533SERBSF10,631

533SERBSF10,631

Site Name (Subject):	THOMASVILLE FURNITURE INDS/LENOIR
Site ID (Document ID):	NCD054290770
Document Name (DocType):	Preliminary Assessment/Site Inspection (PA/SI)
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Description:	Site Inspection Prioritization - References
Date of Document:	2/25/1994
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Section:	SUPERFUND
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Document Category:	FACILITY

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

STATE OF NORTH CAROLINA

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

SITE INSPECTION PRIORITIZATION
References

Thomasville Furniture Industries
Lenoir, Caldwell County, North Carolina
NCD 054 290 770
Reference No. 02808

February 1994

Doug Rumoford, Hydrogeologist
Division of Solid Waste Management
Superfund Section

HYDROGEOLOGY

ENSCI Corporation personnel, during the April, 1991 groundwater sampling event, measured the depth to groundwater from the casing tops (TOC) of the various monitoring wells. This information was coupled with a site survey performed at the TFI facility, for ENSCI Corporation, by Vaughn & Bradshaw Surveying Company in Hickory, North Carolina. The resulting product is a potentiometric surface map of the shallow aquifer below the parking area of the TFI facility (see Figure 2).

Groundwater surface contours indicate a gentle dip towards Blair Fork Creek. An observed phenomenon worth mention is the depth to groundwater in monitoring well #7 (23.88′). This hydraulic head is probably indicative of a collapse in the water production zone encountered at 31′ - 32′ below grade. During installation of monitoring well #7, a permeable layer was encountered at 31′ - 32′ below grade and may be a production zone. During installation of MW #7, the formation appeared to collapse at the 31′ - 32′ interval and it was necessary to push the screen and rise past the interval. This same layer was encountered in MW #8, without collapse, and the hydraulic head of MW #8 is approximately 1.125" above MW #5.

Based on the above observation, MW #7 probably represents the hydraulic head of the geologic formation present below a water prolific layer present at 31′ - 32′ below grade. The hydraulic head observed in MW #8 would seem to indicate that the deep production zone is artesian and may indicate a confining layer is present between the shallow aquifer and deep production zone.

Another potentiometric surface phenomenon observed at TFI is the depth to groundwater in MW #2. When MW #2 was being advanced, OVA readings were taken from the near surface to total depth of auger advancement. In the proximity of MW #2, the second hole drilled, a clay layer was encountered at approximately ten (10) feet in depth below grade. Above this clay layer, OVA readings were ++ 1000 ppm, below the clay layer, OVA readings dropped to approximately 22 ppm. It was decided to plug the initial bore hole base with bentonite and fill the remainder of the drill hole with #1 Portland Cement. A second MW #2 bore hole was advanced several feet away to the top of the clay layer. A well screen was set and there is approximately 2½′ of groundwater above the clay. Subsequent monitoring well installations indicate that the clay was a localized phenomenon (see Cross Section A-A¹). The hydraulic head, however, appears to be at least a foot lower than expected. This may indicate a more extensive existence of the clay upgradient of MW #2, towards MW #6. The clay may also act as an aquitard locally.

TABLE 2

Positive Analytical Results
Reported in parts per million (ppm)

	MW#1	MW#2	MW#3	MW#4	MW#5	MW#6	MW#7	MW#8	NC GROUNDWATER STANDARDS NCAC SUBCHAPTER 2L SECTION .0200
Benzene	--	--	--	.005	.005	--	--	--	.001
m-xylene	--	.067	.063	.47	1.7	--	--	--	.4
o,p-xylene	--	--	.005	.110	.140	--	--	--	.4
Acetone	.22	--	--	--	--	--	.490	--	No Standard
Naphthalene	--	.017	--	--	.050	--	--	--	No Standard
2-Methylnaphthalene	--	.016	--	--	.034	--	--	--	No Standard
Bis(2-ethylhexyl) Phthalate	--	.120	--	.100	.014	--	--	--	No Standard

All well development and purge water has been stored in sealed fifty-five gallon drums that are properly labelled. Disposal of this water is dependent on the analytical results and will be consistent with proper disposal practices. All sampling equipment was properly decontaminated using the follow procedure:

1. Clean with tap water and laboratory detergent using a brush, if necessary, to remove particulate matter and surface films.

2. Rinse thoroughly with tap water.

3. Rinse with a 10% nitric acid solution.

4. Rinse with distilled water.

5. Rinse with pesticide grade isopropanol alcohol.

6. Rinse with distilled water.

7. Air dry as long as possible.

ANALYTICAL RESULTS

As seen in Table 2 (Appendix D), analytical results for volatile and semivolatile organic chemical compounds indicate the presence of a variety of constituents at levels in excess of NCAC Subchapter 2L standards. The Table also indicates the presence of organic chemicals for which there is no listed standard. By NCAC Subchapter 2L, when there is no listed standard in Subchapter 2L, the standard is set at the detection limit of the respective test method or .1 ppm for acetone and .005 ppm for naphthalene, 2 methylnaphthalene, and Bis (2-ethylhexyl) Phthalate.

In the process of sample acquisition, a visible sheen was noted on groundwater samples recovered from monitoring wells #2 and #4. Monitoring wells #3, #5, #6, and #8 all possessed faint to strong odors of organic chemical contamination (see Appendix C). Additional analytical work would be necessary to establish the chemical identity of the constituents that may be present and their respective concentrations.

Field Drilling Records (Appendix A) indicate saprolitic material was generally encountered between eleven (11) and thirteen (13) feet in depth (with the exception of MW-#1 and MW-#6). During monitoring well installation, headspace analysis was performed on recovered split spoon samples using a Foxboro Century Model 128 Organic Vapor Analyzer. As a general rule, a dramatic drop in detected volatile organic compound levels was encountered at the vadose/saturated - gravel lag/saprolite interfaces (see Table 1). As a result, a decision was made by ENSCI to install a deep well hydraulically upgradient and downgradient of the suspected area; adjacent to monitoring wells #2 and #5, respectively. The two deep wells were drilled using 6¼" ID hollow stem augers (HSA) to approximately seventeen (17) feet in depth. After auger advancement, several bags (4 - 6) of #1 Portland Cement were poured into the HSA and four inch diameter pit casings (black iron) were dropped through the HSA and pushed into the saprolite, using the rig head, to twenty feet in depth. The augers were pulled out and the remaining annular space was grouted to the surface. Following solidification of the #1 Portland Cement (24 hours), a three inch roller cone was advanced through the Portland Cement and into the saprolite/bedrock material to a total depth of forty feet.

All drill cuttings evolved from the installation of the monitoring wells were stored in a roll-off container with a cover. This material was analyzed for disposal profiling using TCLP 1/3 1/3 methodology and no land banned constituents were discovered. This material is non-hazardous by characteristic and should be disposed of accordingly. The analytical results for the drill cutting materials is included in Appendix B.

SAMPLING

ENSCI Corporation personnel mobilized to the TFI facility on Wednesday, April 3, 1991 to acquire representative groundwater samples from the monitoring wells. As seen in Appendix C, all monitoring wells were purged a minimum of three (3) well volumes prior to sample acquisition. Well purging was continued until pH, water temperature, and conductivity were all within ±10% for three (3) consecutive readings. All acquired samples were placed in amber colored jars and capped with ceramic lids with teflon seals. All samples were stored in coolers with ice packs, maintained at 4°C, and shipped via express delivery service to an EPA approved laboratory for the above mentioned analyses.

DISCUSSION

Thomasville Furniture Industries, Inc. is a furniture manufacturing facility located in Lenoir, North Carolina, Caldwell County. The location of the facility is near the western boundary of the Inner Piedmont Belt physiographic province. This area is underlain by rock identified as being migmatitic granitic gneiss on the 1985 Geologic Map of North Carolina. In the Preliminary Explanatory Text for the 1985 Geologic Map of North Carolina, the unit is described as medium to coarse-grained, thickly layered gneissic biotite granite to quartz diorite with biotite gneiss and schist, hornblend gneiss, amphibolite and metagabbro. Field observations indicated the presence of biotite schist and possibly amphibolite in split spoon samples recovered during monitoring well installation.

