93	Kelly Longshore 9228 Mt. Holly Road	Tetrachloroethylene	1	5

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Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinkin Water Standard (ppb)
331	7/2/93	Billie D. Staton 1034 Gumbranch Rd. (Served by John Oats Well)	Carbon Tetrachloride 1,1 Dichloroethylene Trichloroethane	17.3 43.9 69.6	5 7 200
332	7/2/93	Barbara Tomlinson 1016 Gumbranch Rd. (Served by John Oats Well)	Carbon Tetrachloride 1,1 Dichloroethylene Trichloroethane	17.3 43.9 69.6	5 7 200
335	8/2/93	Susan Eaker 8813 Mt. Holly Road	Tetrachloroethylene	1	5
337	8/2/93	George Pickett	Tetrachloroethylene 6012 Elmwood Cirlce	5	5
338	8/2/93	Stephen Lewis 132 Hansard Drive	Tetrachloroethylene	1	5
339	8/2/93	Sherree Huitt 6235 Pine Street	Tetrachloroethylene	1	5
341	8/2/93	Jack Parson 305 Fielding Drive	Tetrachloroethylene	1	5
	8/2/93	Edna Derrick 810 Tom Sadler Road	Tetrachloroethylene	3	5
351	8/2/93	Dan Seagal 5948 Elmwood Circle	Tetrachloroethylene	1	5
356	7/21/93	Roxanne McCloud 1114 Hawfield Rd	1,1 Dichloroethane Tetrachloroethylene	1 2	– 5
357	7/28/93	Nancy Bell 7138 Mount Holly Rd	Tetrachloroethylene	2	5
358	7/26/93	Virginia Oats 11316 Gum Branch Rd	Tetrachloroethylene	1	5
359	8/10/93	Jarvis Midgett 6237 Freedom Drive	Tetrachloroethylene	1	5
362	8/10/93	Giles Foxx 1400 Niagara Circle	Tetrachloroethylene	1	5
364	8/10/93	Ms. Rodwell/Universal Fastners 5930 Old Mt. Holly Road	Chloroform	7	100
365	8/10/93	Luther Woodard 1440 Niagara Circle	Tetrachloroethylene	2	5

Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
366	8/10/93	James Blackwood 1418 Niagara Circle	Tetrachloroethylene	1	5
367	10/6/93	O.J. Stack 109 Lee Dr	Tetrachloroethylene	2	5
373	8/3/93	Sybil Tesenairs 6020 Elmwood Circle	Tetrachloroethylene	4	5
374	8/3/93	Julie Smith 1800 Marita Dr.	Tetrachloroethylene	2	5
375	7/16/93	H.L. Helms 1010 Little Rock Rd.	Tetrachloroethylene	1	5
	8/2/93		Tetrachloroethylene	1	5
378	7/13/93	Ms. Vickie Daugherty 8232 Westbourne Drive	Tetrachloroethylene	1	5
	8/4/93		None Detected		
381	8/18/93	Perry Gary 1415 Niagara	Tetrachloroethylene	1	5
383	8/4/93	Becky Bennett 1622 Valleydale Rd	Tetrachloroethylene	1	5
387	8/24/93	Claude Armstrong 174 Mellwood Dr	Tetrachloroethylene	1	5
388	8/24/93	Ernestine Williams 1731 Woodlea Rd	Tetrachloroethylene	2	5
389	8/25/93	J. J. Warren 2205 Tom Sadler Rd	Tetrachloroethylene	2	5
390	8/25/93	J. J. Warren 2223 Tom Sadler Rd	Tetrachloroethylene	1	5
392	9/1/93	Emmett Thomas 6518 Freedom Drive	1,2-Dichloroethane	1	5
393	8/25/93	Steve Watts 6213-B Pine Street	Tetrachloroethylene	1	5
397	8/25/93	Linda Saunders 1725 Marita Dr	Tetrachloroethylene	1	5
398	8/24/93	Mr. Buff 532 Carole Ln	Tetrachloroethylene	1	5
[illegible]	8/20/93	Bill's Transmission 6701 Freedom Dr	Trichlorofluoromethane MTBE	13 2	-- --

55

Map #	Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
403	8/24/93	Joe Reid 118 Howard Circle	Tetrachloroethylene	1	5
404	8/20/93	Page Robbins 1736 Woodlea Rd	Chloroform	1	5
407	8/26/93	Ray Dimmer 7206 Mack St	Tetrachloroethylene	1	5
408	8/26/93	Mrs. Clary 6229 Elmwood Circle	Tetrachloroethylene	1	5
411	8/20/93	H.L. Lutz 1720 Woodlea Rd	Tetrachloroethylene 1,1 Dichloroethane	2 1	5 5
412	8/20/93	Mary Brotherton 9201 Mount Holly Rd	Chlorobenzene	2	100
413	8/31/93	Lynn Freeman 310 Glenhaven	Tetrachloroethylene	1	5
417	8/24/93	Joe Reid ~~118 Howard Circle~~ duplicate	JC Powers Woodland Rd. ~~Tetrachloroethylene~~	1	5
419	9/9/93	Avis Graybeal 1636 Ravenswood Road	Tetrachloroethylene	3	5
421	9/9/93	Kathy Calebro 1201 Walden Road	Tetrachloroethylene	1	5
422	9/9/93	Gary Sheely 5701 Paw Creek Road	Tetrachloroethylene	1	5
427	9/16/93	Kathy Furr 1118 Walden Road	Tetrachloroethylene	1	5
430	9/16/93	Karen Guy 6417 Elmwood Circle	Tetrachloroethylene	1	5
432	9/16/93	Carol Hall 1410 Niagra Circle	Tetrachloroethylene	1	5
434	9/16/93	Fred Gillenwater 335 Fielding Road	1,2-Dichloroetylene Tetrachloroethylene	3 1	70 5
436	9/16/93	Robert Kiker 1118 Kiker Cr	Tetrachloroethylene	2	5
437	9/16/93	Phyllis Ashe 1234 Kiker Cr	1,1 Dichloroethylene Tetrachloroethylene	2 3	7 5

9/16/93	Phyllis Ashe 1234 Kiker Cr	1,1 Dichloroethylene Tetrachloroethylene	2 3	7 5

Date	Owner / Location	Results	Concentration (ppb)	Drinking Water Standard (ppb)
9/16/93	Jay Almond 2001 Toddville Road	Tetrachloroethylene	2	5
9/16/93	Jim Mullis 1929 Toddville Road	Tetrachloroethylene	1	5
10/6/93	Margaret Goodman 6400 Elmwood Cr	Tetrachloroethylene	1	5
10/27/93	Ellavieve Lawson 6800 Elmwood Cr	Tetrachloroethylene	4	5

Well Use Discontinued; Connected to City Water

MEMO

DATE: June 7, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

Based on information obtained from Mecklenburg County Department of Environmental Protection records, Charlotte-Mecklenburg Utility Department, and telephone conversations with area residents, I prepared a summary of well testing results and drinking water status for residences within 1/4 mile of the Tom Sadler Road Wells Site.

Ed Maddox	1701 Tom Sadler Rd.	not tested	still using well
Benjamin Morgan (257)	1810 Tom Sadler Rd.	ND	**City**
W. H. Rodden (215)	1917 Tom Sadler Rd.	ND	still using well
Betty Tucker (183)	2013 Tom Sadler Rd.	1 ppb PCE 6/93; ND 1994	still using well
Eddie Coates (223)	2020 Tom Sadler Rd.	ND	still using well
Jimmie Auten (131)	2105 Tom Sadler Rd.	1 ppb PCE 6/93	**City**
David Mingus	**2112 Tom Sadler Rd.**	58 ppb CCl_4;	**City**
G. J. Mingus	**2128 Tom Sadler Rd.**	4 ppb Chloroethane;	**City**
		59 ppb 1,1-DCA;	
DCA = Dichloroethane		1 ppb 1,2-DCA;	
DCE = Dichlorethene		219 ppb 1,1-DCE;	
TCA = Trichloroethane		612 ppb 1,1,1-TCA	
J. J. Warren (389)	2205 Tom Sadler Rd.	2 ppb PCE 8/93	**City**
Ann Boyd (151); J. J. Warren (389)	2223 Tom Sadler Rd.	1 ppb PCE 8/93	**City**
Marion Culp (196)	2303 Tom Sadler Rd.	0.25 ppb TCE 6/93	**City**
Lucille Fisher (125)	2310 Tom Sadler Rd.	ND	still using well
Ollie Brooks (284)	2400 Tom Sadler Rd.	ND	**City**
Satterfield (379)	1916 Marita Dr.	ND	**City**
Cynthia Cook (263)	1841 Marita Dr.	not tested	**City**
Libbie Stogner (156)	1840 Marita Dr.	2 ppb PCE 6/93	**City**
Ann Smith (148)	1829 Marita Dr.	ND	**City**
Warren Vancroft (202)	1824 Marita Dr.	ND	still using well
Jordan (formerly Cook)	1812 Marita Dr.	1 ppb PCE 7/93	**City**
Julia Smith (374)	1800 Marita Dr.	2 ppb PCE 8/93	**City**
Linda Saunder's mother	1739 Marita Dr.	not tested	**City**
Linda Saunders (397)	1725 Marita Dr.	1 ppb PCE 8/93	**City**
Mimmie Brigman (138)	1722 Marita Dr.	1 ppb PCE 6/93	**City**

J. C. Powers (417)	1905 Woodlea Rd.	not tested	still using well
Bill Cline Jr.	1830 Woodlea Rd.	not tested	City
	1829 Woodlea Rd.	not tested	City
	1817 Woodlea Rd.	not tested	still using well
	1806 Woodlea Rd.	not tested	City
J. J. Warren (391)	1801 Woodlea Rd.	ND	City
Page Robbins (404)	1736 Woodlea Rd.	1 ppb chloroform 8/93	City
Ernestine Williams (388)	1731 Woodlea Rd.	2 ppb PCE	still using well
H. L. Lutz (411)	1720 Woodlea Rd.	2 ppb PCE, 1 ppb 1,1-DCA 8/93	City
Ola Chapman (296)	1715 Woodlea Rd.	1 ppb PCE 7/93	City
Iris McSwain (405)	1708 Woodlea Rd.	ND	City
Sheila Lucas (56)	1707 Woodlea Rd.	ND 3/90	City
Robert Broome (326)	1632 Woodlea Rd.	1 ppb PCE 7/93	City
Gurley	1635 Woodlea Rd.	not tested	still using well
Timothy Roges	9024 Mount Holly Rd.	not tested	still using well
	9026 Mount Holly Rd.	not tested	still using well
Ham Godfrey (288)	9037 Mount Holly Rd.	ND	City
Juanita Thornburg (241)	9100 Mount Holly Rd.	ND	still using
Grace Wagner (270)	9109 Mount Holly Rd.	1 ppb PCE 7/93; ND 8/93	City
Frank Thornburg (241)	9110 Mount Holly Rd.	ND	still using
Gary Thornburg	9116 Mount Holly Rd.	not tested	still using
Gladys Camp (354)	9119 Mount Holly Rd.	ND	City
Delores Dorsett	9134 Mount Holly Rd.	not tested	still using well
	9129 Mount Holly Rd.	not tested	City
Mary Brotherton (412)	9201 Mount Holly Rd.	2 ppb Chlorobenzene 8/93	City
Scott Upright	9208 Mount Holly Rd.	not tested	still using well
C. J. Mayer & Leonard Ward	9211 Mount Holly Rd.	not tested	City
Harriett White (110)	9218 Mount Holly Rd.	ND 3/92	City
Kelly Longshore (327)	9228 Mount Holly Rd.	1 ppb PCE 8/93	City
Mae Fuller	9229 Mount Holly Rd.	not tested	City
Nickelodeom Private Club	9501 Mount Holly Rd.	transient community well	still using well
Kingdom Hall			
Jehovah's Witness Church	1900 Gum Branch Rd.	transient community well	still using well
Sheila Hord (150)	1830 Gum Branch Rd.	1 ppb PCE 6/93	City
Bertha Green (320)	1820 Gum Branch Rd.	not tested	still using well
Mell Deck (210)	1809 Gum Branch Rd.	not tested	still using well
Doris Lawing (371)	1804 Gum Branch Rd.	not tested	still using well
	9210 Elgin Circle	not tested	City
	9202 Elgin Circle	not tested	City
	9130 Elgin Circle	not tested	City
	9114 Elgin Circle	not tested	still using well
	9106 Elgin Circle	not tested	still using well
Donna Reitzel (280)	207 Rockwood Dr.	not tested	City
Camaro Specialists	116 Spring Hill Rd.	not tested	City
	121 Spring Hill Rd.	not tested	still using well

MEMO

DATE: May 24, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

From May 19 - May 24, I called the following people and asked if they and any of their neighbors had connected to city water or if they were still using their private drinking water well.

I talked with Ernestine Williams, (704) 596-2932. She lives at 1731 Woodlea Dr. Her well had 2 ppb PCE detected in it. They are still using the well for drinking. I asked her about her neighbors. She said that the following neighbors have connected to city water:

1720 Woodlea	Lutz
1708 Woodlea	
1707 Woodlea	Sheila Lucas
1829 Woodlea	Helms

I called Mrs. Ollie Brooks (704) 399-1656. She lives at 2400 Tom Sadler Road and has connected to city water. She said that the following residences had connected to city water:

1632 Woodlea Rd.	Broome
1725 Marita	Saunders
1729 Marita	Saunder's mother

I called Mr. W. H. Rodden (704) 392-1020. He lives at 1917 Tom Sadler Road. He is still using his well for drinking as is the Tucker residence at 2013 Tom Sadler Road. I asked him about the Maddox home at 1701 Tom Sadler Road. He said that Mr. Maddox had passed away and that his son was now living in the home. He was not sure about his drinking water status.

I called the Vancroft residence at 1824 Marita Dr. (704) 392-1082. Mr. Vancroft said that he is still using the well. He said that the Stogner residence at 1840 Marita and the residence at 1829 Marita was connected to city water. I called the Brigman residence at (704) 392-9556. Mrs. Brigman said that she was connected to city water. She does not know the drinking water status of any of her neighbors.

I called Mrs. Juanita Thornburg at (704) 392-2957. She said that she is still using her drinking water well. In addition, she knew the drinking water status of the following neighbors.

9100 Mount Holly Road	using well
9110 Mount Holly Road	using well
9116 Mount Holly Road	using well
9109 Mount Holly Road	City
9134 Mount Holly Road	using well

On May 24, 1995, I called Mr. William Cline (704) 347-1550. He lives at 9600 Mount Holly Road. He and his daughter at 9624 Mount Holly Road still use their drinking water well . They have never been tested. His rental property at 9900 Mount Holly Road has been connected to city water. He owns Thomas Pond. He said that they definitely fish in the pond and they eat the fish. Mr. Cline said that his home is across the road from Livingstone Coatings. He witnessed an explosion last evening at 1145 pm. One wall collapsed at Livingstone Coatings due to the explosion.

MEMO

DATE: July 5, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

On July 3 and 5, 1995, I called the following area residents and asked about the status of their groundwater consumption:

Resident and address	Source of information	# residents	Contaminant detected and date
Libbie Stogner 1840 Marita Dr. 392-4211		**	2 ppb PCE
Ann Smith 1829 Marita Dr. 392-1531	Ann Smith	1	ND
Warren Vancroft 1824 Marita Dr.	Ann Smith	5	ND***
Jordan residence (formerly Cook residence) 1812 Marita Dr.	Ann Smith	3	1 ppb PCE
Julie Smith 1800 Marita Dr.	Ann Smith	4	2 ppb PCE
Mimmie Brigman 1722 Marita Dr. 392-9556	Mimmie Brigman	2	1 ppb PCE
Linda Saunders 1725 Marita Dr.	Mimmie Brigman	3	1 ppb PCE
Betty Tucker 2013 Tom Sadler Rd. 394-4079	Betty Tucker	4	1 ppb PCE 6/93; ND 1994***
Jimmie Auten 2105 Tom Sadler Rd. 392-2609	Jimmie Auten	2	1 ppb PCE
Eddie Coates 2020 Tom Sadler Rd.	Jimmie Auten	1	ND
Marion Culp 2303 Tom Sadler Rd.		**	0.25 ppb TCE
Ernestine Williams 1731 Woodlea 596-2932	Mrs. Broome	3	2 ppb PCE
H. L. Lutz 1720 Woodlea	Mrs. Broome	2	2 ppb PCE, 1 ppb 1,1-DCA
Ola Chapman 1715 Woodlea 394-5830	Mrs. Broome	3	1 ppb PCE
Robert Broome 1632 Woodlea 399-6239	Mrs. Broome	2	1 ppb PCE
Sheila Hord 1830 GumBranch 398-0188		**	1 ppb PCE

* Note that second test did not show positive results for PCE
**Could not obtain information on these residences
***Still using well

MEMO

DATE: September 28, 1994

TO: File

FROM: Jeanette Stanley, Environmental Chemist,
NC Superfund Section

RE: Old Mount Holly Road PCE Site
Charlotte, Mecklenburg County, NC
NCD 986 172 518

I called the following area residents and asked about the status of their groundwater consumption:

Resident and address	Phone number and source of information if different than resident	number of residents in house	still drinking water?
Fisher 8200 Mount Holly Rd	(704) 488-9780 Mrs. Troy Green (landlord)	3	No - Amoco paid for connection
Troy Green 117 Hugh Caldwell Rd.	(704) 488-9780	2	No - Amoco paid for connection
Anna Sherrill 527 Carole Lane	(704) 392-0189	3	No - Paid for connection. Water had oily sheen
Mrs. Buff 532 Carole Lane	Anna Sherrill (704) 392-0189	2	Yes
Cindy Emory* 611 Carole Lane	Anna Sherill (704) 392-0189	1	Yes
Rental Home 2205 Tom Sadler Rd	J. J. Warren (landlord) (704) 399-7613	3	No - Paid for connection
Rental Home 2223 Tom Sadler Road	J. J. Warren (landlord) (704) 399-7613	2	No - Paid for connection
Ralph Wingate* 711 Wingate Rd.	Mrs. Wingate (704) 399-5826	2	Yes

* Note that second test did not show positive results for PCE

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

TO: Ms. Willie May
Charlotte Mecklenburg Utility Department
Public Relations
(704) 399-2551; FAX (704) ~~399-2551~~ 393-2219

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section
(919) 733-2801; FAX (919) 733-4811

SUBJECT: Status of Drinking water connections in the Paw Creek Area

DATE: May 24, 1995

We talked yesterday. You indicated that if I sent a list of addresses to you via FAX, you would return a confirmation of whether or not these addresses are connected to city water. I have reviewed the sampling records of the Mecklenburg County Department Environmental Protection and used the city directory and telephone to contact as many people as possible to determine the drinking water status of these individuals. Attached is a list of addresses I have been unable to either find records on or reach by telephone.

I am currently studying an area with contaminated groundwater. A few wells have high levels of solvents, above drinking water standards. Some wells have low levels of solvents. Most wells are clean. Citizens have connected to city water on a random basis. A few residents have not yet had their private drinking water wells tested. It is very important that I have correct information.

I would appreciate it very much if you would indicate with a yes next to the address of individuals who have connected to city water. This will save me the effort of using a whole day to drive to Charlotte to view your maps. Thank you!!!

FAX to: Jeanette Stanley
(919) 733-4811

1635 Woodlea Rd.

1905 Woodlea Rd.
1830 Woodlea Rd.
1829 Woodlea Rd.
1817 Woodlea Rd.
1806 Woodlea Rd.
1707 Woodlea Rd.

1916 Marita Dr.
1841 Marita Dr.
1800 Marita Dr.

1701 Tom Sadler Rd.
1810 Tom Sadler Rd.

2020 Tom Sadler Rd.
2105 Tom Sadler Rd.
2303 Tom Sadler Rd.
2310 Tom Sadler Rd.

1820 Gum Branch Rd.
1809 Gum Branch Rd.
1804 Gum Branch Rd.
1900 Gum Branch Rd.

9024 Mount Holly Rd.
9026 Mount Holly Rd.
9037 Mount Holly Rd.
9119 Mount Holly Rd.
9129 Mount Holly Rd.
9201 Mount Holly Rd.
9208 Mount Holly Rd.
9211 Mount Holly Rd.
9218 Mount Holly Rd.
9228 Mount Holly Rd.
9229 Mount Holly Rd.
9501 Mount Holly Rd.

9210 Elgin Circle
9202 Elgin Circle
9130 Elgin Circle
9114 Elgin Circle
9106 Elgin Circle

207 Rockwood Dr.

116 Spring Hill Rd.
121 Spring Hill Rd.

393 – 2219

FAX to: Jeanette Stanley
(919) 733-4811

	city Yes	no city No
1635 Woodlea Rd.		X
1905 Woodlea Rd.		X
1830 Woodlea Rd.	X	
1829 Woodlea Rd.	X	
1817 Woodlea Rd.		X
1806 Woodlea Rd.	X	
1707 Woodlea Rd.	X	
1916 Marita Dr.	X	
1841 Marita Dr.	X	
1800 Marita Dr.	X	
1701 Tom Sadler Rd.		X
1810 Tom Sadler Rd.	X	
2020 Tom Sadler Rd.		X
2105 Tom Sadler Rd.	X	
2303 Tom Sadler Rd.	X	
2310 Tom Sadler Rd.		X
1820 Gum Branch Rd.		X
1809 Gum Branch Rd.		X
1804 Gum Branch Rd.		X
1900 Gum Branch Rd.		X

	city Yes	no city No
9024 Mount Holly Rd.		X
9026 Mount Holly Rd.		X
9037 Mount Holly Rd.	X	
9119 Mount Holly Rd.	X	
9129 Mount Holly Rd.	X	
9201 Mount Holly Rd.	X	
9208 Mount Holly Rd.		X
9211 Mount Holly Rd.	X	
9218 Mount Holly Rd.	X	
9228 Mount Holly Rd.	X	
9229 Mount Holly Rd.	X	
9501 Mount Holly Rd.		X
9210 Elgin Circle	X	
9202 Elgin Circle	X	
9130 Elgin Circle	X	
9114 Elgin Circle		X
9106 Elgin Circle		X
207 Rockwood Dr.	X	
116 Spring Hill Rd.	X	
121 Spring Hill Rd.		X

Ref. 15

MEMO

DATE: May 26, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

For out to 1/4 mile from the site, I determined the number of homes still connected to private drinking water wells and the number of homes using private drinking water wells at the time of discovery. Resources used are described in References 13 and 14 of this report. At the time of discovery, there were 51 residences using private drinking water wells within 1/4 mile of the site. There are now 24 residences within 1/4 mile of the site using private drinking water wells. The average number of persons per household in Mecklenburg County based on the 1990 census (attached) is 2.50. Therefore, the estimated number of people using groundwater within 1/4 mile of the site is:

24 x 2.50 = **60.**

I determined that the closest private drinking water well still being used is 450 feet from the site. The seven PCE-contaminated drinking water wells within 450' of the Tom Sadler Road Wells site have connected to city water. One PCE-contaminated well at 475' from the property is still in use. The second test for this well was negative for PCE.

Including the well at 475', two homes are using wells where tests have previously shown PCE contamination. Mecklenburg County Department of Environmental Protection has tested all wells when requested to do so. Some of these wells have recently been tested by Mecklenburg County and results are not yet available.

For areas greater than 1/4 to four miles of the Tom Sadler Road Wells site, I counted all homes in areas with no documented water lines. I did not count homes within reasonable vicinity of a community well. For those homes along water lines, I counted a percentage of homes based on the percentage of homes I found to be still connected to private drinking water wells within 1/4 mile of the site. I then added the population using community wells within the respective target distance rings. The groundwater population estimated by this method is as follows:

>1/4 - 1/2 mile	16 homes x 2.50 = **40**
>1/2 - 1 mile	55 homes x 2.50 = **137**
>1 - 2 miles	320 homes x 2.50 = **800**
>2 - 3 miles	395 homes x 2.50 = 988 + 52 + 200 + 516 = **1756**
>3 - 4 miles	345 homes x 2.50 = 862 + 191 + 42 + 36 + 440 + 40 + 60 = **1671**

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

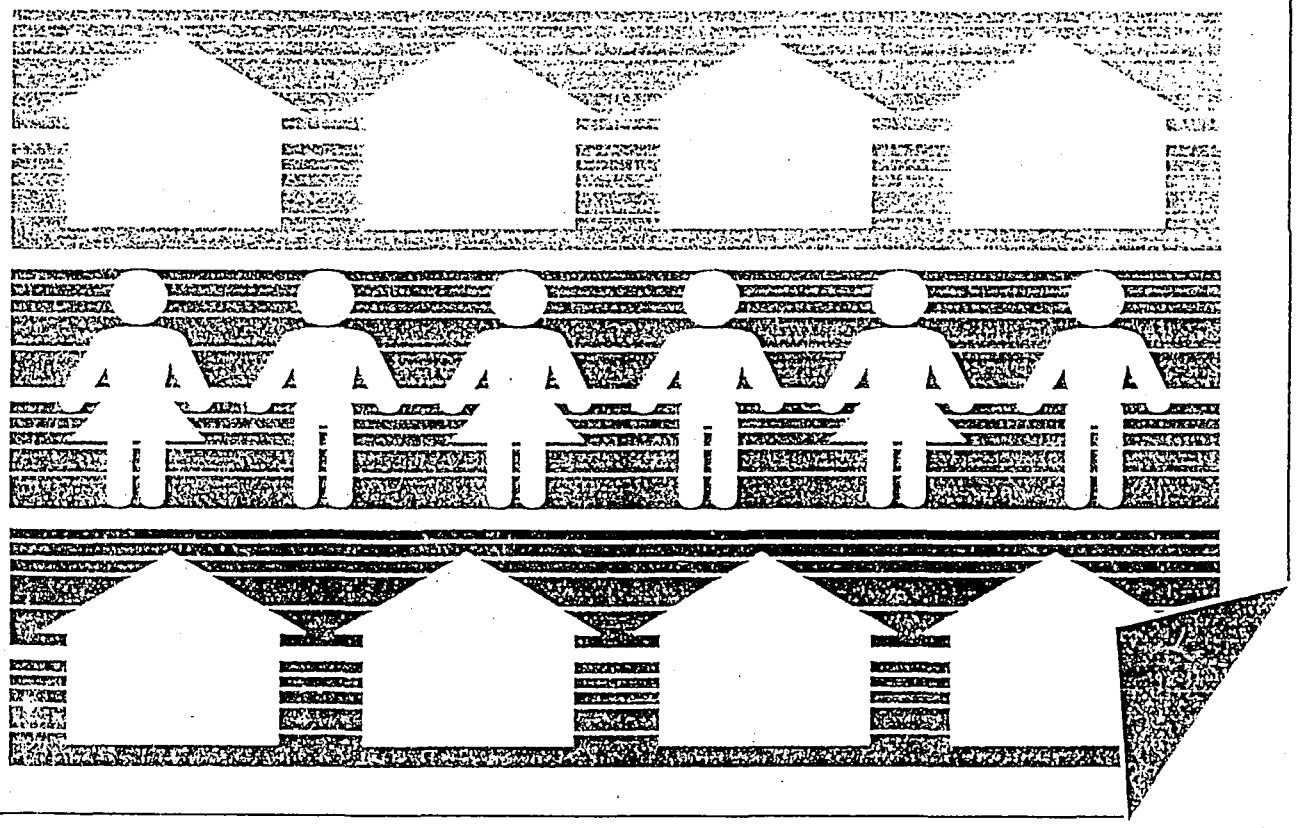
1990 CPH-1-35

CENSUS '90

1990 Census of Population and Housing

Summary Population and Housing Characteristics

North Carolina



9 PAGES

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	1 424 204	309 879	704 973	596 908	228 344	182 329	2.54	3.03	224 470	83 400	141 070
COUNTY														
Alamance County	105 327	42 852	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	1 835	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	1 874	1 805	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	3.28	67	67	–
Bladen County	28 150	10 760	8 017	5 654	1 782	2 743	2 579	1 243	1 000	2.62	3.11	513	509	4
Brunswick County	50 497	20 069	15 291	12 836	2 001	4 778	4 227	1 840	1 184	2.52	2.91	488	307	181
Buncombe County	180 713	70 802	49 335	39 837	7 884	21 467	18 864	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	6 569	2 706	2 228	2.51	2.93	2 463	2 410	53
Cabarrus County	97 255	37 515	28 367	23 278	3 972	9 148	8 008	3 599	2 871	2.59	3.02	1 680	1 223	457
Caldwell County	69 917	27 172	20 654	16 853	2 944	6 518	5 860	2 287	1 846	2.57	2.97	792	735	57
Camden County	5 875	2 180	1 692	1 365	225	484	437	234	169	2.69	3.11	29	–	29
Carteret County	51 554	21 236	15 276	12 841	2 021	5 962	5 081	1 901	1 431	2.43	2.84	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	2.99	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	2.91	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	7 756	7 011	3 222	2 624	2.59	3.02	1 702	915	787
Columbus County	48 853	18 459	13 754	10 361	2 757	4 705	4 361	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	69 964	54 433	12 883	21 534	17 718	4 724	3 752	2.77	3.19	21 204	1 499	19 705
Currituck County	13 466	5 038	3 854	3 272	407	1 184	964	419	312	2.68	3.06	250	217	33
Dare County	22 542	9 349	6 425	5 438	682	2 924	2 284	714	522	2.41	2.88	204	140	64
Davidson County	125 354	48 944	37 178	30 410	5 120	11 766	10 262	4 189	3 319	2.56	2.96	1 319	1 277	42
Davie County	27 541	10 785	8 270	6 999	953	2 515	2 246	1 025	817	2.55	2.95	318	288	30
Duplin County	39 364	14 925	11 034	8 378	2 099	3 869	3 553	1 770	1 439	2.64	3.12	627	560	67
Durham County	173 310	72 237	45 065	33 614	10 321	26 312	20 902	5 553	4 471	2.40	2.99	8 525	2 175	6 350
Edgecombe County	55 854	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	7 875	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	1 128	2.61	3.07	1 177	568	609
Gaston County	172 791	65 347	49 754	38 905	8 430	15 593	13 580	5 720	4 720	2.64	3.07	2 302	1 458	844
Gates County	9 202	3 352	2 593	2 040	404	759	705	394	288	2.75	3.19	103	102	1
Graham County	7 178	2 772	2 166	1 839	244	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	2 889	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	3 064	8 968
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	14 409	3 154	6 621	5 773	2 436	1 962	2.60	3.06	2 482	1 240	1 242
Haywood County	46 152	19 211	14 120	11 831	1 774	5 001	4 801	2 337	1 866	2.40	2.83	790	731	59
Henderson County	68 206	28 709	21 169	18 113	2 344	7 540	6 808	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	1 418	523	420	2.92	3.34	1 244	1 244	–
Hyde County	5 363	2 094	1 533	1 151	321	561	518	269	191	2.57	3.07	28	19	9
Iredell County	92 082	35 573	26 869	21 728	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	981	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	3 634	8 349	7 441	3 360	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	15 669	11 739	9 067	2 135	3 950	3 482	1 369	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	2 906	1 309	1 135	2.56	2.99	617	416	201
Macon County	22 992	9 834	7 235	6 236	773	2 599	2 368	1 307	1 021	2.34	2.76	507	233	274
Madison County	16 104	6 468	4 606	4 058	516	1 862	1 510	789	581	2.48	2.92	849	104	745
Martin County	24 813	9 317	6 900	5 087	1 518	2 417	2 213	1 100	906	2.66	3.17	265	257	8
Mecklenburg County	499 866	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	14 284	5 779	4 420	3 777	479	1 359	1 265	649	539	2.47	2.86	145	130	15
Montgomery County	22 278	8 290	6 274	4 823	1 118	2 016	1 838	876	690	2.69	3.14	1 067	997	70
Moore County	54 010	23 827	17 483	14 312	2 473	6 344	5 862	2 744	2 201	2.43	2.87	1 003	970	33
Nash County	75 450	29 041	21 224	16 322	3 964	7 817	6 926	2 860	2 316	2.60	3.09	1 227	807	420
New Hanover County	116 999	48 139	32 400	24 723	6 363	15 739	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	1 818	968	704	2.64	3.13	743	742	1
Onslow County	115 274	40 658	32 971	28 007	3 843	7 687	6 271	1 752	1 364	2.84	3.16	34 564	954	33 610
Orange County	84 627	36 104	21 123	16 854	3 360	14 981	10 110	2 257	1 839	2.34	2.83	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	11 364	8 326	6 356	1 681	3 058	2 725	1 342	1 065	2.63	3.13	1 414	363	1 051
Pender County	28 407	11 112	8 420	6 707	1 371	2 692	2 368	1 055	796	2.56	2.99	354	344	10
Perquimans County	10 303	3 968	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	1 209	994	2.61	3.07	350	304	46
Pitt County	102 400	40 421	26 424	19 361	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	4 344	3 693	511	1 764	1 509	952	768	2.32	2.79	229	227	2
Randolph County	105 440	41 096	31 363	26 135	3 957	9 733	8 500	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	7 950	3 660	2 982	2.55	3.02	822	781	41
Rowan County	107 079	42 512	31 055	25 100	4 818	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	2 551	5 718	5 256	2 558	2 050	2.53	2.99	721	721	–
Sampson County	46 754	17 526	13 191	10 058	2 525	4 335	3 875	2 032	1 610	2.67	3.14	543	490	53
Scotland County	32 679	11 837	8 971	6 225	2 308	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	4 306	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	1 244	1 018	2.61	3.00	361	361	–
Surry County	60 950	24 252	18 252	15 253	2 341	6 000	5 474	2 732	2 254	2.51	2.94	754	650	104
Swain County	10 653	4 173	3 083	2 382	550	1 090	965	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	178	1 059
Tyrrell County	3 852	1 471	1 078	810	213	393	359	204	148	2.62	3.13	4	4	–
Union County	82 833	29 307	23 530	19 807	3 083	5 777	5 018	2 144	1 755	2.82	3.18	1 578	455	1 123

TP8 [POSTSCRIPT] CPH137 CENSUS90 72840003 04/23/91 8:04 PM MACHINE: C DATA:CENSUS90*PHITP8DAT37, 04/23/91 18:51:04 OUTPUT:ONSITE-P8196 PAGE: 105
TSF:CENSUS90*92, 04/23/91 18:51:23 UTF:CENSUS90*93, 04/23/91 18:51:23 META:CENSUS90*PHITABLE837, 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.

MEMO

DATE: May 25, 1995

TO: File

FROM: Keith Snavely RKS
Hydrogeologist
NC Superfund Section

RE: Public Water Supply Information
Community wells 4-mile Radii
Union Carbide Corporation - 5400 Hovis Road
NCD # 980 844 336

On May 24, 1995, I spoke to Bret Setzer of the Mooresville Regional Office NCDEM (704/ 663-1699), about the location of several community water wells within the 4-mile radius of the subject site. The original data base information received from the State Public Water Supply of NCDEM stated incorrect latitudes and longitudes for several community water supply systems. These are the locations for Mineral Springs MHP, Parkwood MHP, Trexler Park, Farmington, and Providence West. In addition, McCall Brothers and Shirleys Child Care are now on municipal water.

Mineral Springs MHP was located on the data base at latitude 351419 and longitude 805028 but should be located east of North Tryon Road outside of the 4-mile radius of the referenced site (new lat-long not known). Parkwood MHP was originally located at latitude 351618 and longitude 805436. Its correct position should be approximately latitude 351300 and 805900 near Walkers Ferry Road east of Lake Wylie. Trexler park was originally located at latitude 351700 and 805200. It is correct location should be at approximately Latitude 351725 and 805600 near Morningside Road off Valleydale Road north of Mount Holly Road. The Farmington community well was listed at latitude 351510 and longitude 805510. According to Bret Setzer, this community well is located at the south side of Charlotte near Highway 51, several miles south of the 4-mile distance ring of the referenced site. In addition, Providence West Subdivision is not located at latitude 351700 and longitude 805500, but near Providence Road also located at the southside of Charlotte.

MEMO

DATE: April 26, 1995

TO: File

FROM: Jeanette Stanley, Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

On April 24, 1995, I reviewed the list of community wells (attached) within four miles of the target distance limit of the site and marked the wells on the USGS topographic map. Two wells serving the Parkwood Mobile Home Park appeared to be in the middle of an industrial area, so I called Manuel Perkins, President, Hydraulics, Inc. (704) 665-0817. He described the location of the Parkwood MHP wells as along Pinewood Dr. and Parkwood Dr. They are not within the target distance limit of the site. He also described the location of the Huntwood Mobile Home Park. These wells are along Parkridge Dr. and Parkway Place, within four miles of the site.

I compared the list of community wells I used in the preparation of the Old Mount Holly Road PCE site (NCD 986 172 518) (which is one mile east of the Tom Sadler Road Wells site) and I noticed that a number of wells do not appear on the new list. On April 24, 1995, I called Britt Setzer, Hydrogeologist, Mooresville Regional Office (704) 663- 1699. He said that none of the wells had closed due to contamination. Many had connected to the Charlotte-Mecklenburg Utility Department (CMUD) water supply because they had become incorporated by the City of Charlotte, city water had become available, and operation of a community well system is getting very expensive. I asked him about these wells and he summarized the status of the well systems.

Well System Name	Status
McClure Subdivision (S/D)	Connected to CMUD
Norman Mobile Home Park (MHP)	Deactivated as a community well system because number of people served fell below 25
Old Creek S/D	Connected to CMUD, 4-5 homes still using well
Rhyne Rd. MHP	Connected to CMUD
Sunset Grove MHP	Connected to CMUD
Trexler Park	Still an active community well
Gladden MHP	Connected to CMUD

On April 26, I talked with Bruce Haas, Regional Manager, Carolina Water (704) 525-7990. He said that the Trexler Park well is at the end of Oak St., south of the Mint St./Oak St. intersection. I marked this location on the USGS topographic map.

PMMGRID STATE N.C. PUBLIC WATER SUPPLY SYSTEM 04/13/95

ACTIVE SYSTEMS

GRID LATITUDE: 351400 / 352030, LONGITUDE: 0805300 / 0810100

PWS ID	SYSTEM NAME	TYPE	POPULATION	RES.PERSON WORK PHONE	SOURCE NAME	SOURCE TYPE	SOURCE AVAIL.	LATITUDE	LONGITUDE
160735	CRESCENT MOTOR COURT	N	100	7043941674	WELL	G	P	351428	805832
160736	I-85 TAVERN	N	30	7043921929	WELL	G	P	351513	805903
160763	NORTHWEST AUTO AUCTION	N	37	7043940326	WELL	G	P	351730	805445
160778	HANDY DANDY FOOD STORE #6	N	35	7043327755	WELL	G	P	351522	805857
160782	MIDSTATE AUTO AUCTION OF CHARL	N	32	7043940326	WELL	G	P	351730	805445
160791	RUDY'S	N	25	7045960090	WELL	G	P	351835	805447

Trexler Park Comm well - closed?

Carolina Water (704) 525-7990

Martin Lashua
Bruce Hass
> Regional Managers

Janet Stanley

PMMGRID STATE N.C. PUBLIC WATER SUPPLY SYSTEM 04/13/95

ACTIVE SYSTEMS

GRID LATITUDE: 351400 / 352030, LONGITUDE: 0805300 / 0810100

	PWS ID	SYSTEM NAME	TYPE	POPULATION	RES.PERSON WORK PHONE	SOURCE NAME	SOURCE TYPE	SOURCE AVAIL.	LATITUDE	LONGITUDE
A	136015	BELMONT COVERTING CO WTP	C	8434	7048252625	CATAWBA RIV-LAKE WYLIE	S	P	351424	810044
	136020	MOUNT HOLLY, CITY OF	C	7750	7048270730	MOUNTAIN ISLAND LAKE	S	P	352005	805924 - not in SW pathway
	136045	MCADENVILLE, TOWN OF	C	813	7048243551	GASTONIA,CITY	P	P	351430	810045
B	136588	STATION SUPPORT DUKE POWER	N	40	7048277256	WELL	G	P	352000	810000
D	136719	AUNT ROSIES LEARN & PLAY	N	60	7048275771	WELL	G	P	351845	810000
	~~160103~~	~~JUNIPER DRIVE WATER SYSTEM~~	C	94	7045960655	WELL #1 & #2	G	P	351630	805300
		~~JUNIPER DRIVE WATER SYSTEM~~	C	94	7045960655	WELL #1 & #2 outside	G	P	351630	805300
	160147	HUNTWOOD MHP	C	191	9106650817	WELL #1	G	P	351420	805940
G		HUNTWOOD MHP	C	191	9106650817	WELL #3 one abandoned-	G	P	351420	805940
		HUNTWOOD MHP	C	191	9106650817	WELL #2 2 wells serve this population	G	P	351420	805940
C	160171	OAKDALE S/D	C	440	7045257990	WELL #2	G	P	351818	805342
		OAKDALE S/D	C	440	7045257990	WELL #1	G	P	351800	805336
	160173	PARKWOOD MHP outside TDL - near parkwood Dr	~~C~~	~~157~~	~~9106650817~~	~~WELL #2~~	G	P	~~351618~~	~~805436~~
H		PARKWOOD MHP	~~C~~	~~157~~	~~9106650817~~	~~WELL #1~~	G	P	~~351618~~	~~805436~~
	160195	WESTWOOD FOREST MHP	C	516	7045257990	WELL #2	G	P	351548	805921
L		WESTWOOD FOREST MHP	C	516	7045257990	WELL #3	G	P	351551	805918
		WESTWOOD FOREST MHP	C	516	7045257990	WELL #1	G	P	351548	805921
K	160206	CATAWBA MHP	C	42	7045880351	WELL #1	G	P	351430	805955
I	160226	FARMINGTON	C	109	7045257990	WELL	G	P	351510	805510
J	160227	PROVIDENCE WEST S/D	C	309	7045257990	WELL #1	G	P	351700	805500
		PROVIDENCE WEST S/D	C	309	7045257990	WELL #2	G	P	351700	805500
	160471	THE LITTLE SUPER MARKET	N	80	7043990739	WELL	G	P	351407	805635
	160472	RIVER VIEW INN	N	1000	7043993385	WELL	G	P	351402	805630
	160496	BRADLEY MOTEL	N	75	7043923206	WELL	G	P	351404	805627
	160497	LITTLE GENERAL STORE	N	25	7043924570	WELL	G	P	351405	805620
	160517	SHUFFLETON GRILL	N	75	7043931755	WELL	G	P	351945	805715
	160523	I-85 WEIGHT STATION NORTH-BL	N	319	7043926960	WELL	G	P	351528	810029
	160527	PINE ISLAND GOLF CLUB	N	100	7043941422	WELL	G	P	351807	805752
	160528	COULWOOD HILLS SWIM CLUB	N	350	7043825074	WELL	G	P	351755	805653
	160540	OAK HILL GOLF COURSE	N	35	7043942834	WELL	G	P	351950	805440
	160542	I-85 WEIGH STATION SOUTH CH	N	357	7043926960	WELL	G	P	351528	810024
	160575	SUNSET HILLS GOLF PRO SHOP	N	900	2043990980	WELL	G	P	351830	805315
	160608	OAK GROVE BAPTIST CHURCH	N	70	7043945075	WELL	G	P	351701	805747
	160617	SUNSET RD BAPIST CHURCH	N	150	7043948287	WELL	G	P	351858	805303
	160622	MEMORIAL FOUR SQUARE CHURCH	N	75	7043949997	WELL SUPPLY	G	P	351700	805647
	160624	SHADY BROOK BAPTIST CHURCH	N	160	7043996730	WELL SUPPLY	G	P	351635	805820
	160627	OAKDALE SWIM CLUB	N	25	7043999586	WELL	G	P	351817	805335
	160630	JORDAN BUSINESS FORMS	N	135	7043942121	WELL	G	P	351532	805944
	160633	MOORES CHAPEL UNITED METHODIST	N	100	7043317711	WELL	G	P	351604	805838
N	160673	MCCALL BROS	P	30	7043991506	WELL	G	P	351738	805458
		MCCALL BROS	P	30	7043991506	WELL	G	P	351733	805453
	160680	OAKDALE BAPTIST CHURCH	N	120	7043947295	WELL	G	P	351730	805407
	160691	WESTSIDE BAPTIST CHURCH	N	25	7043920175	WELL	G	P	351958	805616
E	160696	RAMSEY PRODUCTS CORP	P	52	7043940322	WELL	G	P	351524	805917
F	160697	TEKMATEX	P	36	7043945131	WELL	G	P	351506	805914
	160707	KINGDOM HALL OF JEHOVH'S WITNE	N	90	7043929931	WELL	G	P	351715	805637
	160710	SOUTH 21	N	25	7043991678	WELL	G	P	351713	805427
	160714	HARWOOD LN. MISSIONARY BAPTIST	N	200	7043945962	WELL	G	P	351815	805830
	160717	THRIFT ROAD CHRISTIAN CHURCH	N	160	7043926650	WELL	G	P	351515	805515

Manuel Perkins
Hydraulics, Pres.