ENSCI Corporation personnel, forty (40) hour trained for Hazardous Materials Incident Response Operations, mobilized to the TFI Lenoir facility on Sunday, March 24, 1990 to perform work detailed in the Scope of Work. After holding a site safety meeting, work commenced on Monday, March 25, 1990. Monitoring Well #1 was the first monitoring well installed. The well was installed hydraulically upgradient and distal from the suspected area to establish upgradient background groundwater (water) quality. Several unsuccessful attempts were made to install the well. The unsuccessful positions were adjacent to Blair Fork Creek and potentially encountered fill material associated with the bridge construction along U.S. Highway 321-A that crosses Blair Fork Creek. The monitoring well was ultimately installed in the graveled area adjacent to the blacktop northwest of the Old Cotton Mill (see Figure 1). As seen in the Field Drilling Record (Appendix A), this well was installed into regolith consisting of approximately three (3) to five (5) feet of soil underlain by saprolite that grades to weathered primary rock (Biotite Schist) at an approximate depth of twenty-one (21) feet. Monitoring Well #1 was the only well that did not encounter sediments deposited by Blair Fork Creek (see Drilling Records). After installation of MW-#2 through MW-#5, it was decided to install an additional upgradient background monitoring well in a position that would encounter the sediment package deposited by Blair Fork Creek (see Figure 1). Monitoring Well #6 was installed hydraulically upgradient and to the southwest of the Old Cotton Mill; adjacent to Blair Fork Creek (see Figure 1). This upgradient background water quality well did intersect the Blair Fork Creek sediment package (see Appendix A).

INTRODUCTION

On December 27, 1990, Thomasville Furniture Industries, Inc. (TFI) discovered a drum thought to contain a solvent material in an excavation located in the company parking lot (see Figure 1). ENSCI Corporation was contracted by TFI to overpack and remove the drum from the open excavation. Sherry Stookey, TFI's Environmental Compliance and Inspection Supervisor, immediately contacted Keith Masters in the Mooresville regional office of the North Carolina Department of Environment, Health, and Natural Resources, Division of Environmental Management. On January 2, 1990, TFI's legal representative, Howard Grubbs, gave notice to the State Superfund Section, Division of Environmental Management, and the Site Assessment Division at USEPA, Region IV.

Thomasville Furniture Industries, Inc., in mid February, 1989, had submitted notification to the State of an Inactive Hazardous Substance or Waste Disposal Site. The TFI site is listed in:

USEPA, Region 04
WASTELAN (January 23, 1991)
PRGMO2: Preremedial/Federal Facility Report (Report 20)
Reference #02808.

NCDEHNR
Superfund Section (February, 1991)
Inactive Hazardous Waste Site Priority List

NCDEHNR
Division of Solid Waste Management
Superfund Section (February, 1991)
North Carolina Inactive Hazardous Sites Inventory
Site Priority List

ENSCI Corporation was contracted by Thomasville Furniture Industries, Inc. to perform an assessment of the area where the drum was located. To initiate the investigation, ENSCI Corporation developed a Scope of Work and implemented a drilling program designed to assess this area. This investigation consisted of the installation of eight (8) monitoring wells (see Appendix A) in the proximity of the area potentially impacted by the buried drum. The monitoring wells were installed and developed, stabilized for 48 hours, purged, and sampled for volatile organic compounds, semivolatile organic compounds, and metals by ICP using EPA Methods 624, 625, and 200.7; respectively. The organic analyses were performed using the Target Compound List.

Ref. 3

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THOMASVILLE FURNITURE INDUSTRIES, INCORPORATED

POST OFFICE BOX 640
LENOIR, NORTH CAROLINA 28645

****

****

June 24, 1991

****

Prepared by:

ENSCI CORPORATION

1108 Old Thomasville Road
High Point, North Carolina 27260

Ref. 2

SITE SCREENING INVESTIGATION REPORT

Thomasville Furniture Industries
NCD054290770
Lenoir, NC

December 1988

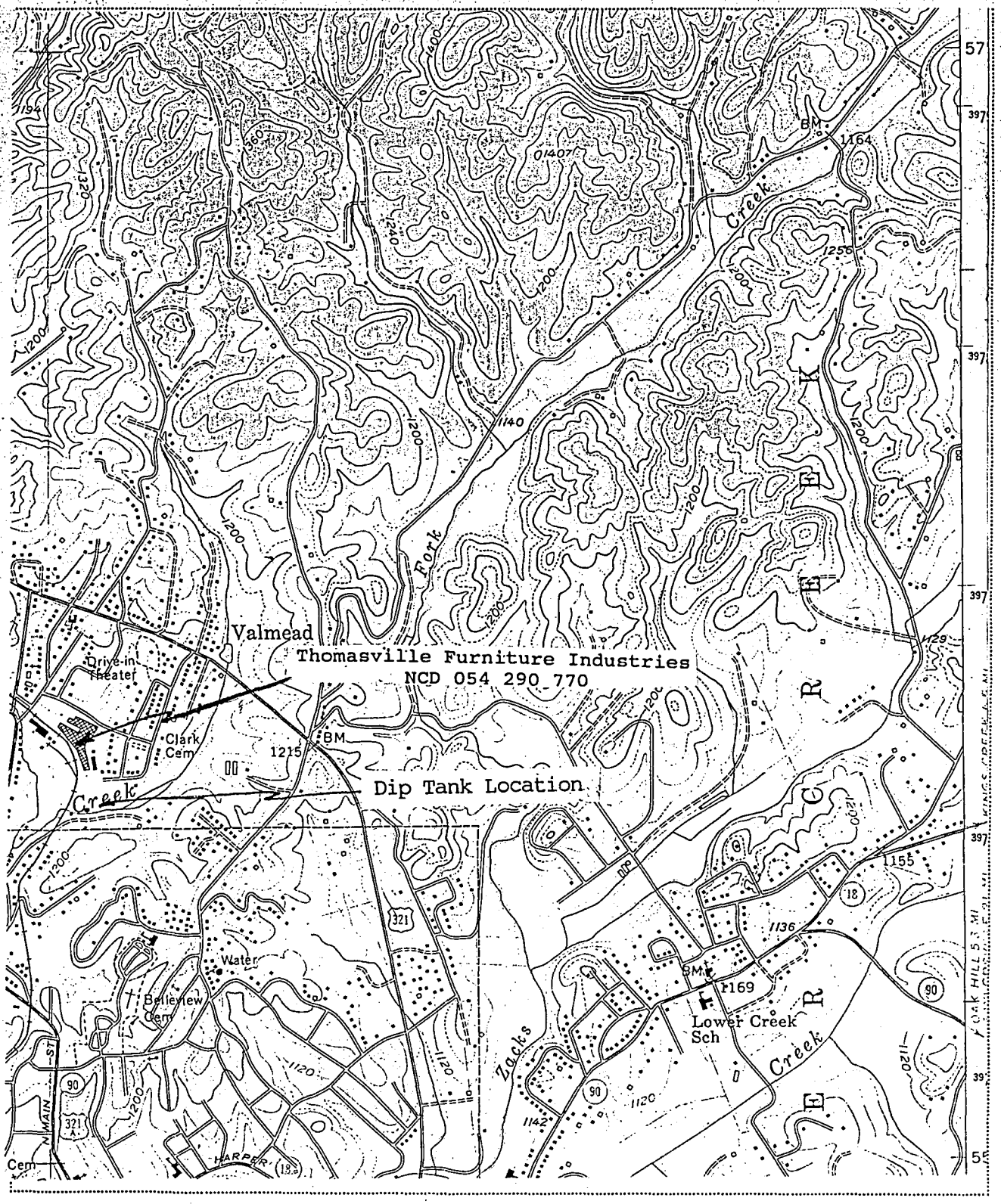
Superfund Branch
Solid Waste Management Section
North Carolina Division of Health Services

Prepared by:
David Lilley
Industrial Hygienist

Assisted By:
Mark Durway
Geologist
Project Leader

Assisted By:
Pat DeRosa
Environmental Chemist

SITE NAME: Thomasville Furniture Industries NUMBER: NCD 054 290 770



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

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

LATITUDE: 35 ° 55 ' 00 ' LONGITUDE: 81 ° 30 ' 00 '

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

SITE NAME: Thomasville Furniture Ind. CERCLIS #: NCD 054-290-770

AKA: _____ SSID: _____

ADDRESS: 315 Elizabeth ST., NW

CITY: Lenoir STATE: NC ZIP CODE: 28645

SITE REFERENCE POINT: Dip Tank location at Wood Stacker Bldg.