PMMGRID STATE N.C. PUBLIC WATER SUPPLY SYSTEM 03/19/9

ACTIVE SYSTEMS

GRID LATITUDE: 351300 / 352000, LONGITUDE: 0805200 / 0810100

PWS ID	SYSTEM NAME	TYPE	POPULATION	RES.PERSON WORK PHONE	SOURCE NAME	SOURCE TYPE	SOURCE AVAIL.	LATITUDE	LONGITUDE
136015	BELMONT COVERTING CO WTP	C	10117	7048252625	CATAWBA RIV-LAKE WYLIE	S	P	351424	810044
~~136045~~	~~MEADENVILLE, TOWN OF~~	C	outside 660	~~7048243551~~	~~GASTONIA,CITY~~	~~F~~	~~P~~	~~351420~~	~~810045~~
136588	STATION SUPPORT DUKE POWER	N	40	7048277256	WELL	G	P	352000	810000
~~136717~~	~~AUNT ROSIE'S LEARN & PLAY~~	N	outside 66	~~7048275771~~	~~WELL~~	~~G~~	~~P~~	~~3510~~	~~810000~~
160103	JUNIPER DRIVE WATER SYSTEM	C	new 135	7045960655	WELL #1 & #2	G	P	351630	805300
	JUNIPER DRIVE WATER SYSTEM	~~C~~	~~135~~	7045960655	WELL #1 & #2	G	P	351630	805300
160144	GLADDEN MHP	C	new 57	7043929816	WELL	G	P	351430	805903
~~160147~~	~~HUNTWOOD MHP~~	C	outside 240	~~7043995327~~	~~WELL #1~~	~~G~~	~~P~~	~~351420~~	~~805940~~
	~~HUNTWOOD MHP~~	~~C~~	~~240~~	~~7043995327~~	~~WELL #2~~	~~G~~	~~P~~	~~351420~~	~~805940~~
	~~HUNTWOOD MHP~~	~~C~~	~~240~~	~~7043995327~~	~~WELL #3~~	~~G~~	~~P~~	~~351420~~	~~805940~~
160159	MCCLURE S/D	C	84	7045257990	WELL	G	P	351839	805606
160165	NORMAN'S MHP	C	30	7043943004	WELL	G	P	352000	805400
160171	OAKDALE S/D	C	440	7045257990	WELL #1	G	P	351800	805336
	OAKDALE S/D	~~C~~	~~440~~	7045257990	WELL #2	G	P	351818	805342
160172	OLDE CREEK S/D	C	40	7044782785	WELL #1	G	P	351552	805408
~~160173~~	~~PARKWOOD MHP~~	~~C~~	~~216~~	~~7043996131~~	~~WELL #1~~	~~G~~	~~P~~	~~351618~~	~~805436~~
	~~PARKWOOD MHP~~	~~C~~	~~216~~	~~7043996131~~	~~WELL #2~~	~~G~~	~~P~~	~~351618~~	~~805436~~
160175	RHYNE RD MHP	C	64	7043995828	WELL	G	P	351651	805809
160185	SUNSET GROVE MHP	C	188	7043775933	WELL #1	G	P	351715	805400
	SUNSET GROVE MHP	~~C~~	~~188~~	7043775933	WELL #2	G	P	351715	805400
160190	TREXLER PARK	C	200	7045257990	WELL	G	P	351700	805200
160195	WESTWOOD FOREST MHP	C	516	7045257990	WELL #1	G	P	351548	805921
NEW	WESTWOOD FOREST MHP	~~C~~	~~516~~	7045257990	WELL #2	G	P	351548	805921
	WESTWOOD FOREST MHP	~~C~~	~~516~~	7045257990	WELL #3	G	P	351551	805918
~~160206~~	~~CATAWBA MHP~~	~~C~~	~~42~~	~~7045680351~~	~~WELL #1~~	~~G~~	~~P~~	~~351430~~	~~805955~~
160226	FARMINGTON	C	100	7045257990	WELL	G	P	351510	805510
160227	PROVIDENCE WEST S/D	C	309	7045257990	WELL #1	G	P	351700	805500
	PROVIDENCE WEST S/D	~~C~~	~~309~~	7045257990	WELL #2	G	P	351700	805500
160471	THE LITTLE SUPER MARKET	N	80	7043990738	WELL	G	P	351407	805635 >2 mi
160472	RIVER VIEW INN	N	1000	7043993385	WELL	G	P	351402	805630 >2 mi
160480	AMERICAN HEALTH SALON	N	25	7043999636	WELL	G	P	351407	805642 >2 mi
160481	COUNTRY MANOR	N	62	7043929230	WELL	G	P	351423	805823 >2 mi
	COUNTRY MANOR	~~N~~	~~62~~	7043929230	WELL	G	P	351423	805823 >2 mi
160496	BRADLEY MOTEL	N	75	7043923206	WELL	G	P	351404	805627 >2 mi
160497	LITTLE GENERAL STORE	N	25	7043924570	WELL	G	P	351405	805620 >2 mi
160517	SHUFFLETON GRILL	N	75	7043995186	WELL	G	P	351945	805715 >2 mi
~~160523~~	~~I-85 WEIGH STATION NORTH BL~~	~~N~~	~~315~~	~~7043926992~~	~~WELL~~	~~G~~	~~P~~	~~351528~~	~~810029~~ outside
~~160527~~	~~PINE ISLAND GOLF CLUB~~	~~N~~	~~100~~	~~7043941422~~	~~WELL~~	~~G~~	~~P~~	~~351807~~	~~805752~~
~~160528~~	~~COULWOOD HILLS SWIM CLUB~~	~~N~~	~~100~~	~~7043943091~~	~~WELL~~	~~G~~	~~P~~	~~351755~~	~~805653~~
~~160540~~	~~OAK HILL GOLF COURSE~~	~~N~~	~~35~~	~~2043942830~~	~~WELL~~	~~G~~	~~P~~	~~351750~~	~~805440~~
~~160542~~	~~I-85 WEIGH STATION SOUTH CH~~	~~N~~	~~357~~	~~7043926790~~	~~WELL~~	~~G~~	~~P~~	~~351528~~	~~810024~~ outside
~~160546~~	~~WINCHESTER I-85 GULF STATION~~	~~N~~	~~50~~	~~7043924466~~	~~WELL~~	~~G~~	~~P~~	~~351452~~	~~805624~~
160553	SANDOZ CHEMICALS	P	500	7048222767	CATAWBA RIVER	S surface water	P	351751	810000 not in SW pathway
~~160575~~	~~SUNSET HILLS GOLF PRO SHOP~~	~~N~~	~~700~~	~~2043999980~~	~~WELL~~	~~G~~	~~P~~	~~351830~~	~~805315~~
160605	BERRYHILL ELEM SCHOOL	P	700	7043436040	WELL	G	P	351332	805731 >2 mi
160608	OAK GROVE BAPTIST CHURCH	N	70	7043945075	WELL	G	P	351701	805747
160617	SUNSET RD BAPIST CHURCH	N	150	7043948287	WELL	G	P	351858	805303 >2 mi
160619	COPAL GRILL	N	250	7043922240	WELL	G	P	351335	805625 >2 mi
160622	MEMORIAL FOUR SQUARE CHURCH	N	75	7043949997	WELL SUPPLY	G	P	351700	805647

RECEIVED
MAR 23 1993
SUPERFUND SECTION

MEMO

DATE: June 1, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

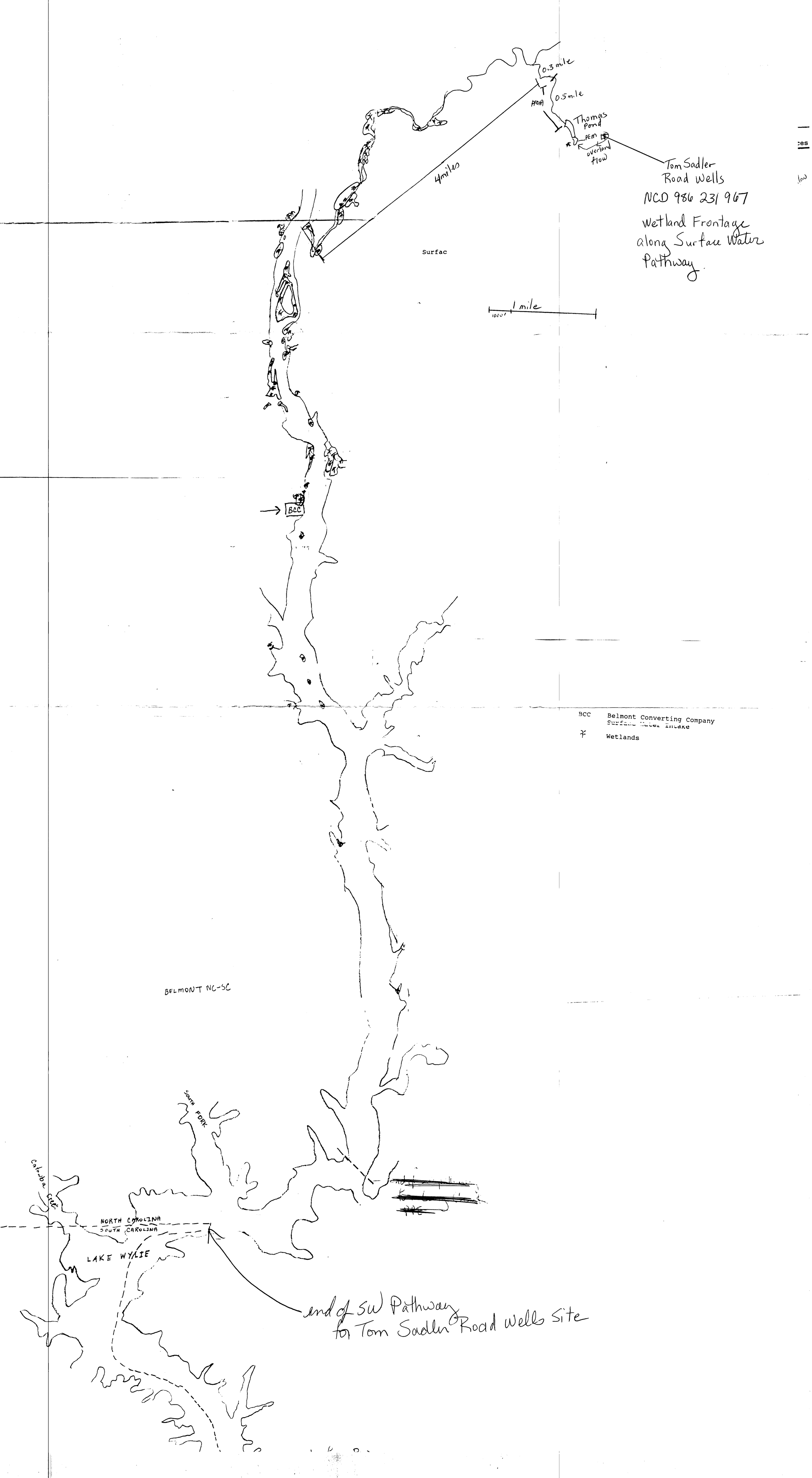
I determined the surface water pathway and the wetland frontage along the surface water pathway by the following method. The Tom Sadler Road Wells site is about 1 mile west of the Old Mount Holly Road PCE site and drains into one of its ~~the~~ surface water pathways. For the Site Inspection report (Sept. 1994, NCD 986 172 518, Reference 44), I prepared a tracing of the of the surface water pathway from the USGS wetland inventory quad maps Mountain Island Lake, NC, Mount Holly, NC, Belmont, NC/SC, Charlotte West, NC, and Lake Wylie SC/NC, all dated 1991 and used highlight A-8 on pp. A-22 & 23 in the HRS Guidance Manual, November 1992, to determine which wetlands fit the HRS definition of wetlands.

I copied the relevant portion of this tracing. I consulted the Mountain Island Lake Wetland Inventory Map and added Thomas Pond and the unnamed tributary to Long Creek to the map. The map of the surface water pathway and wetland frontages is attached. I used a map wheel and traced the wetland frontages along this surface water pathway.

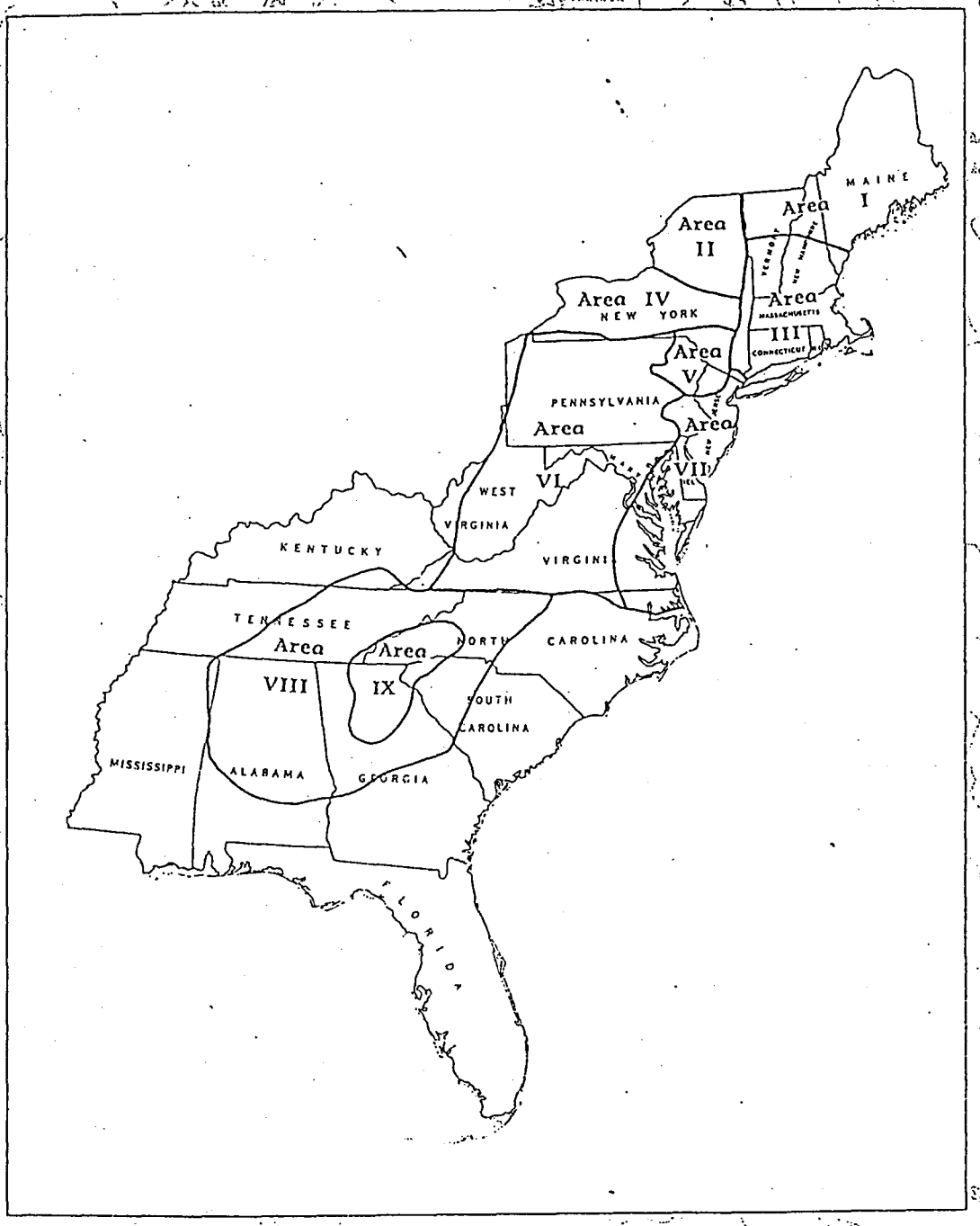
I calculated the flow rate at several points along the surface water pathway. The unnamed tributary that flows into Long Creek has a drainage area of 0.3 sq. miles, or a flow rate of 0.3/13.58 x 14 =0.3 cfs. Long Creek at the point where this tributary enters has a drainage area of 31.8 square miles or a flow rate of 31.8/13.58 x 14 = 32.8 cfs. The Catawba River at Belmont in the vicinity of the surface water intake has a drainage area of 2051 square miles, or a flow rate of 2051/13.58 x 14 = 2114 cfs.

There is a 1.5-acre wetland at the headwaters of Thomas Pond. The perimeter of the wetland is about 1000 feet. Thomas Pond is 0.2 mile long. The outfall from Thomas Pond, an unnamed tributary to Long Creek, flows in a northerly direction. This unnamed tributary flows for 0.8 mile where it enters Long Creek. Long Creek flows in a southwesterly direction for 4 miles and enters the Catawba River. The Catawba River is the major tributary to Lake Wylie. The surface water pathway ends on Lake Wylie at the point where the lake enters South Carolina waters.

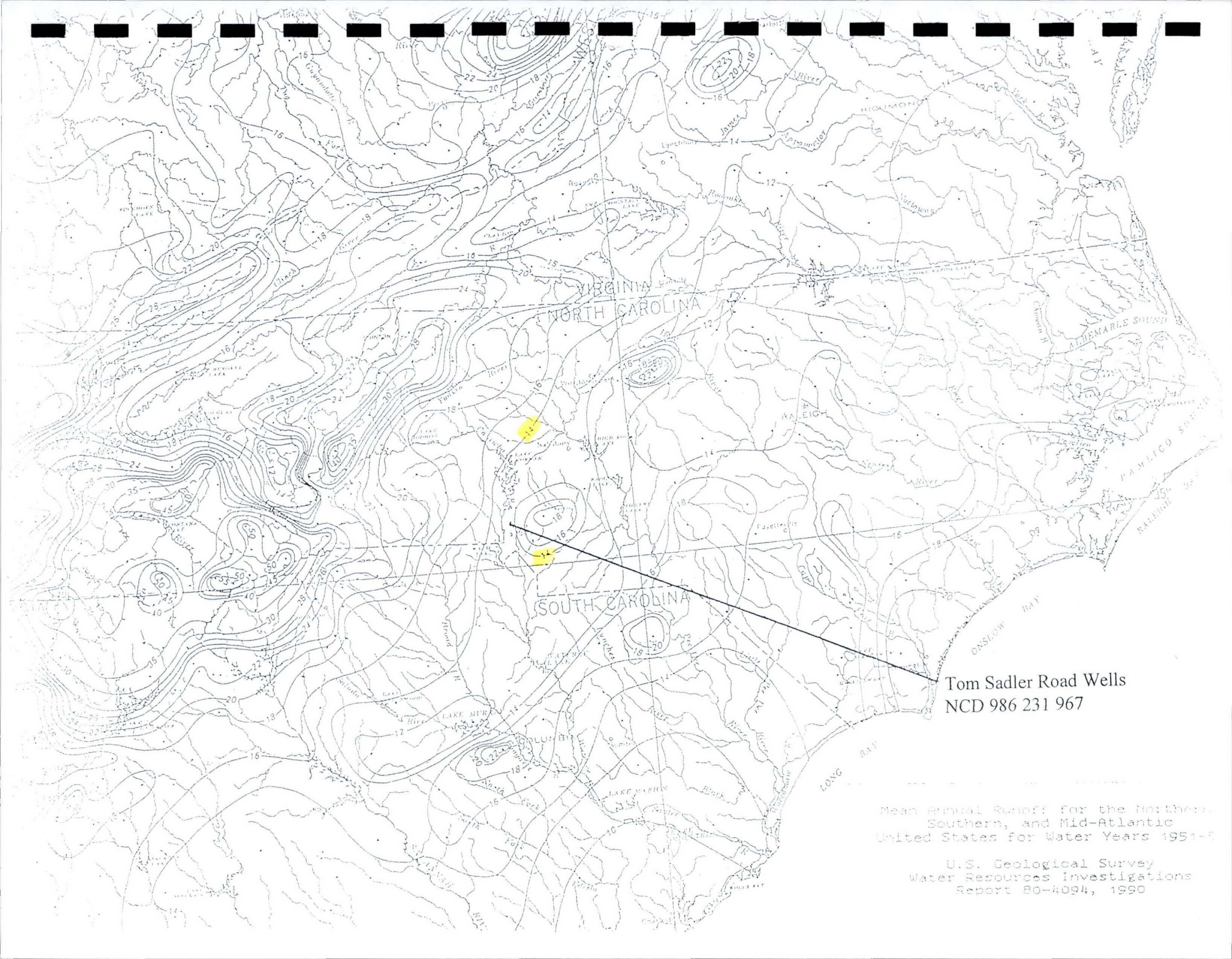
In addition to the 1.5-acre wetland at the pond headwaters, the first 0.5 mile length of the unnamed tributary is a linear wetland. The total wetland frontage along the Long Creek surface water pathway is 9.5 miles. The total wetland frontage along the Catawba River/Lake Wylie is 5.5 miles.


0.3 mile
0.5 mile
PFO/A
Thomas pond
PEM
overland flow
Tom Sadler Road Wells
NCD 986 231 967
Wetland Frontage along Surface Water Pathway
4 miles
Surfac
1 mile
1000'
BCC
BCC Belmont Converting Company Surface Water Intake
Wetlands
BELMONT NC-SC
SOUTH FORK
Catawba Creek
NORTH CAROLINA
SOUTH CAROLINA
LAKE WYLIE
end of SW Pathway for Tom Sadler Road Wells Site

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



Mean Annual Runoff for the Northern, Southern, and Mid-Atlantic United States for Water Years 1951-8