USGS QUAD MAP NAME: Lenoir, NC TOWNSHIP: ____ N/S RANGE: ____ E/W

SCALE: 1:24,000 MAP DATE: 1956 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: 81° 30' 00" LATITUDE: 35° 52' 30"

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

LONGITUDE: 81° 30' 00" LATITUDE: 35° 55' 00"

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 146

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

A x 0.3304 = 48.2"

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 0' 48.2"

D) ADD TO STARTING LATITUDE: 35° 55' 0.0" + 0' 48.2 =

SITE LATITUDE: 35° 55' 48.0"

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 434

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

A x 0.3304 = 143.4"

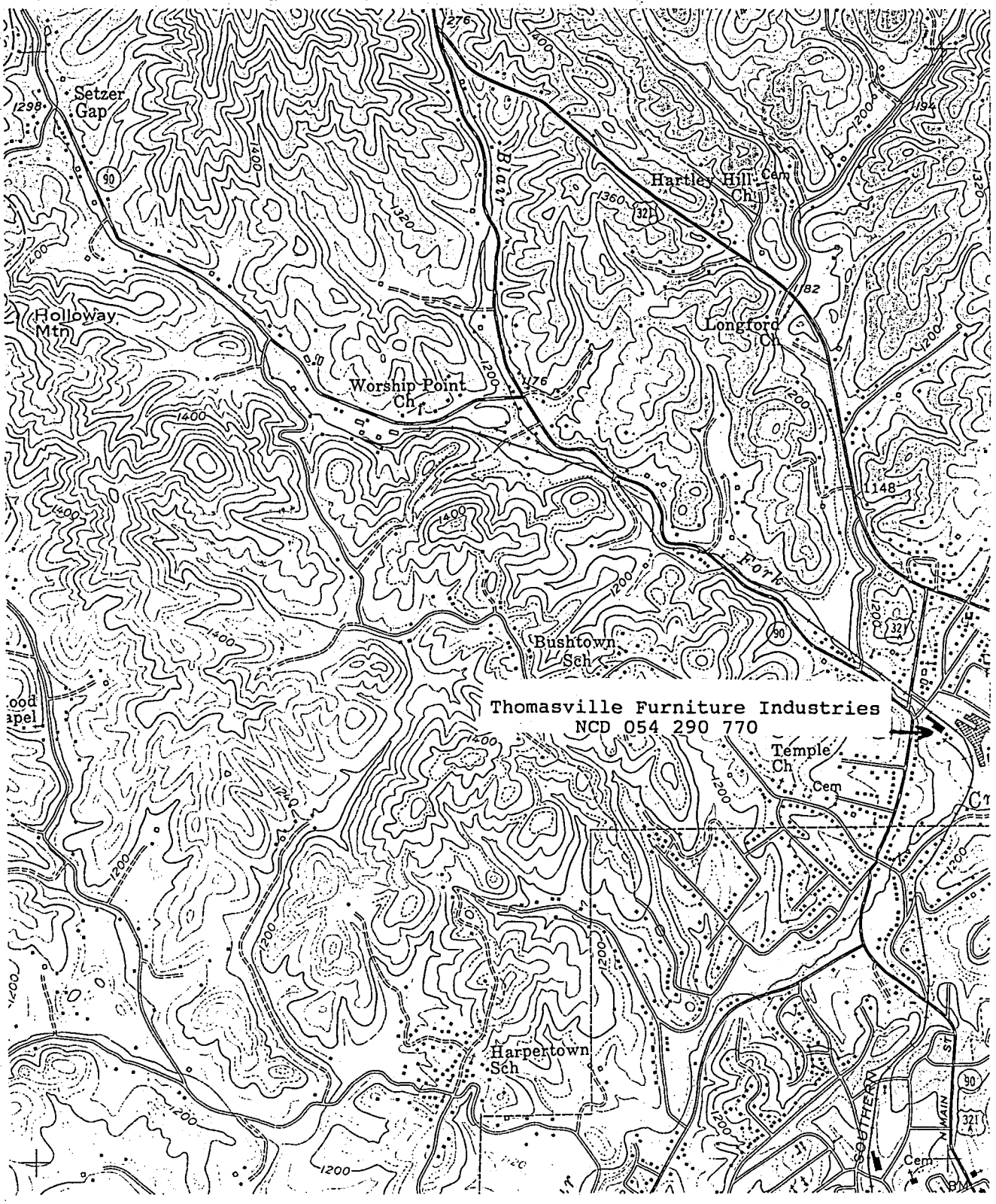
C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 2' 23.4"

D) ADD TO STARTING LONGITUDE: 81° 30' 0.0" + 2' 23.4 =

SITE LONGITUDE: 81° 32' 23.0"

INVESTIGATOR: G. Doug Rumford DATE: 4/30/93

SITE NAME: Thomsville Furniture Industries NUMBER: NCD 054 290 770



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

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

LATITUDE: 35 ° 55 ' 00" LONGITUDE: 81 ° 32 ' 30 "

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

SITE NAME: Thomasville Furniture Industries CERCLIS #: NCD 054 290 770

AKA: _____ SSID: _____

ADDRESS: 315 Elizabeth St., NW

CITY: Lenoir STATE: NC ZIP CODE: 28645

SITE REFERENCE POINT: Southwest Corner of Old Cotton Mill Bldg. near Parking lot

USGS QUAD MAP NAME: Lenoir, NC TOWNSHIP: ____ N/S RANGE: ____ E/W

SCALE: 1:24,000 MAP DATE: 1956 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: 81 ° 30 ' 00 " LATITUDE: 35 ° 52 ' 30 "

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

LONGITUDE: 81 ° 32 ' 30 " LATITUDE: 35 ° 55 ' 00 "

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 177

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

A x 0.3304 = 58 . 48 "

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 0 ' 58 . 48 "

D) ADD TO STARTING LATITUDE: 35 ° 55 ' 0 . 0 " + ____ ' 58 . 5 =

SITE LATITUDE: 35 ° 55 ' 58 . 5 "

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 7

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

A x 0.3304 = 2 . 3 "

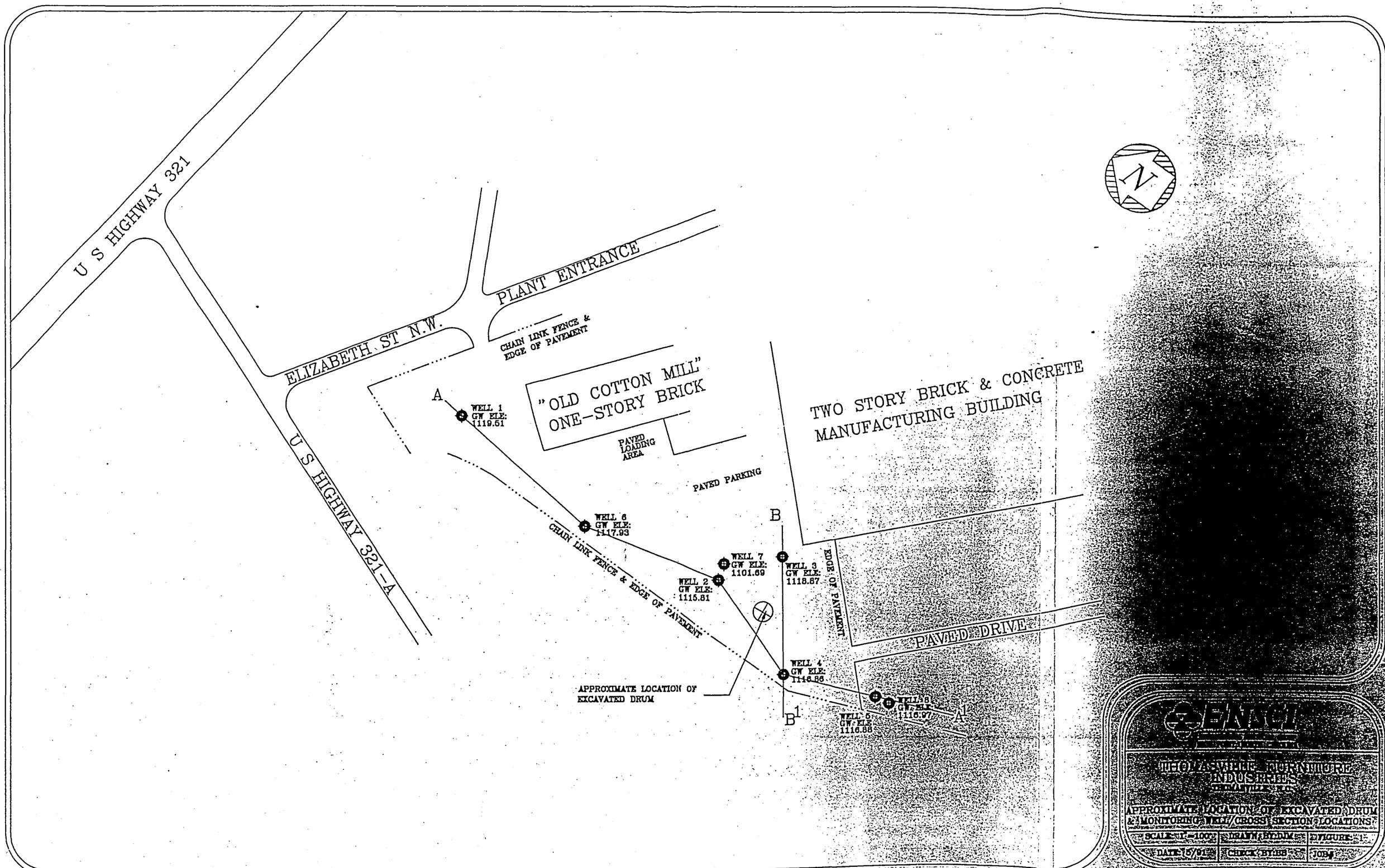
C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 0 ' 2 . 3 "

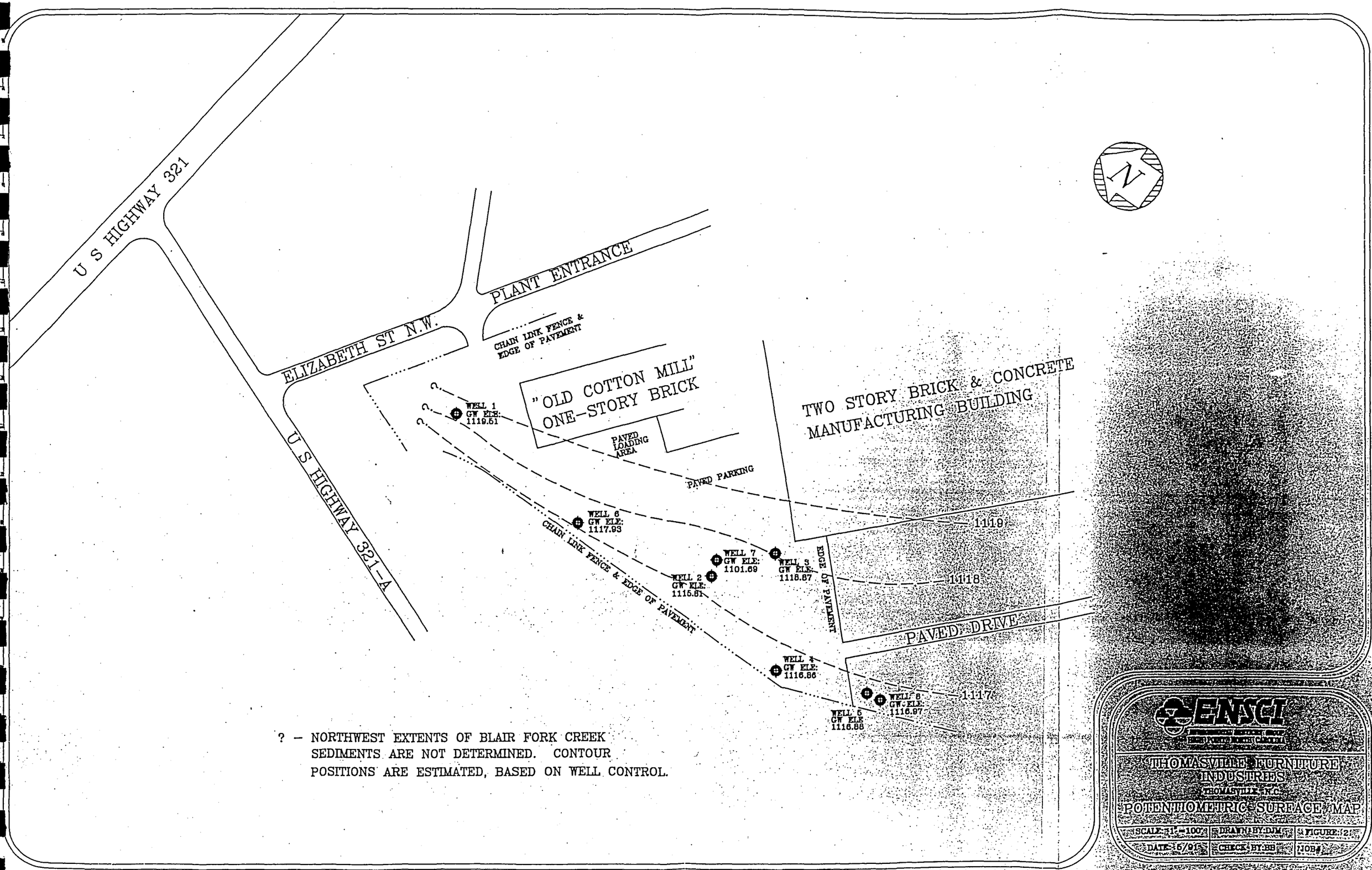
D) ADD TO STARTING LONGITUDE: 81 ° 32 ' 30 . 0 " + ____ ' 2 . 0 =

SITE LONGITUDE: 81 ° 32 ' 32 . 0 "

INVESTIGATOR: G. Doug Rumford DATE: 4/13/93

REFERENCES


U S HIGHWAY 321
U S HIGHWAY 321-A
ELIZABETH ST N.W.
PLANT ENTRANCE
CHAIN LINK FENCE & EDGE OF PAVEMENT
"OLD COTTON MILL" ONE-STORY BRICK
PAVED LOADING AREA
PAVED PARKING
TWO STORY BRICK & CONCRETE MANUFACTURING BUILDING
A
A1
B
B1
WELL 1 GW ELE: 1119.61
WELL 2 GW ELE: 1115.81
WELL 3 GW ELE: 1118.87
WELL 4 GW ELE: 1116.86
WELL 5 GW ELE: 1116.88
WELL 6 GW ELE: 1117.93
WELL 7 GW ELE: 1101.69
WELL 8 GW ELE: 1116.97
CHAIN LINK FENCE & EDGE OF PAVEMENT
EDGE OF PAVEMENT
PAVED DRIVE
APPROXIMATE LOCATION OF EXCAVATED DRUM
N
ENSCI
THOMASVILLE FURNITURE INDUSTRIES
THOMASVILLE, N.C.
APPROXIMATE LOCATION OF EXCAVATED DRUM & MONITORING WELL/CROSS SECTION LOCATIONS
SCALE: 1"=100'
DRAWN BY: DM
FIGURE: 1
DATE: 5/9/88
CHECK BY: BB
JOB #



? – NORTHWEST EXTENTS OF BLAIR FORK CREEK SEDIMENTS ARE NOT DETERMINED. CONTOUR POSITIONS ARE ESTIMATED, BASED ON WELL CONTROL.