U.S. Geological Survey
Water Resources Investigations
Report 80-4094, 1990

U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT 83-211

DRAINAGE AREAS OF SELECTED SITES ON STREAMS IN NORTH CAROLINA

Prepared in cooperation with the

North Carolina Department of Natural

Resources and Community Development

STATION NUMBER	STATION NAME	DRAINAGE AREA (SQ MI)	SITE TYPE	LAT	LONG	QUAD NAME	COUNTY CODE
0214264860	JOHNSON C NR MT HOLLEY	4.81	20	352415	805910	TROUTMAN	071
0214264880	JOHNSON C AT MTH NR MOUNT HOLLY	7.09	20	352255	805855	TROUTMAN	071
0214265100	MCDOWELL C NR CORNELIUS	2.40	11	352747	805237	TROUTMAN	119
0214265380	MCDOWELL C NR HICKS X RDS	7.68	20	352610	805305	TROUTMAN	119
0214265400	MCDOWELL C NR HUNTERSVILLE	10.2	02	352426	805326	TROUTMAN	119
0214265800	TORRENCE C NR HUNTERSVILLE	4.68	11	352404	805212	CORNELIUS	119
0214265810	TORRENCE C TRIB AT MTH NR HICKS X RDS	2.59	20	352415	805255	LAKE NORMAN SOUTH	119
0214265820	TORRENCE C AT MTH NR HICKS X RDS	10.5	20	352419	805336	TROUTMAN	119
0214265830	MCDOWELL C TRIB AT MTH NR HICKS X RDS	1.03	20	352335	805508	TROUTMAN	119
0214265849	MCDOWELL C TRIB AT MTH NR CHARLOTTE	1.86	20	352323	805514	TROUTMAN	119
0214266000	MCDOWELL C NR CHARLOTTE	26.3	03	352322	805516	TROUTMAN	119
0214266075	GAR C AT SR 2120 NR HUNTERSVILLE	2.71	20	352155	805313	MOUNTAIN ISLAND LAKE	119
0214266105	GAR C AT MTH NR OAKDALE	5.08	20	352051	805441	MOUNTAIN ISLAND LAKE	119
0214267600	MOUNTAIN ISLAND LAKE ON CATAWBA	1856.	03	352003	805912	MOUNTAIN ISLAND LAKE	071
0214267650	CATAWBA R TRIB NR MTH AT SOOYECO	2.34	20	351849	805333	MOUNTAIN ISLAND LAKE	119
0214268000	LIPPARD C AT SR 1855 NR MAIDEN	4.21	20	353330	810803	MAIDEN	035
0214268100	LIPPARD C AB UNNAMED TRIB NR PUMPKIN CENTER	7.18	20	353206	810900	MAIDEN	109
0214268200	LIPPARD C NR PUMPKIN CENTER	8.81	20	353144	810857	MAIDEN	109
0214268335	LIPPARD C AT MTH NR PUMPKIN CENTER	11.5	20	353032	810942	MAIDEN	109
0214268360	SAWMILL B TRIB AT MTH NR PUMPKIN CENTER	1.66	20	353125	811020	MAIDEN	109
0214268375	SAWMILL B AT MTH NR PUMPKIN CENTER	3.69	20	353030	810944	MAIDEN	109
0214268400	LEEPERS C NR LINCOLNTON	19.0	02	353000	810850	LINCOLNTON EAST	109
0214268405	LEEPERS C TRIB AT MTH NR LINCOLNTON	1.92	20	352927	810847	LINCOLNTON EAST	109
0214268425	LICK RUN AT SR 1354 NR BOGER CITY	3.53	20	352924	810950	LINCOLNTON EAST	109
0214268450	LICK RUN AT MTH NR BOGER CITY	6.17	20	352855	810848	LINCOLNTON EAST	109
0214268500	LEEPERS C AT SR 1356 NR BOGER CITY	26.1	20	352854	810841	LINCOLNTON EAST	109
0214268550	LEEPERS C AT NC 73 NR MACHPELAH	28.2	20	352814	810713	LOWESVILLE	109
0214268610	REED C AT MTH NR MACHPELAH	3.22	20	352808	810705	LOWESVILLE	109
0214268620	BRADSHAW B AT MTH NR MACHPELAH	1.61	20	352703	810655	LOWESVILLE	109
0214268630	DELLINGER B AT SR 1357 AT IRON STATION	2.65	20	352709	810812	LINCOLNTON EAST	109
0214268645	DELLINGER B AT MTH NR MACHPELAH	4.75	20	352650	810706	LOWESVILLE	109
0214268700	ARMSTRONG B NR LINCOLNTON	1.69	11	352617	810742	LINCOLNTON EAST	109
0214268800	ARMSTRONG B NR IRON STATION	1.96	20	352650	810706	LOWESVILLE	109
0214268900	LEEPERS C NR IRON STATION	41.5	02	352635	810620	LOWESVILLE	109
0214268925	LEEPERS C AT SR 1404 NR MARIPOSA	44.6	20	352536	810510	LOWESVILLE	109
0214268950	MCCLURE B AT MTH NR MARIPOSA	2.41	20	352526	810502	LOWESVILLE	109
0214268975	LEEPERS C TRIB AT MTH NR MARIPOSA	1.41	20	352523	810450	LOWESVILLE	109
0214269000	LEEPERS C NR LOWESVILLE	52.6	02	352450	810340	LOWESVILLE	109
0214269050	LEEPERS C AT SR 1820 NR LUCIA	55.9	20	352315	810237	LOWESVILLE	071
0214269200	KILLIAN C AT SR 1349 NR DENVER	2.64	20	353210	810313	DENVER	109
0214269300	KILLIAN C BL TRIB NR DENVER	6.48	20	353030	810217	DENVER	109
0214269400	KILLIAN C NR TRIANGLE	8.10	02	352928	810145	LOWESVILLE	109
0214269425	KILLIAN C AB SNYDER C NR KIDVILLE	9.29	20	352812	810200	LOWESVILLE	109
0214269450	SNYDER C AT MTH NR KIDVILLE	1.97	20	352812	810202	LOWESVILLE	109
0214269550	KILLIAN C AB ANDERSON C NR LOWESVILLE	13.2	20	352615	810200	LOWESVILLE	109
0214269860	WILKINSON C TRIB AT MTH NR DENVER	1.82	20	353139	810451	DENVER	109
0214269880	WILKINSON C AT MTH NR DENVER	3.39	20	353048	810418	DENVER	109
0214269900	WINGATE C NR TRIANGLE	6.25	02	352930	810430	LOWESVILLE	109
0214270360	BALLARD C NR MACEDONIA	2.85	20	353024	810538	DENVER	109
0214270380	BALLARD C TRIB AT MTH NR MACEDONIA	2.00	20	353023	810538	DENVER	109
0214270400	BALLARD C NR TRIANGLE	6.44	02	352930	810500	LOWESVILLE	109
0214270425	WINGATE C AT MTH NR KIDVILLE	13.5	20	352845	810418	LOWESVILLE	109
0214270455	HOOPER B AT MTH NR KIDVILLE	2.08	20	352843	810469	LOWESVILLE	109
0214270500	ANDERSON C TRIB AT MTH NR MACHPELAH	1.26	20	352750	810314	LOWESVILLE	109
0214270550	ANDERSON C AT NC 73 NR MACHPELAH	19.1	20	352720	810245	LOWESVILLE	109
0214270575	ANDERSON C TRIB AT MTH AT MACHPELAH	1.88	20	352650	810240	LOWESVILLE	109
0214270625	ANDERSON C AT MTH NR LOWESVILLE	23.0	20	352615	810201	LOWESVILLE	109
0214270675	FORNEY C AT SR 1320 NR TRIANGLE	4.27	20	352840	810040	LOWESVILLE	109
0214270700	FORNEY C NR TRIANGLE	7.82	02	352650	810040	LOWESVILLE	109
0214270800	FORNEY C AT MTH NR LOWESVILLE	9.83	20	352552	810140	LOWESVILLE	109
0214271000	KILLIAN C NR LOWESVILLE	47.0	02	352500	810140	LOWESVILLE	109
0214271300	KILLIAN C NR LUCIA	49.1	20	352400	810155	LOWESVILLE	071
0214271650	KILLIAN C AT MTH NR LUCIA	51.7	20	352240	810210	LOWESVILLE	071
0214272000	DUTCHMANS C NR STANLEY	111.	02	352200	810200	MOUNT HOLLY	071
0214272005	DUTCHMANS C TRIB AT MTH NR MOUNTAIN ISLAND	1.52	20	352102	810100	MOUNT HOLLY	071
0214272204	DUTCHMANS C AT SR 1918 AT MOUNTAIN ISLAND	116.	20	352010	810050	MOUNT HOLLY	071
0214275900	STANLEY C NR ALEXIS	1.83	20	352330	810455	LOWESVILLE	071
0214275945	STANLEY C AT SR 1905 NR STANLEY	4.21	20	352205	810428	MOUNT HOLLY	071
0214275985	STANLEY C AT SR 1935 NR MOUNTAIN ISLAND	8.40	20	352052	810249	MOUNT HOLLY	071
0214276000	STANLEY C NR MT HOLLY	10.0	02	352020	810127	MOUNT HOLLY	071
0214276025	STANLEY C AT MTH NR MT HOLLY	10.6	20	351932	810120	MOUNT HOLLY	071
0214277200	S STANLEY C NR MT HOLLY	4.38	02	351914	810155	MOUNT HOLLY	071
0214277613	TAYLORS C HEADWATERS NR MT HOLLY	2.19	20	351858	810317	MOUNT HOLLY	071
0214278126	TAYLORS C AT MTH AT MT HOLLY	6.16	20	351828	810118	MOUNT HOLLY	071
0214279653	DUTCHMANS C AT MTH AT MT HOLLY	141.	20	351802	810012	MOUNT HOLLY	071
0214287800	LONG C NR CROFT	3.14	02	352039	805129	DERITA	119
0214288000	DIXON B NR CROFT	4.34	03	352054	805147	DERITA	119
0214288200	LONG C NR HUNTERSVILLE	9.90	02	352041	805303	MOUNTAIN ISLAND LAKE	119
0214288300	MCINTYRE C NR CHARLOTTE	4.94	03	351941	805348	MOUNTAIN ISLAND LAKE	119
0214290000	LONG C NR PAW C	16.4	01	351942	805435	MOUNTAIN ISLAND LAKE	119
0214290501	GUTTER B AT MTH NR SHUFFLETOWN	3.16	20	351923	805538	MOUNTAIN ISLAND LAKE	119
0214291000	LONG C NR THRIFT	22.2	02	351854	805639	MOUNTAIN ISLAND LAKE	119
0214291210	GUM B AT NC 16 AT HOMESTEAD	1.61	20	351746	805512	MOUNTAIN ISLAND LAKE	119
0214291400	GUM B NR THRIFT	4.90	02	351758	805647	MOUNTAIN ISLAND LAKE	119
0214291501	LONG C TRIB AT MTH NR THRIFT	1.27	20	351809	805724	MOUNTAIN ISLAND LAKE	119

UPPER CATAWBA RIVER - CONTINUED

STATION NUMBER	STATION NAME	DRAINAGE AREA (SQ MI)	SITE TYPE	LAT	LONG	QUAD NAME	COUNTY CODE
0214291551	LONG C TRIB AT MTH NR SOOYECO	1.21	20	351752	805818	MOUNTAIN ISLAND LAKE	119
0214291600	LONG C NR THRIFT	31.8	02	351753	805845	MOUNTAIN ISLAND LAKE	119
0214291800	LONG C NR MT HOLLY	33.6	11	351721	805951	MOUNTAIN ISLAND LAKE	119
0214291810	LONG C TRIB AT MTH NR CATAWBA HEIGHTS	1.45	20	351655	810008	MOUNT HOLLY	119
0214291976	LONG C AT MTH NR CATAWBA HEIGHTS	35.9	20	351644	810023	MOUNT HOLLY	119
0214292175	FITES C AT SR 2040 NR CATAWBA HEIGHTS	1.85	20	351714	810225	MOUNT HOLLY	071
0214292228	FITES C TRIB AT MTH NR CATAWBA HEIGHTS	1.35	20	351708	810152	MOUNT HOLLY	071
0214292250	FITES C AT MTH NR CATAWBA HEIGHTS	4.48	20	351643	810048	MOUNT HOLLY	071
0214293200	CATAWBA R AT US 85 NR BELMONT	2046.	11	351528	810050	MOUNT HOLLY	119
0214293850	CATAWBA R TRIB AT MTH AT BELMONT	1.40	20	351442	810046	BELMONT	071
0214294400	CATAWBA R AT SRR AT BELMONT	2051.	20	351409	810040	BELMONT	071
0214294700	CATAWBA R TRIB BL SEO AT BELMONT	1.60	20	351334	810059	BELMONT	071
0214295000	PAW C TRIB 2 AT ALLENBROOK DRIVE AT CHARLOTTE	0.55	03	351540	805448	MOUNTAIN ISLAND LAKE	119
0214295100	PAW C NR PAW CREEK	2.20	20	351537	805502	MOUNTAIN ISLAND LAKE	119
0214295301	PAW C TRIB AT MTH AT PAW CREEK	1.68	20	351534	805620	MOUNTAIN ISLAND LAKE	119
0214295500	PAW C AT I 85 NR DIXIE	9.94	20	351457	805815	CHARLOTTE WEST	119
0214295804	TICER B AT MTH NR DIXIE	2.30	20	351412	805843	CHARLOTTE WEST	119
0214296100	PAW C NR CHARLOTTE	13.8	02	351357	805857	CHARLOTTE WEST	119
0214296760	L. PAW C AT MTH NR DIXIE	2.07	20	351225	805930	CHARLOTTE WEST	119
0214297150	BEAVERDAM C TRIB AT MTH NR SHOPTON	1.76	20	351022	805903	CHARLOTTE WEST	119
0214297175	BEAVERDAM C AT MTH NR SHOPTON	4.48	20	351007	805928	CHARLOTTE WEST	119
0214297280	NEAL B AT MTH NR SHOPTON	1.17	20	350822	805942	CHARLOTTE WEST	119
0214297400	NEAL B AT SR 1116 NR BELMONT	2.76	20	350645	810008	BELMONT	119
0214297410	STOWE B AT MTH NR SHOPTON	1.38	20	350921	805954	CHARLOTTE WEST	119

SOUTH FORK CATAWBA RIVER

0214298300	HENRY F AT MORGANTON WS NR MORGANTON	4.35	02	353723	814216	BENN KNOB	023
0214298400	HENRY F NR BURKEMONT	7.99	20	353720	814210	BENN KNOB	023
0214298600	HENRY F NR ENOLA	12.9	02	353831	813943	MORGANTON SOUTH	023
0214298700	HENRY F AT ENOLA	19.1	20	353943	813810	MORGANTON SOUTH	023
0214298800	HENRY F TRIB AT SR 1924 NR PLEASANT GROVE	3.19	11	353908	813628	VALDESE	023
0214298900	HENRY F NR VALDESE	33.7	20	353953	813453	VALDESE	023
0214299100	HENRY F NR ABEE	41.4	20	354020	813215	VALDESE	023
0214299200	LAUREL C AB BALL ALLEY C NR VALDESE	4.43	20	354040	813355	VALDESE	023
0214299300	BALL ALLEY C AT MTH NR VALDESE	4.34	20	354043	813351	VALDESE	023
0214299400	LAUREL C NR ABEE	11.2	02	354028	813223	VALDESE	023
0214299635	ABEE C AT SR 1805 NR BURKE CHAPEL	4.55	20	354045	812942	LONGVIEW	023
0214299640	HENRY F AT SR 1793 NR BURKE CHAPEL	61.0	20	354046	812943	LONGVIEW	023
0214299700	HENRY F TRIB AB TIMS C NR HENRY R	1.45	20	354108	812747	LONGVIEW	023
0214299710	TIMS C HEADWATERS NR ICARD	1.63	20	354217	812902	LONGVIEW	023
0214299725	TIMS C AT MTH NR HENRY RIVER	3.44	20	354109	812746	LONGVIEW	023
0214299750	HENRY F AT SR 1803 NR HENRY RIVER	74.3	20	354122	812700	LONGVIEW	023
0214299775	HENRY F TRIB AT MTH AB HENRY RIVER	1.78	20	354109	812636	LONGVIEW	023
0214299800	HENRY F NR PENELOPE	78.9	11	354139	812548	LONGVIEW	023
0214299950	HENRY F TRIB AT MTH AB GAGE STA NR HILDEBRAN	2.02	20	354102	812412	LONGVIEW	035
0214300000	HENRY F NR HENRY RIVER	83.2	01	354103	812410	LONGVIEW	035
0214300100	HENRY F TRIB AT SR 1124 NR LONGVIEW	2.52	20	354151	812337	LONGVIEW	035
0214300500	LONGVIEW C NR LONGVIEW	0.78	11	354310	812232	LONGVIEW	035
0214301625	LONGVIEW C AT MTH NR BROOKFORD	2.01	20	354217	812142	HICKORY	035
0214301650	GEITNER B AT MTH NR BROOKFORD	1.92	20	354218	812126	HICKORY	035
0214301700	HENRY F AT BROOKFORD	94.9	11	354151	812117	HICKORY	035
0214301815	BARGER B AT MTH AT BROOKFORD	1.87	20	354155	812040	HICKORY	035
0214301845	HENRY F TRIB AT MTH NR BROOKFORD	1.18	20	354121	812000	HICKORY	035
0214302050	HENRY F TRIB AT MTH NR FAIRBROOK	1.50	20	354103	811912	HICKORY	035
0214302150	MUDDY C NR FAIRBROOK	2.32	20	354013	811740	HICKORY	035
0214302301	MUDDY C AT MTH NR STARTOWN	4.67	20	353946	811834	HICKORY	035
0214302405	HENRY F TRIB AT MTH NR STARTOWN	1.91	20	353938	811833	HICKORY	035
0214302700	HENRY F NR STARTOWN	110.	11	353927	811833	HICKORY	035
0214303275	HENRY F TRIB AT MTH NR RHONEY	2.28	20	353820	811815	HICKORY	035
0214303300	HENRY F AT MTH NR STARTOWN	114.	20	353810	811830	HICKORY	035
0214303400	JACOB F NR RAMSEY	10.3	20	353550	813605	CASAR	023
0214303450	JACOB FORK AB WHITE OAK C NR RAMSEY	16.6	20	353517	813458	CASAR	023
0214303530	WHITE OAK C NR RAMSEY	1.94	20	353438	813703	CASAR	023
0214303575	JACOB F BL WHITE OAK C NR RAMSEY	21.4	20	353515	813456	CASAR	023
0214304000	JACOB F AT RAMSEY	25.7	01	353526	813402	CASAR	023
0214304200	JACOB F NR HICKORY	33.9	02	353519	813123	CASAR	023
0214304400	ROCK C NR RAMSEY	4.50	02	353640	813110	CASAR	023
0214304500	ROCK C NR HICKORY	6.43	02	353559	813015	CASAR	035
0214304515	JACOB F TRIB AT SR 1103 NR COOKSVILLE	2.28	20	353501	812953	BANOAK	035
0214304530	JACOB F TRIB 1 AT MTH NR COOKSVILLE	4.49	20	353612	812936	BANOAK	035
0214304545	JACOB F AB DOUGLAS C NR COOKSVILLE	49.4	20	353646	812855	BANOAK	035
0214304560	DOUGLAS C AT MTH NR COOKSVILLE	2.57	20	353647	812854	BANOAK	035
0214304580	JACOB F AT SR1002 NR COOKSVILLE	54.4	20	353655	812746	BANOAK	035
0214304600	JACOB F TRIB NR LYNN MOUNTAIN	2.21	02	353633	812741	BANOAK	035
0214304750	JACOB F TRIB 2 NR BANOAK	3.10	20	353644	812523	BANOAK	035
0214304780	JACOB F TRIB 3 NR BANOAK	1.80	20	353624	812502	BANOAK	035
0214304800	JACOB F NR PROBST X RDS	67.0	02	353736	812446	LONGVIEW	035
0214305075	CAMP C AT SR 1736 NR BURKE CHAPEL	2.68	20	353854	812833	LONGVIEW	023
0214305125	CAMP C TRIB AT MTH NR ADVENT X RDS	1.78	20	353823	812653	LONGVIEW	035
0214305145	CAMP C AT SR 1002 NR ADVENT X RDS	6.78	20	353819	812633	LONGVIEW	035
0214305200	CAMP C TRIB NR PROBST X RDS	0.66	20	353811	812556	LONGVIEW	035
0214305225	CAMP C TRIB .9MI AB MTH NR PROBST X RDS	1.60	20	353757	812522	LONGVIEW	035
0214305250	CAMP C TRIB 2 AT MTH NR PROBST X RDS	10.7	20	353746	812440	LONGVIEW	035
0214305275	JACOB F AT SR 1120 NR PROBST X RDS	79.7	20	353747	812334	LONGVIEW	035
0214305315	JACOB F AT NC 127 NR PROBST X RDS	81.9	20	353844	812251	LONGVIEW	035
0214305410	JACOB F TRIB AT MTH NR RHONEY	2.72	20	353838	812138	HICKORY	035

MEMO

Ref. 18

DATE: October 12, 1993

TO: File

FROM: Jeanette Stanley, Environmental Chemist,
NC Superfund Section

RE: Consolidated Warehouse
Charlotte, Mecklenburg County, NC

I spoke with Mr. Neill Cameron, Director, Mecklenburg County Agricultural Extension Office (704) 336-2561. He said that there is no use of groundwater for irrigation of commercial farms within 4 miles of the Paw Creek area. There may be some commercial livestock operations in the area, but surface water would be used to water the livestock. There is no silviculture in the area.

ty of Charlotte
AREA NOT INCLUDED

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

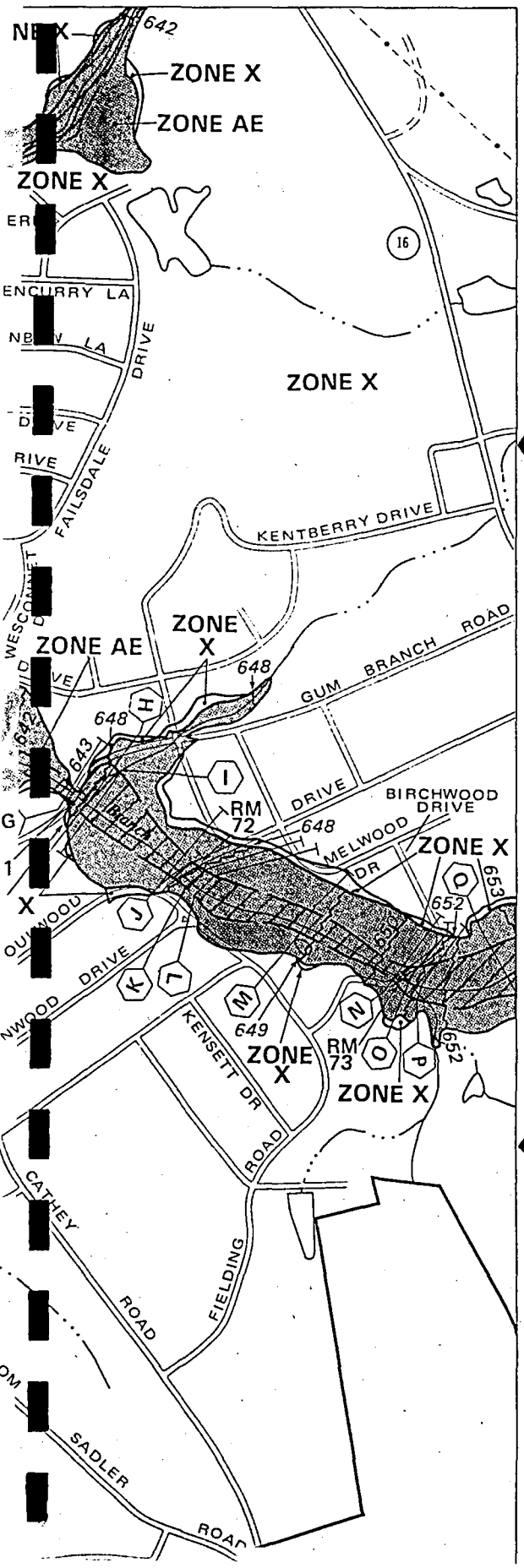
MECKLENBURG COUNTY, NORTH CAROLINA
(UNINCORPORATED AREAS)

PANEL 70 OF 210
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY–PANEL NUMBER:
370158 0070 B