APPENDIX B

ENSCI CORPORATION

FIELD DRILLING RECORDS
Well Contractor Registration Number 1233

ENSCI
ENVIRONMENTAL DESIGN GROUP
1109 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE: (919) 886 - 7505

FIELD DRILLING RECORD

BORING NO. MW #1 DATE STARTED 3-25-91 DATE COMPLETED 3-25-91
LOCATION TFI - Lenoir DIAMETER OF BORING 6¼" DRILL MACHINE Mobil B40-L
METHOD OF DRILLING AND SAMPLING 3¼" ID HSA - split spoon samples every 5' to auger refusal
DRILLER Michael Cook GEOLOGIST Bruce Braswell GROUND ELEVATION
WATER LEVEL 10' (TERMINATION OF BORING) WATER LEVEL N/A (AT 24 HRS.)
DEPTH OF CASING 10' WATER LOSSES N/A THICKNESS OF TOPSOIL 5'
CASING DIAMETER 2" TYPE s.s. TERMINATION OF BORING DEPTH 21' FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL

DEPTH FROM	DEPTH TO	SOIL DESCRIPTION HARDNESS	COLOR	MOIST.	TYPE MATERIAL	PENETRATION TEST RESULTS NO	DEPTH	6"	12"	18"
	5'	soft/sandy	Brown	20%	Brown micaceous soil, very soft	1	3'-5'		4 per '	
	8'	soft/sand	Reddish Brown	satu-rated	Rich in quartz, feldspar and muscovite-poorly sorted sand particles up to 4mm	2	6'-8'		8 per '	
	15'	soft/ micaceous	Reddish Brown	20%	Micaceous soil mostly muscovite flakes, some feldspar and quartz	3	13' - 15'		8 per '	
	20'	Medium/ hard	Mottled brn/wte	-20%	Residual-micaceous soil grading downwash into saprolite w/reflect primary structures	4	10½' - 20'		20	35
	21.5	hard	Gry/blk mottle	50%	Weathered primary rock.	5	21-21.5	35		

Note: Saturated zone appears to begin at approximately 10' below grade. No odor was apparent. There was no staining of the soil noted.

FOR MONITORING WELL INSTALLATION ONLY:
PVC PIPE DIAMETER 2 INCHES
PVC / (S.S.) (CIRCLE ONE)
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 9'
DEPTH TO TOP OF SEAL 8'
STICKUP LENGTH Flush
TYPE BACKFILL #1 Portland
SURFACE SEAL THICKNESS 3'

SAND USED 2 (BAGS)
CEMENT USED 2.5 (BAGS)
PELLETS ½ (PAILS)

ENSCI
ENVIRONMENTAL DESIGN GROUP
1108 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE: (919) 882 - 7506

FIELD DRILLING RECORD

BORING NO. MW #2 DATE STARTED 3/25/91 DATE COMPLETED 3/25/91
LOCATION Lenoir, NC TFI DIAMETER OF BORING 6¼" DRILL MACHINE Mobil B40L
METHOD OF DRILLING AND SAMPLING HSA using split spoon ahead of the auger for 10'
DRILLER Michael Cook GEOLOGIST Bruce Braswell GROUND ELEVATION NA
WATER LEVEL NA (TERMINATION OF BORING) WATER LEVEL NA (AT 24 HRS.)
DEPTH OF CASING _____ WATER LOSSES NA THICKNESS OF TOPSOIL NA
CASING DIAMETER 2" TYPE 316 SS TERMINATION OF BORING DEPTH 10 FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL

TOTAL TIME ON BORING _____

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18
0	2"	—			Blacktop					
2"	14"	—			Crush & Run material					
14"	3'	soft			6" recovery mostly fill OVA 48 ppm	1			4/ft[1]	
3'	5'	soft			Fill material 14" recovered OVA 900 ppm	2	Smelled like oil		5/ft[1]	
5'	6.5'	soft			Fill soil upper 10" sand lens 4" thick					
					in the bottom. Soil is brown to dark brn					
					sand is grey/brn in color. OVA 160 ppm	3			5/ft[1]	
6.5'	8.5'	soft			No recovery-possible soft clay reddish	4			3/ft	
					brn in color with little coarse grain present					
8.5'	10.5'	soft			14" recovered. Nearly all quartz sand	5			3.5/ft	
					w/minor amts. of musconite. Grain sizes					
					up to .5 cm in size. ++ 1000 ppm - smelled like Stoddard Solvent					
8.5'	10.0'	soft			Split spoon sample recovered from same as					
					above. Similar except material becomes	6			5/ft	
					coarse w/depth to grain sizes up to 1 cm					
					in size. Poorly sorted & micaceous		OVA 34 ppm			

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER 2 INCHES
PVC / (S.S) (CIRCLE ONE)
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 3.0
DEPTH TO TOP OF SEAL 2.0
STICKUP LENGTH Flush
TYPE BACKFILL #1 Portland
SURFACE SEAL THICKNESS _____

SAND USED 1.5 (BAGS)
CEMENT USED 2 (BAGS)
PELLETS ½' (PAILS)

ENSCI
ENVIRONMENTAL SERVICE GROUP
1108 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE: (919) 888 - 7505

FIELD DRILLING RECORD

BORING NO. MW #2-2 DATE STARTED 3/25/91 DATE COMPLETED 3/25/91
LOCATION TFI - Lenoir Facility DIAMETER OF BORING 6¼" DRILL MACHINE Mobil B40L
METHOD OF DRILLING AND SAMPLING 3¼" id HSA with SS recovery
DRILLER _____ GEOLOGIST _____ GROUND ELEVATION _____
WATER LEVEL _____ (TERMINATION OF BORING) WATER LEVEL _____ (AT 24 HRS.)
DEPTH OF CASING _____ WATER LOSSES _____ THICKNESS OF TOPSOIL _____
CASING DIAMETER 2" 316 SS TYPE _____ TERMINATION OF BORING DEPTH 10' FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL

TOTAL TIME ON BORING _____

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18
					MW #2-2 was advanced to 8.5'. The split					
					spoon sampler was then advanced to 10'					
					exactly; to look for the clay layer. It					
					wasn't present so the hole was advanced					
					to 10.0' and a length of 316 ss screen					
					was set. Strong solvent odor was noted					
					in the ss sample as with MW #2-1. With					
					luck, this well will be reflective of					
					conditions above the clay layer.					

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER ____ INCHES
PVC / S.S. (CIRCLE ONE)
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 3.0
DEPTH TO TOP OF SEAL 2.0
STICKUP LENGTH _____
TYPE BACKFILL _____
SURFACE SEAL THICKNESS _____

SAND USED _____ (BAGS)
CEMENT USED _____ (BAGS)
PELLETS _____ (PAILS)

ENVIRONMENTAL DESIGN GROUP
1108 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE: (919) 886 - 7506

FIELD DRILLING RECORD

BORING NO. MW #3 DATE STARTED 3/26/91 DATE COMPLETED 3/26/91
LOCATION Lenoir, NC TFI DIAMETER OF BORING 6½" DRILL MACHINE Mobil B40L
METHOD OF DRILLING AND SAMPLING 3¼ ID HSA w/continuous SS recovery 18" - 10'
DRILLER M. Cook GEOLOGIST Bruce Braswell GROUND ELEVATION
WATER LEVEL NA (TERMINATION OF BORING) WATER LEVEL NA (AT 24 HRS.)
DEPTH OF CASING 5' WATER LOSSES NA THICKNESS OF TOPSOIL NA
CASING DIAMETER 2" TYPE 316 S.S. TERMINATION OF BORING DEPTH 15' FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL
TOTAL TIME ON BORING