MAP REVISED:
FEBRUARY 3, 1993

Federal Emergency Management Agency



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year flood plain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zone.

~~~567~~~ Base Flood Elevation Line; Elevation in Feet*

(A)——(A) Cross Section Line

(EL 19) Base Flood Elevation in Feet Where Uniform Within Zone*

RM5 × Elevation Reference Mark

M3.0 • Mile Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all planimetric features outside Special Flood Hazard Area or all areas subject to flooding, particularly from local drainage sources of small size.

Areas of Special Flood Hazard (100-year flood) include zones, A, AE, A1–A30, AH, AO, A99, V, VE and V1–V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of the shoreline.

This map incorporates approximate boundaries of coastal barriers established under the Coastal Barrier Resources Act (PL 97–348).

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For adjoining panels, see separately printed Map Index.
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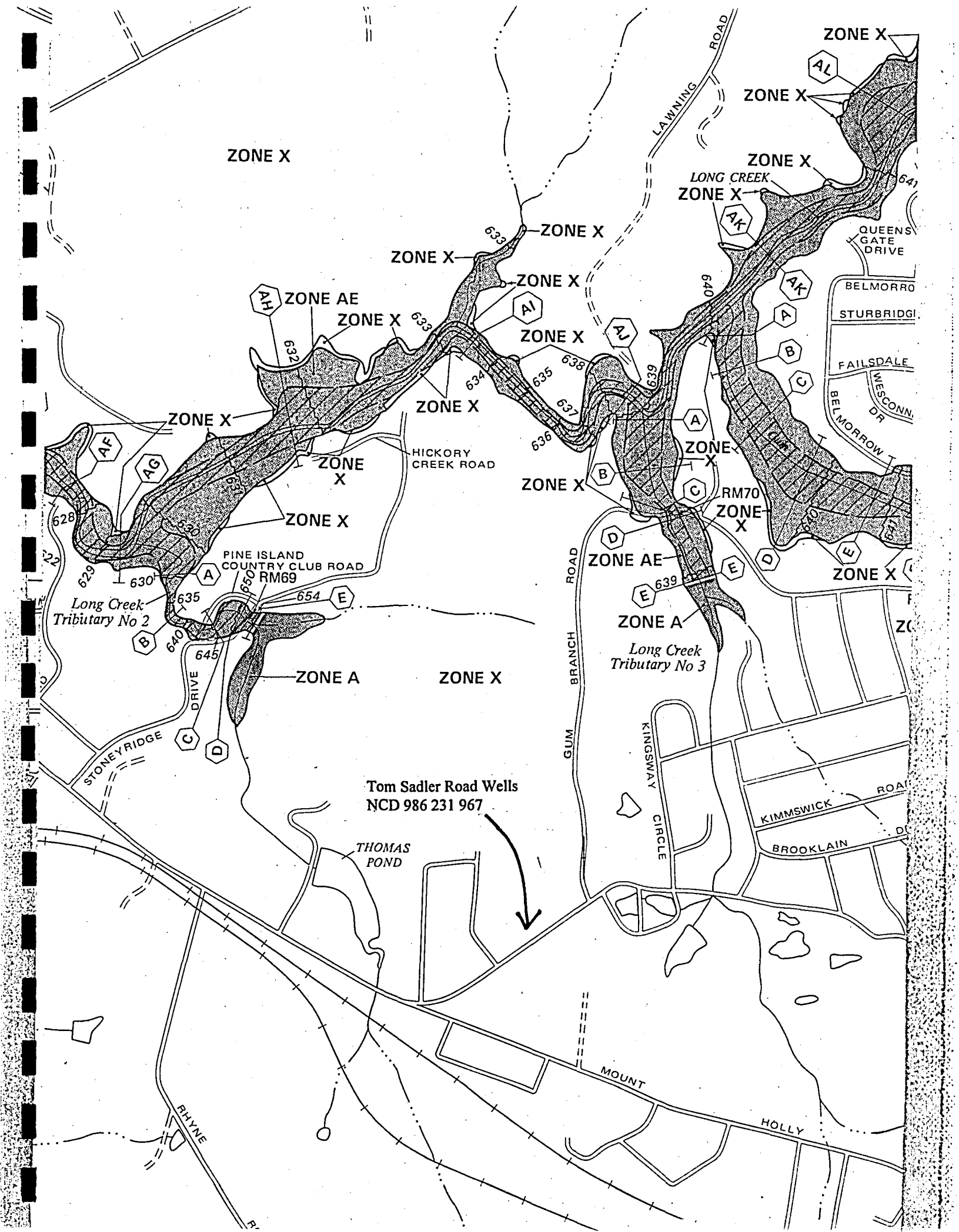

ZONE X
ZONE AE
ZONE A
LAWNING ROAD
LONG CREEK
QUEENS GATE DRIVE
BELMORRO
STURBRIDGE
FAILSDALE
WESCONN DR
BELMORROW
HICKORY CREEK ROAD
PINE ISLAND COUNTRY CLUB ROAD
RM69
RM70
Long Creek Tributary No 2
Long Creek Tributary No 3
GUM BRANCH ROAD
KINGSWAY CIRCLE
KIMMSWICK ROAD
BROOKLAIN
STONEYRIDGE DRIVE
THOMAS POND
Tom Sadler Road Wells
NCD 986 231 967
MOUNT HOLLY
RHYNE

MEMO

DATE: January 25, 1995

TO: File

FROM: Jeanette Stanley, Environmental Chemist,
NC Superfund Section

RE: Hoover Machine Shop Site,
Gastonia, Gaston County, NC
NCD 054 283 189

I talked with Greg George, Environmental Quality Manager, Site Screening Section, South Carolina Department of Health and Environmental Control (803) 896-4062. He had sent me a list of community wells and surface water intakes within the target limit distances of the Hoover Machine Shop site. He explained that there were no surface water intakes on Lake Wylie used for a drinking water supply. The surface water intake for the City of Rock Hill is on the Catawba River below the Wylie Dam. Other surface water intakes on the lake are not used for human consumption.

I asked Greg about the list of drinking water wells that he provided to me (attached). I found the list unusable for the purpose of following North Carolina procedures for determining groundwater population. The South Carolina data base does not include coordinates of the well head, population using the well, or telephone numbers to facilitate locating the well systems. Greg said that some wells on the list are private wells, but most are community wells. The list does not indicate which is which. Coordinates given for the wells are a central point within the county. Greg said that South Carolina Site Screening Section usually does not locate minor community wells until a site goes to the ESI stage. They only use rough house counts and large municipal well systems when determining groundwater population at the PA and SI stages.

MEMO

DATE: October 13, 1993

TO: File

FROM: Jeanette Stanley, Environmental Chemist,
NC Superfund Section

Jeanette Stanley

RE: Consolidated Warehouse
Charlotte, Mecklenburg County, NC

I spoke with Terry Gross, NC Division of Health Services, Water Supply Branch, Mooresville Regional Office (704) 663-1699. He confirmed that there are no other surface water intakes in the surface water pathway from the Consolidated Warehouse site. The Sodyeco intake is upstream of the point where Long Creek enters the Catawba River.

(In addition to the Belmont intake)

Memorandum

To: File

From: G. Doug Rumford GDR

Date: June 17, 1993

Subject: North Belmont PCE Site NCD 986 187 128
North Belmont, Gaston County, NC
Municipal Surface Water Intakes

On June 14, 1993, a review of the public water supply inventory for surface sources from the N.C. Division of Health Services-Water Supply Branch was conducted. There was only 1 surface water intake identified in Gaston County that is along the site 15-mile surface water pathway. The Belmont Converting Co. (BCC) operates a surface water intake on the Catawba River near the Route 29/74 bridge. Mr. Terry Gross of the Water Supply Branch - Mooresville Region (704-663-1699) was also contacted regarding this subject. Mr. Gross informed me that the BCC intake is the only intake on the Catawba River between Fites Creek and Lake Wylie.

On June 11, 1993, Mr. John McClintock, Water Plant Manager of the BCC (704-825-2625) was contacted. According to Mr. McClintock, BCC sells water to the City of Belmont which also supplies water North Belmont. Belmont provides water service to approximately 10,200 residents. Mr. McClintock also told me that BCC only operates the single intake on the Catawba River and that they do not operate any groundwater production wells.

Mr. Keith Cox, Belmont Water Department Superintendent (704-825-0507), was also contacted on this day. Mr. Cox confirmed the information provided by Mr. McClintock regarding the City of Belmont's water supply.

Mr. Eddy Nichols, Director of Mount Holly Public Works (704-827-4261) was contacted on June 17, 1993. Mr. Nichols informed me that the city serves approximately 9000 residents through 3000 service connections. He also estimates that within the city's distribution area, there are approximately 200 residents that have not been connected to the city water supply system.

Attachment:

MEMO

Ref. 20

DATE: October 12, 1993

TO: File

FROM: Jeanette Stanley, Environmental Chemist,
NC Superfund Section

RE: Old Mount Holly Road PCE Site
Charlotte, Mecklenburg County, NC
NCD 986 172 518

I spoke with Wayne Chapman, Fish Biologist, District 6, NC Wildlife Resources Commission, (704) 982-9255. He said that Long Creek is an excellent fishery. The habitat is still good and it is one of the better streams in Mecklenburg County, unusually good for a metropolitan area. The stream has a diversity of fish, including the Red Breast Sunfish (Robin), which is a migratory stream fish that goes upstream for spawning, the white bass which is a lake fish but goes upstream to spawn on shoals, the large mouth bass, and sunfish.

He was uncertain about the upper areas of Paw Creek. He did say that the lower portion of Paw Creek before it enters Lake Wylie is probably a fishery.

RECEIVED
MAR 17 1993
SUPERFUND SECTION

The Fishes of Mecklenburg County, North Carolina

Donald G. Cloutman and Larry L. Olmsted

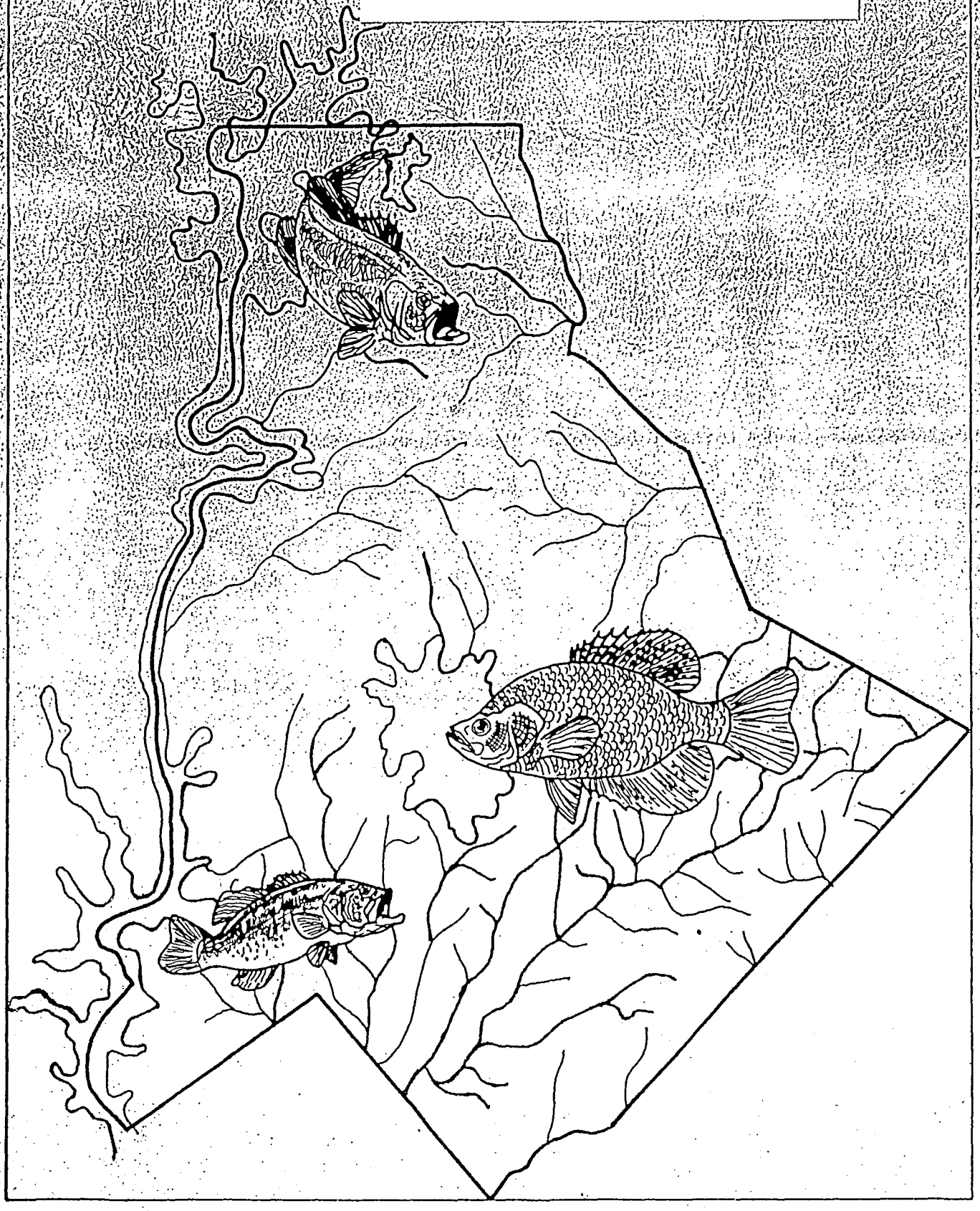
TH MECKLENB C.

LARRY L. OLMSTED, PH.D.
Manager, Scientific
Services Section
Generation Services Dept.

(704)875-5411 Office
(704)483-2349 Home
(704)875-5038 Fax

DUKE POWER

13339 Hagers Ferry Rd.
MG03A
Huntersville, NC
28078-7929



uch as channel catfish, white bass, striped bass, and white crappie have provided good fisheries while others such as blue catfish, flathead catfish, green sunfish, and redear have been of minor importance. The introductions of ock bass, sauger, and walleye failed because of the lack of suitable habitat. Supplemental stocking of bluegill, largemouth bass, and black crappie has curred in management of these species. Although most introductions were intentional, at least one inadvertent introduction has probably occurred in Mecklenburg County. The redlip shiner, native to the Pee Dee drainage in the unty, has apparently been introduced into tributaries (McDowells, Long, and Gar Creeks) of the Catawba River in the county (probably as a result of bait eleases), and has probably replaced the closely related greenhead shiner.

FISHERIES RESOURCES IN MECKLENBURG COUNTY

The mainstream Catawba River impoundments (Lake Norman, Mountain Island Reservoir, and Lake Wylie) constitute the major fisheries resources of ecklenburg County. Without these impoundments, residents of Mecklenburg County and the surrounding area would lack substantial local aquatic recreational facilities. Several species of game fishes have been introduced or tocked in these reservoirs to enhance sport fishing. Largemouth bass are one of the most sought-after fishes in these reservoirs. Other fishes available the sportsman are carp, suckers, catfishes, white bass, striped bass, sunfishes, crappies, and yellow perch.

Most streams in Mecklenburg County are too small to support much fishing pressure, d most larger segments such as Sugar Creek, Little Sugar Creek, and the Rocky r are so grossly polluted that the fishery has been eliminated. In addition, the aesthetic value of most Mecklenburg County streams is relatively

low because of the high population density surrounding them, the refuse cluttering their banks and channels, and the high turbidity. In spite of this, a limited fishery does exist. Most stream fishing in Mecklenburg County can be done from the bank or by wading and using light tackle. Below is a list of the major streams in Mecklenburg County and an evaluation of their potential fisheries resources. A previous evaluation of some Mecklenburg County streams was provided by Fish (1968).

McDowells Creek - This small stream is generally too shallow and polluted to be an important fishery resource. Although redbreast sunfish and flat bullheads are common, they are generally small.

Gar Creek - This small creek has some pools and good cover which provides habitat for panfishes such as bluegill and redbreast. Fishing is expected to be fair for those species.

Long Creek - The upper reaches of Long Creek are too small to support a good fishery. However, the lower section provides good fishing for sunfish and catfish.

Paw Creek - Because of pollution and small size, the upper portion of this stream is of minor fishing significance. It provides a fair fishery for sunfish, largemouth bass, and crappie near its mouth at Lake Wylie.

Steele Creek - This stream is generally too small to support a good fishery, and sewage has reduced the fish populations.

Sugar Creek - Although this stream presents fine habitat, pollution has destroyed the fishery resource.

Little Sugar Creek - Pollution has eliminated the fishery resources of this stream.

Briar Creek - Many large bluegill, redbreast sunfish, and catfish are taken from this stream. Although panfish catches are potentially good, this creek offers very little aesthetically since it flows through Charlotte and is cluttered with refuse.

McAlpine Creek - Some large pools in the lower portion of this stream appear to be good for catfish, sunfish, and largemouth bass fishing, and small numbers of redfin pickerel are also present. However, sewage has reduced these populations.

Fourmile Creek - Pools have substantial populations of sunfish and catfish.

MEMO

DATE: May 10, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

On April 28, 1995, I visited the Heritage Program Office of the NC Division of Parks and Recreation on the seventh floor of the Archdale Building in Raleigh, NC. I viewed the USGS topographic maps within 4 miles of the Tom Sadler Road site to determine if there were any new sitings since I last viewed these maps in connection with the Old Mount Holly Road PCE site. The Old Mount Holly Road Pce site is one mile east of this site. Within the target distance limits (TDL) of the Old Mount Holly Road PCE site, there were no new sitings. All marked sitings have been determined to be invalid due to their age.

An area on the Mount Holly, NC USGS topographic map is within the 3 - 4 mile target distance limit of the Tom Sadler Road Wells site but not within the target distance limit of the Old Mount Holly Road PCE site TDL. Two recent sitings were noted within the 3 - 4 mile air pathway TDL. Their locations are indicated on the USGS topographic maps enclosed with the preliminary assessment report.

The Georgia Aster (*Aster geogianus*) is a NC candidate species and a Federal Candidate 1 species. This species was observed in power line rows on November 3, 1993. Schweinitz's Sunflower (*Helianthus Schweinitzii*) is a NC and Federal endangered species. This species was observed just downgradient of the Mountain Island Lake dam on November 3, 1993.

A copy of the endangered species survey conducted for the Old Mount Holly Road PCE site and documentation in connection with the endangered species within 4 miles of the Tom Sadler Road Wells site are attached.

MEMO

DATE: February 12, 1994

TO: File

FROM: Jeanette Stanley, Environmental Chemist,
NC Superfund Section

RE: Old Mount Holly Road PCE Site
Charlotte, Mecklenburg County, NC
NCD 986 172 518

and

Consolidated Warehouse, Inc.
NCD 130 708 126
Charlotte, Mecklenburg County, NC

On October 13, 1993, I visited the Natural Heritage Office on the 7th floor of the Archdale Building in Raleigh, NC. There I reviewed the USGS quadrangle maps for sitings of endangered species and locations of priority areas and Natural communities. I reviewed the following quadrangle maps: Mountain Island Lake, Charlotte West, Mount Holly, Belmont and Lake Wylie.

I noted three sitings of animals that were within the air and surface water target distance limit of the site.

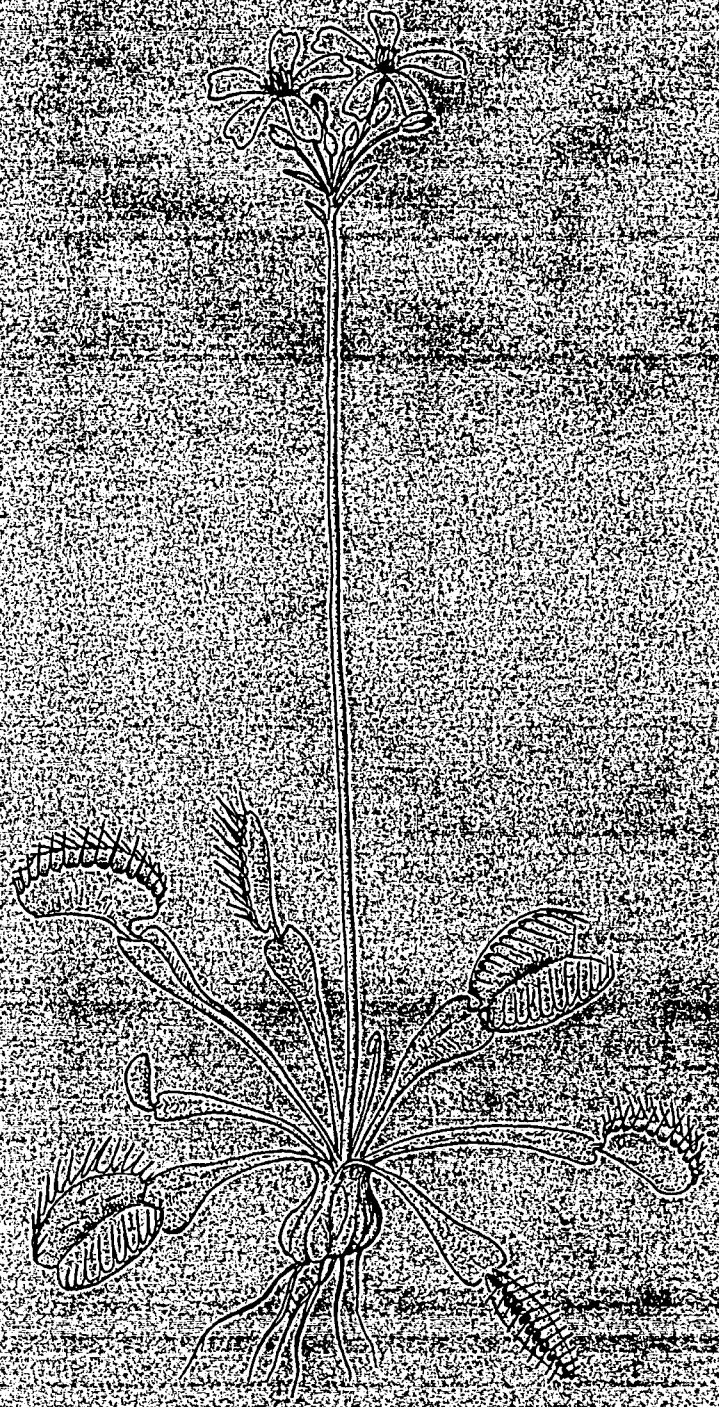
Along Long Creek, approximately 1/4 mile downstream of where the unnamed tributary enters Long Creek, there has been a siting of Alasmidonta robusta, also know as the Carolina Elktoe. This species is endemic to North Carolina and believed to be extinct. This species is also in the 2 - 3 miles distance ring via the air pathway.

Along Paw Creek, approximately 1.4 miles downstream from the upgradient lagoon, the Lawigona decorata, or Carolina Heelsplitter, has been spotted. This species is a NC endangered, federally proposed endangered, NC critically imperilled, and globally critically imperilled species. This siting is within the 1 - 2 mile distance ring from the site. This species has also been spotted approximately 2 miles further down Paw Creek. This siting is within the 2 - 3 mile target distance for the air pathway.

On November 3, 1993, I spoke with Dr. Eugene Keferl, Brunswick College, Brunswick, GA (912) 264-7233, regarding a study he conducted on endangered fresh water mollusks in 1987. We discussed the Carolina Elktoe that was on the Natural Heritage Map in the Long Creek surface water pathway. He said that this area and an area in the Pee Dee River System were the only places this mollusk was ever spotted, but the siting was in the 1800s. His study in 1987 found no endangered mollusks in Long Creek.

We discussed the Carolina Heelsplitter that was indicated to be present in Paw Creek. He said that his 1987 search showed Paw Creek to be devoid of any mollusks. He recommended that I contact Dr. Edward Menhanick (704) 547-4046 at UNC Charlotte. He may have some recent information on species in these creeks.

NATURAL HERITAGE PROGRAM LIST OF THE RARE PLANT SPECIES OF NORTH CAROLINA



Compiled By
Alan S. Weakley,
Botanist

North Carolina Natural Heritage Program
Division of Parks and Recreation
N.C. Department of Environment, Health, and Natural Resources, 1993

North Carolina Status. Endangered, Threatened, and Special Concern species have legally protected status in North Carolina through the Plant Conservation Program. The Natural Heritage Program maintains computer and map files on Endangered, Threatened, Candidate, and Significantly Rare species; paper files are maintained on Watch List species.

STATUS CODE	STATUS	DEFINITION
E	Endangered	"Any species or higher taxon of plant whose continued existence as a viable component of the State's flora is determined to be in jeopardy" (GS 19B 106: 202.12). (Endangered species may not be removed from the wild except when a permit is obtained for research, propagation, or rescue which will enhance the survival of the species.)
T	Threatened	"Any resident species of plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (GS 19B 106:202.12). (Regulations are the same as for Endangered species.)
SC	Special Concern	"Any species of plant in North Carolina which requires monitoring but which may be collected and sold under regulations adopted under the provisions of [the Plant Protection and Conservation Act]" (GS 19B 106:202.12). (Special Concern species which are not also listed as Endangered or Threatened may be collected from the wild and sold under specific regulations. Propagated material only of Special Concern species which are also listed as Endangered or Threatened may be traded or sold under specific regulations.)
C	Candidate	Species which are very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are also either rare throughout their ranges (fewer than 100 populations total) or disjunct in North Carolina from a main range in a different part of the country or world. Also included are species which may have 20-50 populations in North Carolina, but fewer than 50 populations rangewide. These are species which have the preponderance of their distribution in North Carolina and whose fate depends largely on their conservation here. Also included are many species known to have once occurred in North Carolina but with no known extant occurrences in the state (historical or extirpated species); if these species are relocated in the state, they are likely to be listed as Endangered or Threatened. If present land use trends continue, candidate species are likely to merit listing as Endangered or Threatened.

SR	Significantly Rare	Species which are very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are generally more common somewhere else in their ranges, occurring in North Carolina peripherally to their main ranges, mostly in habitats which are unusual in North Carolina. Also included are some species with 20-100 populations in North Carolina, if they also have only 50-100 populations rangewide and are declining.
W	Watch List	Any other species believed to be rare and of conservation concern in the state but not warranting active monitoring at this time (see the Watch List section in the Supplement for a more complete discussion).
P_	Proposed	A species which has been formally proposed for listing as Endangered, Threatened, or Special Concern, but has not yet completed the legally mandated listing process.

United States Status is designated by the U.S. Fish and Wildlife Service. Federally listed Endangered and Threatened species are protected under the provisions of the Endangered Species Act of 1973, as amended. Unless otherwise noted, definitions are taken from the *Federal Register*, Vol. 55, No. 35, February 21, 1990 (50 CFR Part 17).

STATUS CODE	STATUS	DEFINITION
E	Endangered	A taxon "which is in danger of extinction throughout all or a significant portion of its range" (Endangered Species Act, Section 3).
T	Threatened	A taxon "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (Endangered Species Act, Section 3).
C1	Candidate 1	"Taxa for which the [Fish and Wildlife] Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened. Development and publication of proposed rules on these taxa are anticipated; however, because of the large number of category 1 taxa, it will take several years to clear the backlog."
C2	Candidate 2	"Taxa for which there is some evidence of vulnerability, but for which there are not enough data to support listing proposals at this time....Further biological research and field study usually will be necessary to ascertain the status of [these taxa]....It is likely that some category 2 candidates will not warrent listing, while others will be found to be in greater danger of extinction than some taxa in category 1."

3A	Candidate 3A	"Taxa for which the Fish and Wildlife Service has persuasive evidence of extinction. If rediscovered, such taxa might acquire high priority for listing."
3B	Candidate 3B	"Names that, on the basis of current taxonomic understanding..., do not represent distinct taxa...."
3C	Candidate 3C	"Taxa that have proven to be more abundant or widespread than previously believed and/or those that are not subject to any identifiable threat. If further research or changes in habitat indicate a significant decline in any of these taxa, they may be reevaluated for possible inclusion in categories 1 or 2."
P_	Proposed	"Taxa already proposed to be listed as" endangered or threatened. Taxa formally proposed as endangered or threatened receive some legal protection. Species listed as proposed candidates are species which are in the process of being added to the federal candidate list.
_*	Possibly Extinct	Taxa with no known extant occurrences.