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18"
0	3"				Blacktop					
3"	18"				Crush & run					
18"	3'	soft	Reddish Brown		Clay rich micaceous soil - small rooted cone at top	1	OVA 98 ppm	7	10	
3'	5'	soft	Mottled Reddish Brn/Blk		Clay rich micaceous soil	2	OVA 160 ppm		6/ft	
5'	7'	soft	Lt Brown to grey		4" recovery - odor of possibly oil clay rich micaceous soil	3	OVA 68 ppm		6/ft	
5'	7'	soft	Dark Grey to off White		Sand & fine, gravel strong solvent odor	4	OVA 200 ppm		6/ft	
7'	9'	soft	off white to dark grey		Sand and fine gravel poorly sorted clasts up to .5 cm	5			7	
7'	9'	soft	off white to dark grey		Sand and fine gravel poorly sorted clasts up to .5 cm	5	OVA 240 ppm		1	
* 9'	11'	medium	light to dk gry w/white clasts		Sand to medium gravel up to 2+ cm in size. Very micaceous & quartz rich	6	OVA 36 ppm		5	10
11'	13'	medium	light to dark grey		Fine to medium gravel clast size up to 3 cm	7	OVA 18 ppm		4	25/ft
13'	15'	med/hard			Contact zone between sand/gravel and	8			22	6/ft
					saprolite. Saprolite is medium brown					
					to orange. A thin gravel bag was present					
					above the saprolite followed by 6" of					
					medium sand		OVA<2 ppm			
15'	17'	soft			Saprolite mottled brown to orange in	9				
					color - soft with a high clay content.		OVA<0 ppm			
					Abundant musconite flakes present with					
					some quartz.					

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER 2 INCHES
PVC / S.S. (CIRCLE ONE)
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 4'
DEPTH TO TOP OF SEAL 3'
STICKUP LENGTH Flush
TYPE BACKFILL #1 Portland
SURFACE SEAL THICKNESS 3'

SAND USED 2 (BAGS)
CEMENT USED 2 (BAGS)
PELLETS ½ (PAILS)

* Saturated zone

ENVIRONMENTAL DESIGN GROUP
1108 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE (919) 882 - 7506

FIELD DRILLING RECORD

BORING NO. NW #4 DATE STARTED 3/26/91 DATE COMPLETED 3/26/91
LOCATION Lenoir, NC TFI DIAMETER OF BORING 6¼" DRILL MACHINE Mobil B40L
METHOD OF DRILLING AND SAMPLING 3¼ ID HSA with continuous SS recovery 12" - 10'
DRILLER M. Cook GEOLOGIST Bruce Braswell GROUND ELEVATION —
WATER LEVEL NA (TERMINATION OF BORING) WATER LEVEL NA (AT 24 HRS.)
DEPTH OF CASING 5' WATER LOSSES NA THICKNESS OF TOPSOIL Fill material
CASING DIAMETER 2" TYPE 316 S.S. TERMINATION OF BORING DEPTH ____ FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL

TOTAL TIME ON BORING _____

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18"
0	3"				Blacktop					
3"	15"				Crush & run + ballast 3+ in. dia.					
15"	3'	soft	Lt - Dk Brown		Micaceouis silt & interbedded fine sand	1	OVA 140 ppm		11	8/ft
3'	5'	soft	Lt grey to tan and off white		Layered sand of variable grain size up to .5 cm. Micaceous w/abundant felspar	2	OVA 34 ppm		5	4/ft
5'	7'	soft	Off White		Coarse sand to small gravel poorly sorted clasts up to 3 cm. Strong solvent odor	3	OVA 1000 ++		4	13/ft
					present.					
7'	9'	soft	Mottled off wht to reddish orng		14" recovered - lower 10" is caprolite. Contact is probably about 8' in depth.	4	OVA 520 ppm		6	6/ft
9'	11'				Heavily weathered saprolite mottled	5	OVA 110 ppm		3	5/ft
					brown to off white very micaceous					
11'	13'	soft/med			Saprolite - probably a banded [illegible]	6	OVA 2 ppm		4	9/ft
					Very rich in mica w/some feldspar					
					Relict primary structures also present					
13'	15'				Saprolite - banded as above, very	7	OVA 2.2 ppm		8	10/ft
					micaceious with abundant feldspar. Very					
					little S_1O_2 present. Also an unknown					
					rotted black mineral is present. It is					
					not biotite.					

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER 2 INCHES
PVC / S.S. (CIRCLE ONE)
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 4'
DEPTH TO TOP OF SEAL 3'
STICKUP LENGTH Flush
TYPE BACKFILL #1 Portland
SURFACE SEAL THICKNESS _____

SAND USED 2 (BAGS)
CEMENT USED 2 (BAGS)
PELLETS ½ (PAILS)

Saturated zone begins

ENVIRONMENTAL DESIGN GROUP
1106 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE: (919) 886 - 7506

FIELD DRILLING RECORD

BORING NO. MW 5 DATE STARTED 3/26/91 DATE COMPLETED 3/26/91
LOCATION TFI - Lenoir Facility DIAMETER OF BORING 6" DRILL MACHINE Mobil B40L
METHOD OF DRILLING AND SAMPLING 3½" id HSA
DRILLER M. Cook/B. Bekier GEOLOGIST D. Garrett GROUND ELEVATION
WATER LEVEL 6.2' (TERMINATION OF BORING) WATER LEVEL NA (AT 24 HRS.)
DEPTH OF CASING 5' WATER LOSSES NA THICKNESS OF TOPSOIL 2"
CASING DIAMETER NA TYPE NA TERMINATION OF BORING DEPTH 17' FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL

TOTAL TIME ON BORING

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18"
0	4"				Crusher run	1	3.5-5'	-	4	3
4"	3'				Soil fill - no sample	2	5.5-7'	-	5	5
3'		Firm	M. Gry	Moist	Sli Mic Fi Sa Cly Silt (ML) (Alluvium)	3	7.5-9'	3	3	5
		intermixed w/				4	9.5-11'	15	9	2
		Loose-Very loose	Gray	Mst-Wet	Mic Si Fi Sand (SM)	5	11.5-13'	1	1	2
					noticable hydrocarbon odor	6	13,5-15'	5	6	8
10'	11'	V. Loose	Gray	Wet	Sli Si F-C Sand w/½" gravel (SW-SM)	7	15.5-17'	4	6	10
11'	14'	Soft/firm	Brn/Blk	Wet	Sli Fi Sa Mic Silt (ML/MI) (Saprolite)					
14'	17'	Stiff	Brn/Blk	Sli mst	Highly Mic Cly silt - Advance w/roller					
					cone (ML/MI, high foliation)					
					(tight formation, no significant odor)					
		OVA Headspace Analysis								
		SS 2	240		Boring Terminated @ 17'					
		3	>1000		Set Piezometer @ 15'					
		4	720							
		5	140							
		6	5.8							
		7	8.4							

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER 2" INCHES
PVC / S.S. (CIRCLE ONE) Sch. 5
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 4'
DEPTH TO TOP OF SEAL 3'
STICKUP LENGTH NA (Flush)
TYPE BACKFILL Portland
SURFACE SEAL THICKNESS 2'

SAND USED 1½ (BAGS)
CEMENT USED 1½ (BAGS)
PELLETS ¼' (PAILS)

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1108 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE: (919) 888 - 7505

FIELD DRILLING RECORD

BORING NO. MW #5-1 DATE STARTED 3/26/91 DATE COMPLETED 3/26/91
LOCATION _____ DIAMETER OF BORING _____ DRILL MACHINE _____
METHOD OF DRILLING AND SAMPLING _____
DRILLER _____ GEOLOGIST _____ GROUND ELEVATION _____
WATER LEVEL _____ (TERMINATION OF BORING) WATER LEVEL _____ (AT 24 HRS.)
DEPTH OF CASING _____ WATER LOSSES _____ THICKNESS OF TOPSOIL _____
CASING DIAMETER _____ TYPE _____ TERMINATION OF BORING DEPTH _____ FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL

TOTAL TIME ON BORING _____

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18
0	12"	--			Crush & run					
2'	5'				No recovery	1			13	20/ft
5'	7'				Recovered 10" of dark brown to dark					
					grey silt biolite rich	2	OVA 70 PPM		3	7/ft
7'	9'				Recovered 14" upper 8" is silt as above					
					in sharp contact with a lower 6" of					
					medium sand 250 - 350	3	OVA 250 ppm		4	4/ft
9'	11'				Recovered 24" upper 4-6" in a poorly					
					sorted mixture of sand and coarse gravel.		OVA 22 ppm		7	16/ft
					There is a gravel lag ~ 2" thick					
					sitting on saprolite.					
11'	13'				Saprolite					

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER _____ INCHES
PVC / S.S. (CIRCLE ONE)
LENGTH OF SCREEN _____ FEET
SCREEN SLOT OPENING SIZE _____ INCHES

DEPTH TO TOP OF SAND _____
DEPTH TO TOP OF SEAL _____
STICKUP LENGTH _____
TYPE BACKFILL _____
SURFACE SEAL THICKNESS _____

SAND USED _____ (BAGS)
CEMENT USED _____ (BAGS)
PELLETS _____ (PAILS)

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HIGH POINT N.C. 27260
PHONE: (919) 886 - 7505

FIELD DRILLING RECORD

BORING NO. MW-6 DATE STARTED 3/26/91 DATE COMPLETED 3/26/91
LOCATION Lenoir, NC TFI DIAMETER OF BORING 6" DRILL MACHINE Mobil B40L
METHOD OF DRILLING AND SAMPLING 3½ ID HSA w/SPG
DRILLER M. Cook/B. Bekier GEOLOGIST D. Garrett GROUND ELEVATION NA
WATER LEVEL NA (TERMINATION OF BORING) WATER LEVEL NA (AT 24 HRS.)
DEPTH OF CASING 10 WATER LOSSES NA THICKNESS OF TOPSOIL NA
CASING DIAMETER NA TYPE NA TERMINATION OF BORING DEPTH 21.0 FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL
TOTAL TIME ON BORING

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18"
0	8"				Asphalt & Base course	1	1.5 - 3.0	6	8	10
8"		Stiff	Red	Sli Mst	Si Clay (CL) (Fill)	2	3.5 - 5.0	6	7	6
					w/ Mic Cly Silt (ML)	3	5.5 - 7.0	8	7	5
	8'	Interbedded			Si Sand w/coal fragments	4	7.5 - 9.0	2	5	4
8'		Stiff	Rd-tan	Sli Mst	Sli Cly Fi Sa Silt (ML)	5	9.5 - 11.0	3	3	4
		Firm	Gry-Brn	Moist	Sli Fi Sa Cly Silt w/Mic (ML)	6	11.5 - 13.0	3	3	3
	14'				(Alluvium)	7	13.5 - 15.0	6	5	10
14'		M. Dense	Tan-Gry	Wet	Sli Si F-C Sa w/3/8" - ½" gravel (SW-GW)	9	15.5 - 17.0	8	4	12
	16'				(Alluvium)	9	17.5 - 19.0	8	3	3
16'		M. Dense	Brn-Org	Wet	Si Cly F-C SA w/tr gran (SM)	10	19.5 - 21.0	6	8	11
	18.5'				(Fe-Stained Mottling) (Alluvium)					
18.5'		M. Dense	Tan-Brn	Moist	Si Sli Cly Sly Mic F-M Sand			Drove spoon		
	21.0'				(SM - Residual)			25' - Std		
OVA Readings					B.T. @ 21'			Practice to		
					HSA to 20'			record last 18"		
#1	0.1	#6	0.0		Set Piezometer @ 20'					
#2	0.0	#7	0.0							
#3	1.1	#8	0.0							
#4	0.8	#9	0.0							
#5	0.0	#10	0.0							

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER 2 INCHES
PVC / S.S. (CIRCLE ONE)
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 8'
DEPTH TO TOP OF SEAL 9'
STICKUP LENGTH Flush
TYPE BACKFILL Grout
SURFACE SEAL THICKNESS

SAND USED 1½ est'd (BAGS)
CEMENT USED 2 est'd (BAGS)
PELLETS ¼ (PAILS)

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ENVIRONMENTAL DESIGN GROUP
1106 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE: (919) 886 - 7606

FIELD DRILLING RECORD

BORING NO. MW #7 DATE STARTED 3/26/91 DATE COMPLETED 3/27/91
LOCATION Lenoir, NC TFI DIAMETER OF BORING 10" DRILL MACHINE Mobil B40L
METHOD OF DRILLING AND SAMPLING 3½" ID HSA, 6" I.D. HSA, Rotary Tricone
DRILLER M. Cook GEOLOGIST D. Garrett GROUND ELEVATION _____
WATER LEVEL NA (TERMINATION OF BORING) WATER LEVEL _____ (AT 24 HRS.)
DEPTH OF CASING 20' WATER LOSSES NA THICKNESS OF TOPSOIL NA
CASING DIAMETER 4" TYPE Cast Iron TERMINATION OF BORING DEPTH 41.5 FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL

TOTAL TIME ON BORING _____

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18"
0	13'				Advanced 6¼ I.D. HSA	1	13-15 (4)	4	4	2
					Poor recovery on S.S. #1	2	15-17 (2)	4	5	6
13'	18'	Loose	Tan-Gray	Wet	Sli Si F-C Sand & Gravel	3	17-18.5	2	4	4
					Alluvium (SW-SM)	4	20-21.5	5	9	9
18'	21.5'	Firm-Stiff	Brn/Blk	Wet	Sli Fi Sa Mic Cly Silt					
		Highly Foliated			Residual (ML)					
					Augered to 21' and set 4" ϕ casing					
					Set black cast iron casing to 22.5 and grouted to surface					
					Used 2' PVC chaser (4" ϕ)					
21.5'	41.5'	Firm-Stiff	Red-brn		Mic Silt w/occ sand seams (ML)					
					(Easy drilling to 37', stiffer 37' - 41.5')					
					Boring callaped @ 30' due to GW seam					
					Boring terminated @ 41.5'					
					Piezometer set @ 40.5'					
					Difficulty getting sand in due to collapse					
					of sidewalls @ 30'					
					Well not developed prior to demob.					

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER 2 INCHES
PVC / (S.S.) (CIRCLE ONE)
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 29'
DEPTH TO TOP OF SEAL 27'
STICKUP LENGTH Flush
TYPE BACKFILL Cement grout 2'
SURFACE SEAL THICKNESS Cement grout 2'

SAND USED ½ (BAGS)
CEMENT USED 7 total (BAGS) 6 to seal casing
PELLETS ½' (PAILS)

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1108 OLD THOMASVILLE ROAD
HIGH POINT N.C. 27260
PHONE: (919) 888 - 7505

FIELD DRILLING RECORD

BORING NO. MW #8 DATE STARTED 3/26/91 DATE COMPLETED 3/27/91
LOCATION TFI - Lenoir, NC DIAMETER OF BORING 10" DRILL MACHINE Mobil B40L
METHOD OF DRILLING AND SAMPLING 3½" id/6" id HSA, Rotary Tricone
DRILLER M. Cook GEOLOGIST D. Garrett GROUND ELEVATION NA
WATER LEVEL NA (TERMINATION OF BORING) WATER LEVEL NA (AT 24 HRS.)
DEPTH OF CASING 30' WATER LOSSES 30-32' THICKNESS OF TOPSOIL 2"
CASING DIAMETER 4" TYPE Cast Iron TERMINATION OF BORING DEPTH 41 FEET
INDICATE IF AUGER REFUSAL/TRICONE REFUSAL
TOTAL TIME ON BORING