North Carolina Rank. North Carolina ranks are based on The Nature Conservancy's system of measuring rarity and threat status. This system is now widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity at the state level.

RANK	NUMBER OF EXTANT POPULATIONS	DESCRIPTION
S1	1-5	Critically imperiled in North Carolina because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation (local extinction) from the state.
S2	6-20	Imperiled in North Carolina because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state.
S3	21-100	Rare or uncommon in North Carolina.
S4	100-1000	Apparently secure in North Carolina, with many occurrences.
S5	1000+	Demonstrably secure in North Carolina.
SA	--	Accidental in state.
SH	0?	Of historical occurrence in North Carolina, perhaps not having been verified in the past 20 years, and suspected to be still extant.
SR	--	Reported from North Carolina, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.
SX	0	Apparently extirpated from North Carolina.
SU	--	Possibly in peril in North Carolina but status uncertain; need more information.

Scientific Name Province: Habitat (Counties of Occurrence)	Common Name	Status NC	Status US	Rank NC	Rank Global
Aster depauperatus (not in RAB) P: diabase glades (Granville*)	Serpentine Aster	E	C2	S1	G2Q
Aster georgianus (not in RAB) P: open woods and roadsides (Gaston*, Mecklenburg*, Montgomery, Rowan*, Stanly, Union*)	Georgia Aster	C	C2	S1	G2G3
Aster laevis var. *concinnus* P: forests, woodland borders especially over mafic rocks (Alamance, Alexander, Burke*, Durham, Granville*, Iredell, Orange, Stanly*, Union*, Wake)	Smooth Blue Aster	C	-	S2	G5T3
Aster mirabilis (= *A. commixtus* in RAB) P: rich slopes and bottomlands (Anson*, Mecklenburg*, Richmond*, Stanly*, Union*)	Piedmont Aster	C	PC2	S2	G2G3
Aster oblongifolius M: thin soils around limestone outcrops (Madison)	Aromatic Aster	SR	-	S1	G5
Aster shortii (not in RAB) M: bluffs and rocky banks (Burke, Transylvania)	Short's Aster	SR	-	S1	G4G5
Astilbe crenatiloba (not in RAB) M: cove forests (Avery?, Mitchell?)	Roan False Goat's Beard	C	C2	SH	GHQ
Astragalus michauxii SC: sandhills (Bladen, Cumberland*, Harnett*, Hoke*, Moore*, New Hanover, Richmond*, Robeson, Scotland*)	Sandhills Milkvetch	C	C2	S2	G3
Baccharis glomeruliflora C: shrubby areas on margins of brackish marshes (Brunswick, Columbus)	Silverling	C	-	S1	G4
Bacopa innominata (= *B. cyclophylla*) C: tidal freshwater marshes (Chowan, New Hanover, Pender)	A Water-Hyssop	C	-	SH	G5
Balduina atropurpurea (not in NC in RAB) C: savannas (Brunswick)	Honeycomb Head	C	3C/PC2	S1	G2G3
Baptisia alba (= *B. pendula* in RAB) PCS: open woodlands, clearings (Anson*, Cabarrus*, Johnston, Lenoir, Montgomery*, Randolph, Rowan, Stanly*, Union*)	Thick-pod White Wild Indigo	SR	-	S2	G4?
Baptisia albescens (= *B. alba* in RAB) PS: open woodlands, clearings (Anson, Burke*, Chatham, Cleveland, Iredell, McDowell, Mecklenburg, Montgomery*, Moore, Person, Polk, Richmond*, Rockingham, Rowan, Rutherford*, Stanly, Stokes, Surry, Transylvania, Union*)	Thin-pod White Wild Indigo	SR	-	S2	G4
Baptisia minor (= *B. australis* in RAB) P: glades and open forests on basic soils (Cabarrus, Caswell, Durham*, Granville*, Orange, Person, Stanly, Transylvania?)	Prairie Blue Wild Indigo	C	-	S2	G4
Baptisia bracteata var. *bracteata* P: open woodlands (McDowell)	Creamy Wild Indigo	C	-	SH	G5T4?
Berberis canadensis PM: open forests and glades on basic soils (Alamance, Alexander, Buncombe, Durham*, Granville*, Guilford, Haywood, Iredell, Madison*, Orange, Person, Randolph, Rockingham*, Swain, Transylvania)	American Barberry	SR	-	S2	G3G4
Betula cordifolia (=*B. papyrifera* var. *c.* in RAB) M: high elevation forests and landslide scars (Yancey*)	Mountain Paper Birch	C	-	S2	G5
Bidens coronata C: brackish marshes (Beaufort, Chowan, Craven, Tyrrell)	Crowned Beggarticks	SR	-	S1	G5
Bonamia (see *Stylisma*)					
Botrychium jenmanii (= *B. alabamense*) MP: moist woods (Buncombe, Burke*, Cherokee, Clay, Iredell, Jackson, McDowell*, Mecklenburg, Rockingham, Rutherford*, Stokes, Transylvania)	Alabama Grape Fern	SR	-	S1	G3G4
Botrychium lanceolatum var. *angustisegmentum* (not in RAB) MP: cove forests (Burke*, Macon)	Lance-leaf Moonwort	SR	-	S1	G4T3T4

Scientific Name Province: Habitat (Counties of Occurrence)	Common Name	Status NC	Status US	Rank NC	Rank Global
Helenium brevifolium PMC: bogs, seeps, riverbanks, other wet sites (Brunswick?, Henderson, Iredell*, Lenoir?, Lincoln, Montgomery, Rowan, Wake)	Littleleaf Sneezeweed	C	-	S1	G3
Helenium pinnatifidum C: savannas and open, wet, mucky sites (Bladen*, Brunswick*, Columbus*, Iredell?, New Hanover, Pender*, Robeson, Rowan?)	Dissected Sneezeweed	SR	-	S2	G4
Helenium vernale C: savannas and adjacent ditches (Brunswick*, Columbus*)	Spring Sneezeweed	SR	-	S1	G3G4
Helianthemum bicknellii M: rock outcrops, glades, fens (Ashe, Buncombe, Haywood, Jackson, Transylvania)	Plains Sunrose	C	-	S1	G5
Helianthemum corymbosum C: maritime forests (Carteret*, Dare)	Pinebarren Sunrose	SR	-	S1	G4G5
Helianthemum georgianum C: maritime forests (Brunswick, Carteret, Dare, Hyde, New Hanover)	Georgia Sunrose	C	-	S1	G4
Helianthemum propinquum M: rock outcrops, glades (Alleghany*, Ashe*, Avery, Buncombe*, Haywood*, Henderson, Stokes, Transylvania, Yancey*)	Creeping Sunrose	C	-	S1	G4
Helianthemum rosmarinifolium (see Watch List)					
Helianthus laevigatus PM: shaly open woods and roadsides (Anson*, Burke, Cleveland, Montgomery*, Polk, Rowan*, Rutherford*, Stanly*, Union*)	Smooth Sunflower	SR	-	S2	G3G4
Helianthus occidentalis M: sandy bottomlands (Buncombe)	Few-leaf Sunflower	C	-	SX	G5
Helianthus schweinitzii P: open woods and roadsides (Cabarrus*, Davidson*, Mecklenburg*, Montgomery*, Rowan*, Stanly*, Stokes?, Union*)	Schweinitz's Sunflower	E	E	S1	G1
Heliotropium curassavicum var. *curassavicum* C: salt flats and salt marshes (Carteret, Hyde)	Seaside Heliotrope	C	-	SH	G5T5
Helonias bullata M: bogs (Henderson*, Jackson*, Transylvania*)	Swamp Pink	T-SC	T	S2	G3
Hemicarpha (see *Lipocarpha*)					
Heteranthera multiflora (not in RAB) C: open pools in brownwater or blackwater river floodplains (Bertie, Martin, Pasquotank, Perquimans)	Multiflowered Mud-Plantain	SR	-	S1	GU
Hexalectris spicata PMC: dry or mesic woods on basic soils (Burke*, Cabarrus*, Clay*, Davidson, Davie, Durham, Forsyth, Franklin, Granville, Guilford, Jackson*, Johnston, Jones, Macon*, Madison, Mecklenburg, Orange*, Person, Polk, Randolph, Rutherford*, Stanly*, Surry, Wilkes)	Crested Coralroot	SR	-	S2	G3G4
Hexastylis contracta M: acidic forests under rhododendron (Buncombe*, Henderson*)	Mountain Heartleaf	E	C2	S1	G3
Hexastylis lewisii PSC: forests, pocosin edges (Bladen*, Burke, Chatham*, Cumberland, Duplin, Durham*, Granville*, Halifax*, Harnett*, Lenoir, Nash*, Orange*, Person*, Sampson*, Scotland*, Vance*, Wake*)	Lewis's Heartleaf	SR	3C	S3	G3
Hexastylis naniflora P: rich deciduous forests, bluffs, and ravines (Burke*, Catawba*, Cleveland*, Lincoln, Rutherford*)	Dwarf-flowered Heartleaf	E	T	S2	G2G3
Hexastylis rhombiformis (not in RAB) MP: cove forests (Buncombe*, Burke?, Henderson*, Polk*, Transylvania*)	French Broad Heartleaf	C	C2	S1	G1

Ref. 22

Site Name: Tom Sadler Road Wells
Site Number: NCD 986 231 967

Site Location: Charlotte, N.C.
Mecklenburg County
Latitude: 35 17 24.0
Longitude: 80 57 37.0

Date: April 17, 1995

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	165	165	61	61
>1/4 to 1/2 mile	333	498	118	179
1/2 to 1 mile	1,734	2,232	625	804
>1 to 2 miles	6,376	8,608	2,378	3,182
>2 to 3 miles	6,458	15,066	2,587	5,769
>3 to 4 miles	13,831	28,897	5,574	11,343

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.

MEMO

DATE: April 18, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

I reviewed the Division of Facility Services Child Day Care Section Alphabetic listing of Day Care Centers (Sept. 30, 1992) and Day Care Homes (Sept. 30, 1992). I did not note any facilities within 1/4 miles of the Tom Sadler Road Wells site.

MEMO

DATE: April 18, 1995

TO: File

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

SITE: Tom Sadler Road Wells
NCD 986 231 967
Charlotte, Mecklenburg, North Carolina

The Tom Sadler Road Wells site is about 1 mile west of the Old Mount Holly Road PCE site. I used the tracing of wetland maps within 4 miles of the Old Mount Holly Road PCE Site Inspection (NCD 986 172 518, Reference 44). This tracing is taken from the USGS quad maps Mountain Island Lake, NC, Mount Holly, NC, Belmont, NC/SC, Charlotte West, NC, and Lake Wylie SC/NC, all dated 1991 and highlight A-8 on pp. A-22 & 23 in the HRS Guidance Manual, November 1992, was used to determine which wetlands fit the HRS definition of wetlands. I overlaid this map on the Tom Sadler Road Wells USGS topographic map and added acreages that fell within the target distance rings.

For the 3 - 4 miles distance ring, I also consulted the original Mount Holly, N. C. and Charlotte West Wetland Inventory maps and used a planimeter to measure HRS-qualified wetlands. The wetland acreages within the target distance rings of the site are as follows:

0 - 1/4 mile	1
1/4 - 1/2 mile	0.7
1/2 - 1 mile	4.8
1 - 2 miles	36.7
2 - 3 miles	144.4
3 - 4 miles	150.7

Ref. 24

MEMO

TO: Superfund Section Staff

FROM: Jeanette Stanley
Environmental Chemist
NC Superfund Section

DATE: April 7, 1995

SUBJECT: Update on Status of Wellhead Protection Programs in N.C.

I spoke with Mr. Randy Prillaman, Hydrogeologist, NC DEM (919) 733-3221 x424. He said that the Wellhead Protection Area implementation plan written by him and submitted to US EPA in late December 1994 has been approved. This plan calls for protection of a whole area based on a calculation using recharge rate and pumping rate as variables.

North Carolina now has primacy in approval of wellhead protection areas. None have yet been implemented. His department is starting to provide seminars around the state to explain the program.

Some areas he expects to be the first to have wellhead protection areas are Gaston County, the Town of Black Mountain, and numerous small communities affiliated with the North Carolina Rural Water Association. Gaston County has delineated wells and completed a contaminant source inventory.

Topic: TETRACHLOROETHYLENE

Ref. 25

nvironmental Fate

'ironmental Fate:

1. TERRESTRIAL FATE: If tetrachloroethylene (PCE) is released to soil, it will evaporate fairly rapidly into the atmosphere due to its high vapor pressure and low adsorption to soil. It can leach rapidly through sandy soil and therefore may reach groundwater(1-3). Biodegradation may be an important process in anaerobic soils based on laboratory tests with methanogenic columns. Slow biodegradation may occur in groundwater where acclimated populations of microorganisms exist. There is some evidence of slow degradation in subsurface soils from a groundwater recharge project. PCE should not hydrolyze under normal environmental conditions. (SRC) **PEER REVIEWED** [(1) Wilson JT et al; J Environ Qual 10: 501-6 (1981) (2) Tomson MB et al; Water Res 15: 1109-16 (1981) (3) Schwarzenbach RP et al; Environ Sci Technol 17: 472-9 (1983)
2. AQUATIC FATE: If tetrachloroethylene (PCE) is released in water, the primary loss will be by evaporation. The half-life for evaporation from water will depend on wind and mixing conditions and is estimated to range from 3 hours to 14 days in rivers, lakes and ponds. Chemical and biological degradation are expected to be very slow. PCE will not be expected to significantly bioconcentrate in aquatic organisms or to adsorb to sediment. A mesocosm experiment was conducted to simulate Narraganset Bay during different seasons. Volatilization was the major removal process during all seasons and seasonal differences can be explained by hydrodynamics and the measured half-lives were 25 days in spring, 11 days in winter and 14 days in summer(4). In one experiment in which half-lives were calculated from concentration reduction between sampling points on the Rhine River and a lake in the Rhine basin, half-lives were 10 days and 32 days, respectively(1). In a seawater aquarium, an 8 day half-life was demonstrated to be predominately the result of evaporation(2). In a natural pond, PCE disappeared in 5 and 36 days at low (25 ppm) and high (250 ppm) dose levels, respectively(3). **PEER REVIEWED** [(1) Zoeteman BCJ et al; Chemosphere 9: 231-49 (1980) (2) Jensen S, Rosenberg R; Water Res 9: 659-61 (1975) (3) Lay JP et al; Arch Environ Contam Toxicol 13: 135-42 (1984) (4) Wakeham SG et al; Environ Sci Technol 17: 611-7 (1983)
3. ATMOSPHERIC FATE: If tetrachloroethylene (PCE) is released to the atmosphere, it will be expected to exist in the vapor phase(5) based on a reported vapor pressure of 18.47 mm Hg at 25 deg C(4). Vapor phase PCE will be expected to degrade by reaction with photochemically produced hydroxyl radicals or chlorine atoms produced by photooxidation of PCE. Estimated photooxidation time scales range from an approximate half-life of 2 months(1,2) to complete degradation in an hour(3). Some of the PCE in the atmosphere may be subject to washout in rain based on the solubility of PCE in water (150 ppm(4)); PCE has been

detected in rain. **PEER REVIEWED** [(1) Singh HB et al; Atmos Environ 15: 601-12 (1981) (2) Howard CJ; J Chem Phys 65: 4771-7 (1976) (3) Dimitriades B et al; J Air Pollut Control Assoc 33: 575-87 (1983) (4) Riddick JA et al.; Organic Solvents: Physical Properties and Methods of Purification. Techniques of Chemistry. 4th ed. Wiley-Interscience pp. 1325 (1986) (5) Eisenreich SJ et al; Environ Sci Technol 15: 30-8 (1981)

Environmental Transformations

Biodegredation:

1. Tetrachloroethylene (PCE) can be transformed by reductive dehalogenation to trichloroethylene (TCE), dichloroethylene and vinyl chloride (VC) under anaerobic conditions. In addition, (14)C-PCE was at least partially mineralized to carbon dioxide. Mineralization of 24% of the PCE occurred in a continuous flow mixed film methanogenic column with a liquid detection time of 4 days. TCE was the major intermediate formed, but traces of dichloroethylene isomers and VC were also found. In other column studies under a different set of methanogenic conditions, nearly quantitative conversion of PCE to VC was found. TCE and VC are major intermediates in PCE biotransformation under anaerobic conditions and the potential exists for the complete mineralization of PCE to CO2 in soil and aquifer systems and in biological treatment processes. **PEER REVIEWED** [Vogel TM, McCarty PL; Appl Environ Microbiol 49 (5): 1080-3 (1985)
2. No degradation occurred in 21 days in 3 biodegradability tests with acclimated or unacclimated inocula or in a river die-away test(4). Microbial degradation did not contribute to the removal of tetrachloroethylene (PCE) in a mesocosm experiment which simulated Narraganset Bay, RI(5). Under aerobic conditions there is no degradation in 25 weeks in a batch experiment with a sewage inoculum(1) or when low concentrations of PCE (16 ug/l) were circulated through an acclimated aerobic biofilm column over a period of 1 year(2). While only 3.75% of the PCE treated by conventional, extended and 2-stage activated-sludge pilot plants appeared in the effluent, most of the PCE was discharged to the air from the extended aeration(3). **PEER REVIEWED** [(1) Bouwer EJ et al; Environ Sci Technol 15: 596-9 (1981) (2) Bouwer EJ, McCarty PL; Environ Sci Technol 16: 836-43 (1982) (3) Watanabe H; Gesuido Kyokaiski 20: 29-37 (1983) (4) Mudder TI; Amer Chem Soc Div Env Chem Conf p. 52-3 (1982) (5) Wakeham SG; Environ Sci Technol 17: 611-7 (1983)
3. There is evidence that slow biodegradation of tetrachloroethylene (PCE) occurs under anaerobic conditions when the microorganisms have been acclimated, yielding trichloroethylene (TCE) as a product(1,2). An experiment in a continuous-flow laboratory methanogenic column using well acclimated mixed culture and a 2-day detention time had an average PCE removal rate of 76%(3). In a continuous-flow mixed-film methanogenic column with a liquid detention time of 4 days, mineralization of 24% of

the PCE present occurred; TCE was the major intermediate formed(72%), but traces of dichloroethylene isomers and VC were also found(4). In other column studies under a different set of methanogenic conditions, nearly quantitative conversion of PCE to VC was found in 10 days(4). Removal of 86% PCE occurred in a methanogenic biofilm column (8 weeks of activation followed by 9-12 weeks of acclimation(5)). **PEER REVIEWED** [(1) Bouwer EJ, McCarty PL; Appl Environ Micribiol 45: 1286-94 (1983) (2) Wilson JT et al; Devel Indust Microbiol 24: 225-33 (1983) (3) Bouwer EJ, McCarty PL; Ground Water 22: 433-40 (1984) (4) Vogel TM, McCarty PL; Appl Environ Microbiol 49: 1080-3 (1985) (5) Bouwer EJ, Wright JP; Am Chem Soc Div Environ Chem. 191st Natl Meet 26: 42-5 (1986)

4. A large reduction of tetrachloroethylene which had been recirculated through a soil column for 14 days was attributed to adsorption and volatilization(2). In a microcosm containing muck from an aquifer recharge basin, 72.8% loss was observed in 21 days against 12-17% in controls, and the metabolites trichloroethylene, cis- and trans-1,2-dichloroethylene, dichloromethane, and chloroethene were identified(3). However, when subsurface samples were aseptically removed from above and below the water table and incubated in the laboratory, no degradation occurred in 16 weeks(4). In one field groundwater recharge project, degradation was observed in the 50 day recharge period(1). **PEER REVIEWED** [(1) Bouwer EJ et al; Environ Sci Technol 15: 596-99 (1981) (2) Bouwer EJ et al; Water Res 15: 151-59 (1981) (3) Parsons F et al; J Amer Wat Works Assoc 76: 56-9 (1984) (4) Wilson JT et al; Ground Water 21: 134-42 (1983)

Abiotic Degredation:

1. Tetrachloroethylene can be transfromed by reductive dehalogenation to trichloroethylene under anaerobic conditions. **PEER REVIEWED** [Vogel TM, McCarty PL; Appl Environ Microbiol 49 (5): 1080-3 (1985)
2. Tetrachloroethylene (PCE) reacts with hydroxyl radicals which are produced by sunlight in the troposphere with an estimated half-life of about 2 months or a loss of 1.5% per sunlit day(1,2). Photooxidation in pure air with simulated tropospheric light is much faster than that predicted from the reaction with hydroxyl radicals with complete degradation occurring in 7 days in 1 report(3) and from 0.5% to 100% loss per hour in another(4). The rate of loss is very sensitive to radiation in the 280-330 nm region and increases with increasing PCE concentration, the presence of nitrogen oxides has little effect on the rate of loss(4), and the main reaction product is phosgene (70-85%) with smaller amounts of carbon tetrachloride (8%), dichloroacetyl chloride, and trichloroacetyl chloride(3). The proposed mechanism involved the molecular reaction with chlorine radicals produced by photooxidation of PCE(4). **PEER REVIEWED** [(1) Singh HB et al; Atmos Environ 15: 601-12 (1981) (2) Howard CJ; J Chem Phys 65: 4771-7 (1976) (3) Singh HB et al; Environ Lett 10: 253-6

(1975) (4) Dimitriades B et al; J Air Pollut Control Assoc 33: 575-87 (1983)

3. Photodegradation in the stratosphere is rapid(1). Some photodegradation occurs when tetrachloroethylene (PCE) in air-saturated water is exposed to sunlight. In one year, 75% degradation occurred whereas 59-65% degradation was noted for dark controls(2). When PCE adsorbed to silica gel is irradiated through a pyrex filter, 50-90% is lost in 6 days(3). It is not clear whether PCE adsorbed on particulate matter will photograde as readily(SRC). Hydrolysis is not a significant degradative process (half-life 9 months at 25 deg C in purified, de-ionized water)(2). **PEER REVIEWED** [(1) Mueller JPH Korte F; Chemosphere 3: 195-8 (1977) (2) Dilling WL et al; Environ Sci Technol 9: 833-8 (1975) (3) Gaeb S et al; Nature 270: 331-3 (1977)

Environmental Transport

Bioconcentration:

1. BCF: fathead minnow (Pimephales promelas), 38.9(1); bluegill sunfish (lepomis macrochirus) 49(2). Based on a reported log Kow of 3.40(4), a BCF of 226 was estimated(3,SRC). Based on the reported and estimated BCF's, tetrachloroethylene will not be expected to significantly bioconcentrate in aquatic organisms(SRC). **PEER REVIEWED** [(1) Neely WB et al; Environ Sci Technol 8: 1113-15 (1974) (2) Barrows ME et al; Dyn., Exposure Hazard Assess. Toxic Chem. Ann Arbor MI: Ann Arbor Sci. p. 379-92 (1980) (3) Lyman WJ et al; Handbook of Chem Property Estimation Methods NY: McGraw-Hill p. 5-5 (1982) (4) Hansch C, Leo AJ; Medchem Project Issue No. 26 Claremont, CA: Pomona College (1985)

Soil Adsorption/Mobility:

1. ... Tetrachloroethylene ... /was/ ... slightly adsorbed on ... sand and clay minerals. ... The Henry's adsorption coefficients were approx in proportion to the organic content of the soil samples. **PEER REVIEWED** [Urano K, Murata C; Chemosphere 14 (3-4): 292-9 (1985)
2. Koc: 209(1); 210(2). In a laboratory system simulating a rapid-infiltration site, tetrachloroethylene (PCE) appeared in the effluent but at significantly reduced concentration levels(3,7) although in a bank-infiltration system in Switzerland and The Netherlands, PCE was rapidly transported to groundwater(4,5). It is estimated that in a bay such as Narraganset Bay, RI, only about 0.01% of PCE is adsorbed to particulate matter(6). **PEER REVIEWED** [(1) Schwarzenbach RP, Westall J; Environ Sci Technol 15: 1360-67 (1981) (2) Chiou CT et al; Science 206: 831-2 (1979) (3) Hutchins SR, Ward CH; J Hydrol (Amsterdam) 67: 223-33 (1984) (4) Gegir W et al; Ges, Wasser, Abwasser 63: 517-31 (1983) (5) Piet GJ et al; Studies Env Sci 17: 557-64 (1981) (6) Wakeham SG et al; Environ Sci Technol 17: 611-7 (1983) (7) Hutchins SR et al; Environ Toxicol Chem 2: 195-216 (1983)
3. A Koc of 238 was calculated(2,SRC) based on a reported Kom of 137.7 in a peaty soil(1). Based on a reported log Kow

of 3.40(3), a Koc of 1,685 was estimated(2,SRC). Based on the reported and estimated Koc's, tetrachloroethylene will be expected to exhibit low to medium mobility in soil(4) and therefore may leach slowly to the groundwater(SRC). **PEER REVIEWED** [(1) Friesel P et al; Fresenius Z Anal Chem 319: 160-4 (1984) (2) Lyman WJ et al; Handbook of Chem Property Estimation Methods NY: McGraw-Hill p. 4-2 to 4-9 (1982) (3) Hansch C, Leo AJ; Medchem Project Issue No.26 Claremont, CA: Pomona College (1985) (4) Swann RL et al; Res Rev 85: 17-28 (1983)

Volatilization from Water/Soil:

1. Tetrachloroethylene will evaporate rapidly from water based on estimates of half-life for the evaporation from water which range from fractions of an hour to several hours in laboratory experiments(1-4). Two values of the ratio of the volatilization rate constant relative to the rearation rate of oxygen are 0.52(4) and 0.61(5). Using representative oxygen reaeration rates for various bodies of water, the half-lives for evaporation are as follows: pond 5-12 days; river 3 hr-7 days; lake 3.6-14 days(4,SRC). Measured volatilization half-lives in a mesocosm simulating Narraganset Bay, RI were 11 days in winter, 25 days in spring, and 14 days in summer(6). **PEER REVIEWED** [(1) Dilling WL; Environ Sci Technol 11: 405-9 (1977) (2) Chiou CT et al; Environ Inter 3: 231-6 (1980) (3) Smith JH et al; Environ Sci Technol 14: 1332-7 (1980) (4) Lyman WL et al; Handbook of Chemical Property Estimation Methods NY: McGraw-Hill p. 15-35 (1981) (5) Roberts PV, Dandliker PG; Environ Sci Technol 17: 484-9 (1983) (6) Wakeham SG; Environ Sci Technol 17: 611-7 (1983)
2. Due to its high vapor pressure (18.47 mm Hg at 25 deg C(1)) and low adsorption to soil, volatilization of tetrachloroethylene from dry soil should be rapid(SRC). **PEER REVIEWED** [(1) Riddick JA et al; Organic Solvents: Physical Properties and Methods of Purification. 4th. Wiley-Interscience pp. 1325 (1986)

Environmental Concentrations

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SOURCES OF TOXIC COMPOUNDS IN HOUSEHOLD WASTEWATER

by

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Products

In Table 1 each of the major categories have been divided into basic products and even more detailed specific products. Although all 13 categories have been listed as typical consumer products, only a few are actually used on a routine or daily basis around the house.

Cleaners

This category of household products is used daily or as a minimum several times per week. Products normally used on a daily basis include: denture cleaner, dishwashing detergents, diaper cleaners, disinfectants, and porcelain cleaners. The products used less frequently are: metal cleaners, toilet bowl cleaner, drain pipe cleaner, general cleaner, paint cleaner-remover, rug and upholstery cleaner, sewer, cesspool, septic tank cleaner and stove and oven cleaner.

Cosmetics

The category including all types of cosmetics and personal products is the highest daily contributor of consumer products to the disposal system. Facial make-up and related products are disposed daily. Several products used in bath and shower including soap, shampoo, antiperspirant, and cologne, are used daily. Although these cosmetics are used daily, the concentration entering the wastewater is very low. Hair preparations such as hair dyes, tints, sets, and permanents are not used daily but represent a high concentration when used.

Deodorizers

Deodorizing products are used frequently in the home, but in most cases they do not become part of the wastewater flow. Aerosols or airborne deodorants do not enter the wastewater. Bathroom deodorants can enter the waste stream with every toilet flush, since some deodorant-disinfectant products are constantly dispensed in the tank or are hung inside the toilet rim.

Disinfectants

Household disinfectant products are likely to be used frequently or even daily. Many of the disinfectants are sprayed in the bathroom into or around the tub, sink, or toilet. The disinfectant becomes part of the wastewater flow only when the unit is used or rinsed out.

House and Garden Pesticides

Pesticides may enter the wastewater by indirect transport or directly. Fruits and vegetables commonly have pesticides sprayed on them to avoid damage by insects. The pesticide becomes part of the waste stream as these foods are washed in the kitchen sink or ground up in the garbage disposal. Pesticides are also commonly placed around or in basement drains or utility sinks to kill various insects and mice. Occasionally the pesticide used near sinks and drains is washed into the wastewater disposal system. Indirectly pesticides and insecticides are washed from clothes and become part of the laundry waste. The concentration level of pesticides or insecticides is undoubtedly very low in this case and possibly not detectable with present analytical methods.

Laundry Waste

Laundry products are used frequently but not daily. Several studies (13), (14) and (15), have characterized the volume of waste from clothes washing. Daily variations of clothes washing flows are significantly higher on Monday but throughout the week remain nearly constant (~ 40l/cap/day). Toxic compounds present in the laundry products will obviously be at the highest level on washday but may exhibit a rather constant concentration throughout the week.

Medical Ointments

These products are not used daily but do have rather frequent use. Foot powders and skin creams will probably occur in the wastewater seasonally as outdoor activity increases or decreases, depending on the local climate.

Paint Products

Paint and other painting products may only be wasted into the disposal system three or four times per year from a single home. However, the volume of paint products discharged is likely to be quite high compared to other products wasted on a daily basis. As much as 2-3 liters of paint, paint remover, thinner, or brush cleaner may be poured down the drain in one day's painting session. There are several types of paint normally used around the house. Antialgal and anticorrosion paints are used outside the house or in damp areas.

Photographic Products

Printing pictures is a rather popular hobby for many Americans. Most hobbyists do not recycle chemicals but usually pour spent solutions into the wastewater. The frequency of wastage is sporatic but large volumes are placed in the disposal system.

Polish

The polish category contains a broad spectrum of products. Shoe polish, furniture polish, floor wax, and various metal polishes are disposed in the wastewater system at least once per week.

Preservatives

Chemicals used as preservatives are not likely to enter the wastewater system regularly. Brush, canvas, floor, wood and waterproofing chemicals are wasted in large volumes and highly concentrated when disposal does occur. Preservatives for food and shampoo (used daily) will enter the disposal system in very low concentration.

Soap

This product is used frequently each day and may represent a fairly high concentration of toxic compounds depending on the type of soap used. Disinfectant soaps and acne soaps contain chemicals on the toxic list. Normal face, hand, and body soaps contain toxic compounds which are in the perfume.

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TABLE 2

PRODUCTS AND USES OF PRIORITY POLLUTANTS

	USES	PRODUCTS
1. Acenaphthene		
	manufacture of insecticides, fungicides, dyes, plastics	N.P.
2. Acrolein		
	intermediate for chemical manufacturing, food products	fungicides, trace concentrates in modified starch
3. Acrylonitrile		
	chemical manufacturing	N.P.
4. Benzene		
	organic chemicals, solvents	fabric adhesives, antiperspirants, deodorants, detergents, oven cleaners, paint brush cleaner, dandruff remover and shampoo, tar remover, eczema and psoriasis remedies, solvents and thinners
5. Benzidine		
	manufacture of chemicals manufacture of rubber manufacture of dyes	N.P.
6. Carbon Tetrachloride		
	manufacture of chlorinated hydrocarbons, solvents, dry cleaning	household liquid degreaser, garden pesticides
7. Chlorobenzene		
	manufacture of chemicals, solvents	household liquid degreaser
8. 1,2,4-Trichlorobenzene		
	manufacture of chemicals, solvents, heat transfer	heat transfer lubricant

(continued)

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TABLE 2 (CONTINUED)

	USES	PRODUCTS
9.	Hexachlorobenzene	
	fungicide, preservatives manufacture of aromatic fluorocarbons	fungicide for wood preserving
10.	1,2-Dichloroethane	
	solvents	rug and upholstery cleaners, tar removers, wax removers
11.	1,1,1-Trichloroethane	
	solvents, manufacture of pesticides	drain and pipe cleaners, oven cleaners, shoe polish, household degreasers, deodorizers, leather dyes, photographic supplies
12.	Hexachloroethane	
	insecticides	moth repellant
13.	1,1 Dichloroethane	
	solvent	degreasers
14.	1,1,2-Trichloroethane	
	solvent	waxes, cleaning compounds, drain and pipe cleaner, shoe polish, deodorizer, dyes, photographic products
15.	1,1,2,2-Tetrachloroethane	
	solvent, fumigant	garden sprays
16.	Chloroethane	
	solvent	waxes, cleaners
17.	Bis (chloromethyl) Ether	
	manufacture of pesticides industrial	N.P.

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
26.	1,3-Dichlorobenzene	
	solvent, insecticides, disinfectants, preservatives	waxes, shoe polish, canvas preservative, deodorizer, upholstery and rug cleaner, household disinfectants
27.	1,4-Dichlorobenzene	
	insecticides, solvents cleaners, dyes, disinfectants	fruit spray (apples, peaches, vegetables, grapes, berries, citrus, mushrooms, nuts) household cleaners, bathroom deodorants, toilet bowl cleaner, spray household deodorants, diaper cleaner, fabric dyes, upholstery and rug cleaner
28.	3,3-Dichlorobenzidine	
	manufacture of dyes	N.P.
29.	1,1-Dichloroethylene	
	plasticizer	N.P.
30.	1,2-Dichloroethylene	
	solvent, cleaners	contact cement, perfumes, make-up (perfume), upholstery and rug cleaner
31.	2,4-Dichlorophenol	
	germacides, insecticides, preservatives, cosmetic	wood preservatives, moth repellant, insect repellant, household cleaners, deodorants, antiperspirants
32.	1,2-Dichloropropane	
	solvent, cleaners	tar removers, wax, degreaser, scouring compounds
33.	1,3-Dichloropropylene	
	manufacture of fumigants, solvent cleaners	scouring compound, wax, tar remover

(continued)

TABLE 2 (CONTINUED)

	USES	PRODUCTS
77.	Acenaphthylene	
	manufacture dyes, manufacture plastics, manufacture pesticides	no direct use
78.	Anthracene	
	coal tar ingredient, manufacture dyes	same as other PAH's
79.	Benzo (Ghi) Perylene (1,12-Benzoperylene)	
	same as other PAH	same as other PAH
80.	Fluorene	
	same as other PAH	same as other PAH
81.	Phenanthrene	
	same as other PAH	same as other PAH
82.	Dibenzo (a,h) Anthracene	
	same as other PAH	same as other PAH
83.	Indeno (1,2,3-cd) Pyrene	
	same as other PAH	same as other PAH
84.	Pyrene	
	same as other PAH	same as other PAH
85.	Tetrachloroethylene (Perchloroethylene)	
	solvent, pesticide	contact cement, degreasers, wax removers, shoe dye, shoe polish, garden (vegetable) pesticide, upholstery and rug cleaner
86.	Toluene	
	solvents, cleaning, cosmetics, manufacture of saccharin	contact cement, detergents, paint brush cleaner, perfume, degreasers, dandruff shampoo

(continued)

TABLE 2 (CONTINUED)

USES	PRODUCTS
87. Trichloroethylene	
solvent	upholstery, cleaner, degreaser, tar remover, waxes
88. Vinyl Chloride (Chloroethylene)	
PVC resins manufacture	PVC pipe, PVC pipe glue, contact cement
89. Aldrin	
insecticide, pesticide	used on bush and vine fruits, citrus fruits, cucurbits, nuts, pome fruits, stone fruits, tropical fruits, vegetables, animal bait
90. Dieldrin	
insecticides	used on bush and vine fruits, citrus fruits, cucurbits, nuts, pome fruits, stone fruits, tropical fruits, vegetables, animal bait
91. Chlordane	
insecticides	used on bush and vine fruits, citrus fruits, cucurbits, nuts, pome fruits, stone fruits, tropical fruits, vegetables, animal bait
92. 4,4' DDT	
not currently used by homeowners--industrial only	insect repellants
93. 4,4' DDE	
impurity in DDT	
94. 4,4' DDD	
impurity in DDT	
95. Endosulfan-Alpha	
pesticides	acaricides, industrial insecticide

(continued)

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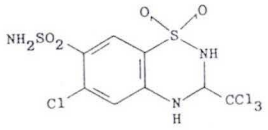
Faintly bitter crystals producing transient numbness of the tongue. mp 147-150°. Sol in 7 parts water, in alcohol; insol in ether, benzene. The aq soln is neutral to litmus. Aq solns are stable and may be sterilized by brief boiling. LD_{50} i.p. in mice: 70 mg/kg, Dawes, *Brit. J. Pharmacol. Chemother.* **1**, 90 (1946).

THERAP CAT: Local anesthetic.

THERAP CAT (VET): Topical anesthetic.

9015. Tetrachlormethiazide. *6-Chloro-3,4-dihydro-3-trichloromethyl-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide;* 6-chloro-3,4-dihydro-7-sulfamoyl-3-trichloromethyl-2*H*-1,2,4-benzothiadiazine 1,1-dioxide; 3-trichloromethylhydrochlorothiazide; teclothiazide; PS 207; K 33; Depleil. $C_8H_7Cl_4N_3O_4S_2$; mol wt 415.13. C 23.15%, H 1.70%, Cl 34.17%, N 10.12%, O 15.42%, S 15.45%. Prepn: Close *et al., J. Am. Chem. Soc.* **82**, 1132 (1960); Novello *et al., J. Org. Chem.* **25**, 970 (1960).



Crystals, mp 300-303° (Close); mp 287° (Novello).

THERAP CAT: Diuretic.

9016. Tetrachloroethane. *1,1,2,2-Tetrachloroethane; sym*-tetrachloroethane; acetylene tetrachloride; Cellon; Bonoform. $C_2H_2Cl_4$; mol wt 167.86. C 14.31%, H 1.20%, Cl 84.49%. $Cl_2CHCHCl_2$. Manuf by catalytic addition of chlorine to acetylene: Peters, Neumann, *Angew. Chem.* **45**, 261 (1932); by chlorination of ethylene: Pye, U.S. pat. **2,752,402** (1956 to Dow); by catalytic chlorination of ethane: Joseph, U.S. pat. **2,752,401** (1956 to Dow); by chlorination of 1,2-dichloroethane: Conrad, U.S. pat. **2,725,412** (1955 to Ethyl Corp.); Fox, U.S. pat. **2,846,484** (1958 to Monsanto). Toxicity: E. Browning, *Toxicity and Metabolism of Industrial Solvents* (Elsevier, New York, 1965) pp 220-229.

Nonflammable, heavy, mobile liquid. Sweetish, suffocating, chloroform-like odor. d_4^{25} 1.58658. mp −44°. bp_{760} 146.5°. n_D^{20} 1.49419. Very sparingly sol in water. At 25° one gram dissolves in 350 ml H_2O. Misc with methanol, ethanol, benzene, ether, petr ether, carbon tetrachloride, chloroform, carbon disulfide, dimethylformamide, oils. Has the highest solvent power of the chlorinated hydrocarbons. LD_{50} orally in rats: 0.20 ml/kg, H. F. Smyth *et al., Am. Ind. Hyg. Assoc. J.* **30**, 470 (1969).

USE: Nonflammable solvent for fats, oils, waxes, resins, cellulose acetate, rubber, copal, phosphorus, sulfur. As solvent in certain types of Friedel-Crafts reactions or phthalic anhydride condensations. In the manuf of paint, varnish, and rust removers. In soil sterilization and weed killer and insecticide formulations. In the determination of theobromine in cacao. As immersion fluid in crystallography. In the biological laboratory to produce pathological changes in gastrointestinal tract, liver, and kidneys. Intermediate in the manuf of trichloroethylene and other chlorinated hydrocarbons having two carbon atoms. *Caution:* Powerful narcotic; liver poison. For symptoms *see* Carbon Tetrachloride.

9017. Tetrachloroethylene. Perchloroethylene; ethylene tetrachloride; tetrachlorethylene; Nema; Tetracap; Tetropil; Perclene; Ankilostin; Didakene. C_2Cl_4; mol wt 165.85. C 14.48%, Cl 85.52%. $Cl_2C{=}CCl_2$. Prepd by Faraday in 1821. Manuf by catalytic oxidation of 1,1,2,2-tetrachloroethane: Ellsworth, Vancamp, U.S. pat. **2,951,103** (1960 to Columbia-Southern Chem.); Feathers, Rogerson, U.S. pat. **3,040,109** (1962 to Pittsburgh Plate Glass); by catalytic chlorination of acetylene: Thermet, Parvi, U.S. pat. **2,938,-931** (1960 to Société d'électrochimie, d'électrométallurgie et des aciéries électriques d'Ugine). Review of mfg processes: Faith, Keyes & Clark's *Industrial Chemicals,* F. A. Lowenheim, M. K. Moran, Eds. (Wiley-Interscience, New York, 4th ed., 1975) pp 604-611.

Colorless, nonflammable liq; ethereal odor; d_4^{15} 1.6311; d_4^{20} 1.6230. bp 121°. Solidif about −22°. n_D^{20} 1.5055: Mumford, Phillips, *J. Chem. Soc.* **1950**, 75. Sol in about 10,000 vol water; misc with alcohol, ether, chloroform, benzene. LD_{50} orally in mice: 8.85 g/kg, Dybing, *Acta Pharmacol. Toxicol.* **2**, 223 (1946). Lethal concn for mice in air: 5925 ppm, Lazarew, *Arch. Exp. Pathol. Pharmacol.* **141**, 19 (1929).

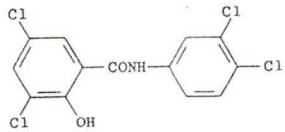
Human Toxicity: Narcotic in high concns. Defatting action on skin can lead to dermatitis.

USE: Dry cleaning; degreasing metals; solvent.

THERAP CAT: Anthelmintic (hookworms and some trematodes).

THERAP CAT (VET): Anthelmintic.

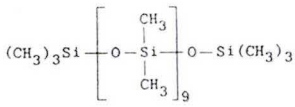
9018. 3,3′,4′,5-Tetrachlorosalicylanilide. *3,5-Dichloro-N-(3,4-dichlorophenyl)-2-hydroxybenzamide;* Irgasan BS200. $C_{13}H_7Cl_4NO_2$; mol wt 351.03. C 44.48%, H 2.01%, Cl 40.40%, N 3.99%, O 9.12%. Prepn of polyhalosalicylanilides: Bindler, Model, U.S. pat. **2,703,332** (1955 to Geigy). Bacteriostat in the manuf of thermoplastic articles: Teller, U.S. pat. **3,005,720** (1961 to Weco Products).



Crystals, mp 161°. Fluoresces under ultraviolet light. Practically insol in water. Sol in alkaline aq solns and in solns of wetting agents. Sol in many organic solvents.

USE: Bacteriostat in formulations of surgical soaps, laundry soaps, rinses, polishes, shampoos, deodorants. Also as preservative in textile finishes, certain petroleum products, cellulose esters, cutting oils, coolants. Banned by FDA from use in cosmetics.

9019. Tetracosamethylhendecasiloxane. *Tetracosamethylundecasiloxane.* $C_{24}H_{72}O_{10}Si_{11}$; mol wt 829.83. C 34.75%, H 8.75%, O 19.28%, Si 37.21%. Prepd by reaction of hexamethyldisiloxane with octamethylcyclotetrasiloxane and sulfuric acid: Patnode, Wilcock, *J. Am. Chem. Soc.* **68**, 362 (1946); by cohydrolysis of ethoxytrimethylsilane and diethoxydimethylsilane: Hyde, U.S. pat. **2,457,677** (1948 to Corning Glass).



Liquid; $bp_{4.7}$ 201°; $bp_{0.5}$ 152°; d_4^{25} 0.9247; n_D^{20} 1.3994. Flash pt 188.33°. Stable. Inert to most chemical reagents and rubber. Maintains about the same viscosity over a wide temperature range. Sol in benzene and the lighter hydrocarbons; slightly sol in alcohol and the heavy hydrocarbons.

USE: As a basis for silicone oils or fluids designed to withstand extremes of temperature; as a foam suppressant in petroleum lubricating oil.

9020. Tetracyanoethylene. *Ethenetetracarbonitrile;* TCNE. C_6N_4; mol wt 128.10. C 56.26%, N 43.74%. $(NC)_2C{=}C(CN)_2$. Prepd by debromination of dibromomalononitrile with copper powder in boiling benzene: Cairns *et al., J. Am. Chem. Soc.* **80**, 2775 (1958).

Crystals, mp 200°. Begins to sublime at 120°.

USE: In the synthesis of spiro compds, in modified Diels-Alder reactions, as aromatizing agent: Longone, Smith, *Tetrahedron Letters* **1962**, 205.

9021. Tetracycline. *4-(Dimethylamino)-1,4,4a,5,5a,6,-11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,-11-dioxo-2-naphthacenecarboxamide;* deschlorobiomycin; tsiklomitsin; Abricycline; Achromycin; Agromicina; Ambramicina; Ambramycin; Bio-Tetra; Bristaciclina; Cefracycline suspension; Criseociclina; Cyclomycin; Democracin; Hostacyclin; Omegamycin; Panmycin; Polycycline; Purocyclina; Sanclomycine; Steclin; Tetrabon; Tetracyn; Tetradecin. $C_{22}H_{24}N_2O_8$; mol wt 444.43. C 59.45%, H 5.44%, N 6.30%, O 28.80%. Prepn: Boothe *et al., J. Am. Chem. Soc.* **75**, 4621 (1953); Conover *et al., ibid.* 4622; Conover, U.S. pat. **2,699,-**

9450. 1,1,2-Trichloroethane. Vinyl trichloride. $C_2H_3Cl_3$; mol wt 133.42. C 18.00%, H 2.27%, Cl 79.73%. CH_2Cl-$CHCl_2$. Prepd by catalytic chlorination of ethane or ethylene: Joseph, U.S. pat. **2,752,401** and Pye, U.S. pat. **2,752,-402** (both 1956 to Dow); Reynolds, U.S. pat. **2,783,286** (1957 to Olin Mathieson).

Nonflammable liquid; pleasant odor; d_4^{20} 1.4416; solidif −35°; bp 113-114°; n_D^{20} 1.4711. Insol in water; misc with alcohol, ether, and many other organic liquids. LD_{50} orally in rats: 0.58 ml/kg, H. F. Smyth *et al., Am. Ind. Hyg. Assoc. J.* **30,** 470 (1969).

USE: Solvent for fats, waxes, natural resins, alkaloids. *Caution:* Irritating to eyes, mucous membranes, and, in high concns, narcotic.

9451. 2,2,2-Trichloroethanol. Trichloroethyl alcohol. $C_2H_3Cl_3O$; mol wt 149.42. C 16.08%, H 2.02%, Cl 71.19%, O 10.71%. CCl_3CH_2OH. Prepd by reduction of the corresponding ester, acid chloride, or acid with lithium aluminum hydride: Sroog *et al., J. Am. Chem. Soc.* **71,** 1710 (1949). Manufacture by reduction of chloral hydrate with an amine borane: Chamberlain, Schechter, U.S. pat. **2,898,379** (1959 to Callery Chem.).

Hygroscopic liquid, ethereal odor. At low temps it crystallizes in rhombic tablets. mp at 18°; bp 151-153°; d_{20}^{20} 1.55. Sol in about 12 parts water; miscible with alcohol or ether. pH of aq soln is 5-6, but on prolonged contact with water some free acid is formed. *Keep well closed and protected from light.* LD_{50} orally in rats: 600 mg/kg, *Handbook of Toxicology* **vol. 1,** W. S. Spector, Ed. (Saunders, Philadelphia, 1955) pp 302-303.

THERAP CAT: Hypnotic, anesthetic.

9452. Trichloroethylene. *Trichloroethene;* ethinyl trichloride; Tri-Clene; Trielene; Trilene; Trichloran; Trichloren; Algylen; Trimar; Triline; Tri; Trethylene; Westrosol; Chlorylen; Gemalgene; Germalgene. C_2HCl_3; mol wt 131.40. C 18.28%, H 0.77%, Cl 80.95%. $CCl_2{=}CHCl$. Usually prepd from *sym*-tetrachloroethane by elimination of HCl (by boiling with lime): **Ger.** pat. **171,900.** By passing tetrachloroethane vapor over $CaCl_2$ catalyst at 300°: **Ger.** pat. **263,457;** without catalyst at 450-470°: **Brit.** pat. **575,-530** (1946 to du Pont). Review of mfg processes: S. A. Miller, *Chem. Process Eng.* **47,** 268 (1966); Faith, Keyes & Clark's *Industrial Chemicals,* F. A. Lowenheim, M. K. Moran, Eds. (Wiley-Interscience, New York, 4th ed., 1975) pp 844-848. Toxicity and metabolism: E. Browning, *Toxicity and Metabolism of Industrial Solvents* (Elsevier, New York, 1965) pp 189-212.

Nonflammable, mobile liquid. Characteristic odor resembling that of chloroform. d_4^4 1.4904; d_4^{15} 1.4695; d_4^{20} 1.4649. Vapor density: 4.53 (air = 1.00). Solidifies at −84.8°. bp_{760} 86.7°; bp_{400} 67.0°; bp_{200} 48.0°; bp_{100} 31.4°; bp_{60} 20.0°; bp_{20} −1.0°; bp_{10} −12.4°; bp_5 −22.8°; $bp_{1.0}$ −43.8°; n_D^{17} 1.47914; n_D^{25} 1.45560. Practically insol in water; misc with ether, alcohol, chloroform. Dissolves most fixed and volatile oils. Slowly dec (with formn of HCl) by light in the presence of moisture. Trichloroethylene for medicinal purposes may contain some thymol or ammonium carbonate (not more than 20 mg/100 ml) as a stabilizer. Industrial grades of trichloroethylene may contain other stabilizers such as triethanolamine stearate and cresol. LD_{50} orally in rats: 4.92 ml/kg; LC (4 hrs) in rats: 8000 ppm, Smyth *et al., Am. Ind. Hyg. Assoc. J.* **30,** 470 (1969).

Caution: Use with adequate ventilation. Preserve trichloroethylene in sealed, light-resistant ampuls or in frangible, light-resistant glass tubes. Avoid prolonged exposure of the product to excessive heat. It must be dispensed in the unopened glass container in which it was placed by the manufacturer.

Human Toxicity: Moderate exposures can cause symptoms similar to alcohol inebriation. Higher concns can have narcotic effect. Deaths occurring after heavy exposure have been attributed to ventricular fibrillation. Liver injury is not definitely established in occupational exposures. Found to induce hepatocellular carcinomas in National Cancer Institute tests on mice: *Chem. & Eng. News* **54,** 4 (Apr. 5, 1976).

USE: Solvent for fats, waxes, resins, oils, rubber, paints, and varnishes. Solvent for cellulose esters and ethers. Used for solvent extraction in many industries. In degreasing, in dry cleaning. In the manuf of organic chemicals, pharmaceuticals, such as chloroacetic acid.

THERAP CAT: Analgesic (inhalation).

THERAP CAT (VET): Inhalant anesthetic.

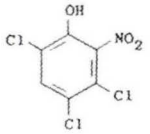
9453. Trichlorofluoromethane. Trichloromonofluoromethane; fluorotrichloromethane; Freon 11; Frigen 11; Arcton 9. CCl_3F; mol wt 137.38. C 8.74%, Cl 77.43%, F 13.83%. Prepn: Henne, *Organic Reactions* **2,** 64 (1944). Manuf: Faith, Keyes & Clark's *Industrial Chemicals,* F. A. Lowenheim, M. K. Moran, Eds. (Wiley-Interscience, New York, 4th ed., 1975) pp 325-330.

Liquid at temps below 23.7°. Faint ethereal odor. Nonflammable. $d_4^{17.2}$ 1.494; d_{gas}^{25} 5.04 (air = 1). mp −111°. bp_{760} 23.7°; bp_{400} +6.8°; bp_{200} −9.1°; bp_{100} −23.0°; bp_{60} −32.3°; bp_{40} −39.0°; bp_{20} −49.7°; bp_{10} −59.0°; bp_5 −67.6°; $bp_{1.0}$ −84.3°. Crit temp 198°; crit press. 43.2 atm (635 lb/sq inch, abs). $n_D^{18.5}$ 1.3865. Dipole moment 0.45. Practically insol in water. Sol in alcohol, ether, other, organic solvents. Less toxic than carbon dioxide, but decomposes into harmful materials by flames or high heat.

USE: In refrigeration machinery requiring a refrigerant effective at negative pressures. As aerosol propellant. *Caution:* May be narcotic in high concentrations.

Note: Consult latest Government regulations on use as aerosol propellant.

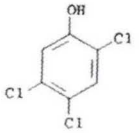
9454. 3,4,6-Trichloro-2-nitrophenol. 2-Nitro-3,4,6-trichlorophenol; 2,4,5-trichloro-6-nitrophenol; Dowlap. $C_6H_2Cl_3NO_3$; mol wt 242.44. C 29.72%, H 0.83%, Cl 43.87%, N 5.78%, O 19.80%. Prepd by dissolving 2,4,5-trichlorophenol in glacial acetic acid and treating with concd nitric acid: Kohn, Fink, *Monatsh.* **58,** 73 (1931); Harrison *et al., J. Chem. Soc.* **1943,** 235.



Pale yellow crystals from petr ether, mp 92-93°.

USE: To combat the sea lamprey, an eel-like fish which attacks trout, especially in the Great Lakes region.

9455. 2,4,5-Trichlorophenol. Collunosol; Dowicide 2. $C_6H_3Cl_3O$; mol wt 197.46. C 36.49%, H 1.53%, O 8.10%, Cl 53.87%. Prepd by treating 1,2,4,5-tetrachlorobenzene with methanolic NaOH in autoclave at 160° for several hrs: Harrison *et al., J. Chem. Soc.* **1943,** 235; Agfa, **Ger.** pat. **411,052** (1925); *Chem. Zentr.* **1925, I,** 2411.



Needles from alcohol or ligroin. Strong phenolic odor. mp 67°. Sublimes. bp_{746} 248°. bp_{760} 253°. Weak monobasic acid. K at 25° = 4.3 × 10^{-8}. Soly (g/100 g of solvent at 25°): acetone 615; benzene 163; carbon tetrachloride 51; ether 525; denatured alcohol formula 30, 525; methanol 615; liquid petrolatum (at 50°) 56; soybean oil 79; toluene 122; water <0.2. LD_{50} orally in rats: 0.82 g/kg, Deichmann, *Fed. Proc.* **2,** 76 (1943).

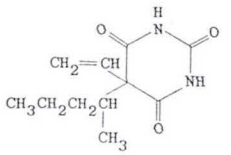
Sodium salt sesquihydrate, *Dowicide B.* Flakes [prepd according to U.S. pat. **1,991,329** (1935 to Dow)]. Solubility (g/100 g solvent at 25°); acetone 163; denatured alcohol formula 30, 186; ethylene glycol 33; methanol 241; water 113. pH of satd aq soln 11.0-13.0.

Complex with triisobutyl phosphate, $C_{18}H_{30}ClO_5P$, *Trichlorex.* Prepn: Bouillenne-Wallrand *et al.,* Fr. pat. **M149** (1961 to Pechiney). Liquid. $bp_{0.01}$ 94-103°.

USE: Fungicide, bactericide.

9456. 2,4,6-Trichlorophenol. Dowicide 2S; Omal. $C_6H_3Cl_3O$; mol wt 197.46. C 36.49%, O 8.10%, H 1.53%, Cl

bituric acid; 5-vinyl-5-(1-methylbutyl)barbituric acid; butyvinal; Speda; Optanox. $C_{11}H_{16}N_2O_3$; mol wt 224.25. C 58.91%, H 7.19%, N 12.49%, O 21.40%. Prepn: Seefelder, *Festschr. Carl Wurster* **1960**, 71, *C.A.* **56**, 9928d (1962).



Crystals, mp 90-91.5°.

Caution: Abuse may lead to habituation or addiction.

THERAP CAT: Sedative, hypnotic.

9796. Vinyl Chloride. *Chloroethylene.* C_2H_3Cl; mol wt 62.50. C 38.43%, H 4.84%, Cl 56.73%. $CH_2{=}CHCl$. Prepd from ethylene dichloride and alcoholic potassium: Regnault, *Ann.* **14**, 22 (1835); by halogenation of ethylene: Miller, Jenks, **U.S.** pat. **2,896,000** (1959 to National Distillers and Chemical Corp.). Review of mfg processes: Faith, Keyes & Clark's *Industrial Chemicals*, F. A. Lowenheim, M. K. Moran, Eds. (Wiley-Interscience, New York, 4th ed., 1975) pp 868-873. Comprehensive monograph on toxicity of vinyl chloride: *Ann. N.Y. Acad. Sci.* **246**, 1-337 (1975). Review of carcinogenicity studies: *IARC Monographs* **19**, 377-437 (1979).

Colorless gas; liquefies in a freezing mixture. Polymerizes in light or in presence of catalyst. mp −153.8°; bp −13.37°. d_4^{20} 0.9106; n_D^{20} 1.3700. Vapor press. at 20°: 2530 mm Hg. *Flammable!* Flash pt −78°C (closed cup). Sol in alc, ether, carbon tetrachloride, benzene. Slightly sol in water.

Caution: Causes "vinyl chloride disease". May be narcotic in high concns. Consult latest Government regulations on allowable concentrations in air. If spilled on skin rapid evaporation can cause local frostbite. This substance has been listed as a carcinogen by the EPA: *Second Annual Report on Carcinogens* (NTP 81-43, Dec. 1981) pp 238-240.

USE: In the plastics industry; as refrigerant; in organic syntheses.

9797. Vinyl Ether. *1,1'-Oxybisethene;* divinyl ether; divinyl oxide; ethenyloxyethene. C_4H_6O; mol wt 70.09. C 68.54%, H 8.63%, O 22.83%. $CH_2{=}CHOCH{=}CH_2$. Prepn: Major, Ruigh, **U.S.** pat. **2,021,872** (1935 to Merck & Co.); Mittag, Smidt, **U.S.** pat. **2,832,807** (1958 to Consortium für electrochem. Ind. GmbH).

Very volatile, flammable liq; characteristic odor. Dec on exposure to light or to acid fumes, forming acetaldehyde, and polymerizes to a solid glass-like mass. d_{20}^{20} 0.774; d_4^{20} 0.773. bp 28.4°. n_D^{20} 1.3989. Crit temp 183° (calc). Critical press. about 30 atm. Specific heat about 0.53 cal/g. Flash point (closed cup) < −30° (< −22°F). Explosives limits (% by vol in air), lower: 1.7, upper: 27.0. Autoignition temp 360° (680°F). 0.53 g dissolves in 100 g water at 37°. Oil-water soly coefficient at 37°: 41. Miscible with alcohol, ether, oils and other organic solvents. *Keep protected from light and acid fumes, in a cool place, and away from an open flame.* Lethal concn for mice in air: 51,233 ppm.

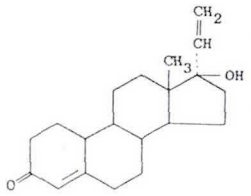
THERAP CAT: Anesthetic (inhalation).

9798. Vinylidene Chloride. *1,1-Dichloroethene; 1,1-dichloroethylene; asym*-dichloroethylene. $C_2H_2Cl_2$; mol wt 96.95. C 24.78%, H 2.08%, Cl 73.14%. $CH_2{=}CCl_2$. Prepn from ethylene chloride: Reilly, **U.S.** pat. **2,140,548** (1938 to Dow). By dehydrochlorination of 1,1,2-trichloroethane: Conrad, Gould, **U.S.** pat. **2,989,570** (1961 to Ethyl Corp.).

Liquid. Mild, sweet odor resembling that of chloroform. d_4^{20} 1.2129. mp −122.5°. bp_{760} 31.7°. n_D^{20} 1.4249. Flash pt −15°. Practically insol in water. Sol in organic solvents. At temps above 0° and especially in the presence of oxygen or other suitable catalysts polymerizes to a plastic. Several inhibitors to preserve the monomer have been invented. Uncontrolled polymerization may lead to explosive reaction products with oxygen or ozone: Reinhardt, *Chem. Eng. News* **25**, 2136 (1947).

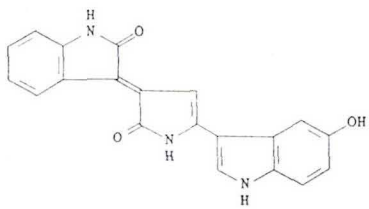
USE: Intermediate in the production of "vinylidene polymer plastics" such as *Saran* and *Velon*. *Caution:* Irritant to skin, mucous membranes; narcotic in high concentrations; has caused liver, kidney injury in exptl animals: Irish in *Industrial Hygiene and Toxicology* **vol. 2**, F. A. Patty, Ed. (Interscience, New York, 2nd ed., 1962) pp 1305-1307; Prendergast *et al., Toxicol. Appl. Pharmacol.* **10**, 270 (1967).

9799. 17α-Vinyl-19-nortestosterone. *17-Hydroxy-19-nor-17α-pregna-4,20-dien-3-one;* 17-hydroxy-17α-vinyl-4-estren-3-one; 17-hydroxy-13-methyl-17α-vinyl-1,2,3,6,7,8,9,10,11,12,13,14,16,17-tetradecahydro-15*H*-cyclopenta[*a*]phenanthren-3-one; Nor-Progestelea; norvinisterone. $C_{20}H_{28}O_2$; mol wt 300.42. C 79.95%, H 9.39%, O 10.65%. Prepn: Colton, **U.S.** pats. **2,655,518; 2,802,015** (to Searle).



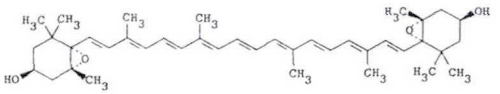
Crystals from ethyl acetate + petr ether, mp 169-171°. $[\alpha]_D$ +36°.

9800. Violacein. *3-[1,2-Dihydro-5-(5-hydroxy-1H-indol-3-yl)-2-oxo-3H-pyrrol-3-ylidene]-1,3-dihydro-2H-indol-2-one; 3-[2-(5-hydroxyindol-3-yl)-5-oxo-2-pyrrolin-4-ylidene]-2-indolinone;* 3-[2-(5-hydroxyindol-3-yl)-5-oxopyrrolin-4-ylidene]oxindole; 5-(5-hydroxy-3-indolyl)-3-(3-oxindolylidene)-2-oxopyrroline. $C_{20}H_{13}N_3O_3$; mol wt 343.33. C 69.96%, H 3.82%, N 12.24%, O 13.98%. Pigment isolated from *Chromobacterium violaceum (Bacillus violaceus):* Tobie, *J. Bact.* **29**, 223 (1935); Strong, *Science* **100**, 287 (1944); Ballantine *et al., J. Chem. Soc.* **1958**, 755. Structure and synthesis: Ballantine *et al., ibid.* **1960**, 2292. *Review:* DeMoss in *Antibiotics* **vol. 2**, D. Gottlieb, P. D. Shaw, Eds. (Springer, New York, 1967).



Purplish-black needles, prisms. Practically insol in water; slightly sol in alcohol; moderately sol in dioxane.

9801. Violaxanthin. *5,6:5',6'-Diepoxy-5,5',6,6'-tetrahydro-β,β-carotene-3,3'-diol;* zeaxanthin diepoxide. $C_{40}H_{56}O_4$; mol wt 600.85. C 79.95%, H 9.39%, O 10.65%. Widely distributed carotenoid pigment. Formed in plants from zeaxanthin. Isoln from yellow pansies *(Viola tricolor):* Kuhn, Winterstein, *Ber.* **64**, 326 (1931). Structure: Karrer *et al., Helv. Chim. Acta* **14**, 1044 (1931); **16**, 977 (1933); **19**, 1024 (1936); **27**, 1684 (1944). Partial synthesis: Karrer, Jucker, *ibid.* **28**, 300 (1945). Abs config: Bartlett *et al., J. Chem. Soc. (C)* **1969**, 2527. Isoln from *Viola tricolor* and configuration of the 15-*cis*-isomer: P. Molnar, J. Szabolcs, *Phytochemistry* **19**, 623 (1980).



Orange prisms from methanol, reddish-brown acicular crystals from CS_2. mp 200°. $[\alpha]_{Cd}^{20}$ +35° (c = 0.08 in chloroform). Absorption max (in alc): 471.5, 442.5, 417.5 nm. Sol in alcohol, methanol, carbon disulfide, ether; almost insol in petr ether.

15-*cis*-Isomer, irregular yellow plates from benzene/-

Ref. 26

SITE INSPECTION REPORT

Old Mount Holly Road PCE Site
NCD 986 172 518
Charlotte, Mecklenburg County, North Carolina

SEPTEMBER 1994

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

Prepared by:

Jeanette Stanley
Environmental Chemist

Reviewed by:

Pat DeRosa
CERCLA Branch Head

SITE INSPECTION

Consolidated Warehouse, Inc.
NCD 130 708 126
Charlotte, Mecklenburg County, North Carolina

January 1995

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

Prepared by:

Jeanette Stanley
Environmental Chemist

Reviewed by:

Pat DeRosa
CERCLA Branch Head

PA FORM

OMB Approval Number: 2050-0095
Approved for Use Through: 4/95

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: NC	CERCLIS Number: 986 231 967
	CERCLIS Discovery Date: 7/02/93	

1. General Site Information

Name:		Street Address:			
Tom Sadler Road Wells		2128 Tom Sadler Rd.			
City: Charlotte	State: NC	Zip Code: 28214	County: Mecklenbur	Co. Code: 60	Cong. Dist: 9
Latitude: 37° 17' 24.0" Longitude: 80° 57' 37.0"	Approx. Area of Site: 150 sq feet		Status of Site: Inactive		

2. Owner/Operator Information

Owner:			Operator:		
Garland Mingus			Garland Mingus		
Street Address: 2128 Tom Sadler Rd.			Street Address: 2128 Tom Sadler Rd.		
City: Charlotte			City: Charlotte		
State: NC	Zip Code: 28214	Telephone: (704)392-5643	State: NC	Zip Code: 28214	Telephone:
Type of Ownership: Private			How Initially Identified: Other Well sampling for PCE		

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: NC	CERCLIS Number: 986 231 967
	CERCLIS Discovery Date: 7/02/93	

3. Site Evaluator Information

Name of Evaluator:	Agency/Organization:	Date Prepared:
Jeanette Stanley	NC Superfund Section	7/5

Street Address:	City:	State:
401 Oberlin Rd.	Raleigh	NC

Name of EPA or State Agency Contact:	Telephone:
Ms. Cynthia Gurley	(404) 347-7791

Street Address:	City:	State:
345 Courtland St., N. E.	Atlanta	GA

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: Yes	CERCLIS Recommendation: Lower Priority SI	Signature:
Date:	Date:	Name:
		Position:

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
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	CERCLIS Discovery Date: 7/02/93	

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site:	Site Setting:	Years of Operation:
Residential	Suburban	Beginning Year: 1964 Ending Year: 1994

Type of Site Operations:	
Other: Backyard Commercial Garage	Waste Generated: Onsite
	Waste Deposition Authorized By: Present Owner
	Waste Accessible to the Public Yes
	Distance to Nearest Dwelling, School, or Workplace: 20 Feet

6. Waste Characteristics Information

Source Type	Quantity		Tier
Non-drum containers	3.00e+02	gals	V
Contaminated soil	1.50e+02	sq ft	A

General Types of Waste:
Solvents
Oily Waste

Physical State of Waste as Deposited
Liquid

Tier Legend
C = Constituent W = Wastestream
V = Volume A = Area

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
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7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:
Yes

Type of Ground Water Wells Within 4 Miles:
Municipal
Private

Depth to Shallowest Aquifer:
25 Feet

Karst Terrain/Aquifer Present:
No

Is There a Suspected Release to Ground Water:
Yes

Have Primary Target Drinking Water Wells Been Identified: Yes

Primary Target Population: 39

Nearest Designated Wellhead Protection Area:
None within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - 1/4 Mile	54
>1/4 - 1/2 Mile	40
>1/2 - 1 Mile	137
>1 - 2 Miles	800
>2 - 3 Miles	1756
>3 - 4 Miles	1671
Total	4458

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
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	CERCLIS Discovery Date: 7/02/93	

8. Surface Water Pathway — Part 1 of 4

Type of Surface Water Draining Site and 15 Miles Downstream:	Shortest Overland Distance From Any Source to Surface Water:
Stream River Pond Lake	1500 Feet 0.3 Miles
Is there a Suspected Release to Surface Water: No	Site is Located in: > 500 yr floodplain

8. Surface Water Pathway — Part 2 of 4

Drinking Water Intakes Along the Surface Water Migration Path: Yes

Have Primary Target Drinking Water Intakes Been Identified: No

Secondary Target Drinking Water Intakes:

Name	Water Body/Flow(cfs)	Population Served
Belmont	large stream/river/ >1000-10000	8243
	Total Within 15 Miles:	8243

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
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8. Surface Water Pathway — Part 3 of 4

Fisheries Located Along the Surface Water Migration Path: Yes

Have Primary Target Fisheries Been Identified: No

Secondary Target Fisheries:

Fishery Name	Water Body Type/Flow(cfs)
Long Creek	minimal stream/ <10

8. Surface Water Pathway — Part 4 of 4

Wetlands Located Along the Surface Water Migration Path? (y/n) Yes

Have Primary Target Wetlands Been Identified? (y/n) No

Secondary Target Wetlands:

Water Body/Flow(cfs)	Frontage(mi)
minimal stream/ <10	>1 to 2

Other Sensitive Environments Along the Surface Water Migration Path: No

Have Primary Target Sensitive Environments Been Identified: No

Secondary Target Sensitive Environments:
None

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
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9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination: Yes Total Resident Population: 3	Number of Workers Onsite: None

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination: No

10. Air Pathway

Total Population on or Within:		Is There a Suspected Release to Air: No
Onsite	3	
0 - 1/4 Mile	162	Wetlands Located Within 4 Miles of the Site: Yes
>1/4 - 1/2 Mile	333	
>1/2 - 1 Mile	1734	
>1 - 2 Miles	6376	
>2 - 3 Miles	6458	Other Sensitive Environments Located Within 4 Miles of the Site: No
>3 - 4 Miles	13831	
Total	28897	

Sensitive Environments Within 1/2 Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area(acres)
0 - 1/4	Wetlands (1 to 50 acres)
>1/4 - 1/2	Wetlands (< 1 acre)