DEPTH		SOIL DESCRIPTION				PENETRATION TEST RESULTS				
FROM	TO	HARDNESS	COLOR	MOIST.	TYPE MATERIAL	NO	DEPTH	6"	12"	18"
0	3'				Fill-encountered metal scraps alluvial					
					sand - advanced w/HSA, no SPT residual					
					micaceous silt-advanced with HSA set					
					4" cast iron casing at 18.5'. Grouted					
					to surface.					
18.5'	22.5'	Firm (easy drilling)			Red brown Mic silt w/occ sand (ML)					
					Advanced w/roller cone - No SPT					
22.5'	30.0'	Stiff	Red		Mic Silt w/occ black sand (ML)					
30'	32'	Soft zone - Partial water loss								
32'	41'	soft (V. easy drilling)			Poor return on cuttings (lots of mica)					
					Boring Terminated @ 41 feet					
					Piezometer set @ 40.5 feet					

FOR MONITORING WELL INSTALLATION ONLY:
STANDPIPE DIAMETER 2 INCHES
PVC / S.S. (CIRCLE ONE)
LENGTH OF SCREEN 10 FEET
SCREEN SLOT OPENING SIZE .010 INCHES

DEPTH TO TOP OF SAND 29'
DEPTH TO TOP OF SEAL 27'
STICKUP LENGTH Flush
TYPE BACKFILL Grout
SURFACE SEAL THICKNESS 2'

SAND USED 2 (BAGS)
CEMENT USED 6 bags (BAGS) 5 bags for casing
PELLETS ½ (PAILS)

APPENDIX E

ANALYTICAL RESULTS

GROUNDWATER SAMPLES

AnalytIKEM An American NuKEM Company

AnalytIKEM Inc.
454 S. Anderson Road, BTC 532
Rock Hill, SC 29730
803/329-9690

TEST REPORT NO. A81104

April 30, 1991

Prepared for:

Ensci
1108 Thomasville Road
High Point, NC 27260

Attention: Bruce Braswell

Project: Thomasville Furn

Date of Sample Receipt: April 4, 1991

Reviewed &
Approved by: _____

Name: William A. Fithian

Title: Technical Manager

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AnalytiKEM

I. Certification

AnalytiKEM, Inc.
Current Certifications/Regulatory Approvals

Tabulated below are the current laboratory certifications that are held by each AnalytiKEM Laboratory. Analyses performed at multiple AnalytiKEM locations will be noted in the test report.

Cherry Hill, NJ		Rock Hill, SC		Wilmington, Mass.	
State	Cert #	State	Cert #	State	Cert #
Arkansas	*	S. Carolina	46067	Connecticut	PH-0543
Connecticut	PH-0715	N. Carolina	316	Maine	12010087
Florida	880985G	New Jersey	79795	Massachusetts	MA037
Massachusetts	NJ117			New Hampshire	198950-A
New Jersey	04012			New Hampshire	198950-C
New York	10815			New Jersey	59521
N. Carolina	258			New York	11135
N. Dakota	R-038			S. Carolina	88008
Pennsylvania	68366				
S. Carolina	94004				
Tennessee	02908				
Vermont	*				

Houston Analytical, Tx	
State	Cert #
N. Dakota	R-006
Oklahoma	8403
Texas Water Commission	*
Louisiana	*

* No certification numbers are issued for these states.

AnalytiKEM

II. Definition of Terms

Term	Definition
D	Detected; result must be greater than zero.
DI	Deionized Water
J	Compound was detected at levels below the practical quantitation limit. The level reported is approximate.
MS/MSD	Matrix Spike/Matrix Spike Duplicate.
NA	Analysis not applicable to the sample matrix.
ND	Not Detected
NR	Not Requested
NTU	Nephelometric Turbidity Units
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
TON	Threshold Odor Number
U	Compound was analyzed for but not detected. The preceding number is the practical quantitation limit for the compound.
ppb	Parts-per-billion; may be converted to ppm by dividing by 1,000.
ppm	Parts-per-million; may be converted to ppb by multiplying by 1,000.
ug/l	Micrograms of constituent per liter of sample; equivalent to parts-per-billion.
ug/kg	Micrograms of constituent per kilogram of sample; equivalent to parts-per-billion.
ug/kg dw	Micrograms of constituent per kilogram of sample reported on a dry weight basis.
CCC	Calibration Check Compound; used to verify the precision of a GC/MS calibration curve.
SPCC	System Performance Check Compound; used to verify the correct operation of a GC/MS instrument.
PQL	Practical Quantitation Limit; the minimum level at which compounds can be dependably quantitated.
B	Analyte detected in associated blank as well as the sample. It indicates possible/probable blank contamination.

AnalytiKEM

III. Sample Designations

AnyltiKEM Designation	Client Designation	Matrix	Date Sampled
A81104-1	WC #1	Nonaqueous	4/03/91
A81104-2	WC #2	Nonaqueous	4/03/91
A81104-3	WC #3	Nonaqueous	4/03/91
A81104-4	WC #4	Nonaqueous	4/03/91
A81104-5	MW #1	Aqueous	4/03/91,4/12/91
A81104-6	MW #2	Aqueous	4/03/91
A81104-7	MW #3	Aqueous	4/03/91
A81104-8	MW #4	Aqueous	4/03/91,4/12/91
A81104-9	MW #5	Aqueous	4/03/91
A81104-10	MW #6	Aqueous	4/03/91
A81104-11	MW #7	Aqueous	4/03/91
A81104-12	MW #8	Aqueous	4/03/91

Note: Samples will be held for 30 days beyond the test report date unless otherwise requested.

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IV. Methodology

All analysis are performed in accordance with methodologies found in the following publications:

- Federal Register, Vol. 49, No. 209, October 26, 1984.
- Federal Register, Vol. 51, No. 114, June 13, 1986.
- Test Methods for Evaluating Solid Waste, USEPA, SW-846, Second Edition, July 1982.
- Test Methods for Evaluating Solid Waste, USEPA, SW-846, Third Edition, November 1986.
- Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 16th Edition, 1985.
- Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, March 1983.
- Annual Book of ASTM Standards (1980 and 1983)
- OI Corporation Model 524C TOC Analyzer Manual, January 1983.

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V. Analytical Results

Volatile Organics

Parameter	Method Blank 1		A81104-5 MW #1		A81104-6 MW #2	
	Sample Designation					
Chloromethane	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U
Vinyl Chloride	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U
Methylene Chloride	10	U	10	U	10	U
2-Propanone (Acetone)	100	U	220		44	J
Carbon Disulfide	5.0	U	5.0	U	5.0	U
1,1-Dichloroethene	5.0	U	5.0	U	5.0	U
1,1-Dichloroethane	5.0	U	5.0	U	5.0	U
trans-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U
Chloroform	5.0	U	5.0	U	5.0	U
1,2-Dichloroethane	5.0	U	5.0	U	5.0	U
2-Butanone (MEK)	100	U	100	U	100	U
1,1,1-Trichloroethane	5.0	U	5.0	U	5.0	U
Carbon Tetrachloride	5.0	U	5.0	U	5.0	U
Vinyl Acetate	50	U	50	U	50	U
Bromodichloromethane	5.0	U	5.0	U	5.0	U
1,2-Dichloropropane	5.0	U	5.0	U	5.0	U
trans-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U
Trichloroethene	5.0	U	5.0	U	5.0	U
Dibromochloromethane	5.0	U	5.0	U	5.0	U
1,1,2-Trichloroethane	5.0	U	5.0	U	5.0	U
Benzene	5.0	U	5.0	U	1.8	J
cis-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U
2-Chloroethyl Vinyl Ether	10	U	10	U	10	U
Bromoform	5.0	U	5.0	U	5.0	U
4-Methyl-2-Pentanone (MIBK)	50	U	50	U	50	U
2-Hexanone	50	U	50	U	50	U
Tetrachloroethene	5.0	U	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	5.0	U	5.0	U	5.0	U
Toluene	5.0	U	5.0	U	5.0	U
Chlorobenzene	5.0	U	5.0	U	5.0	U
Ethylbenzene	5.0	U	5.0	U	5.0	U
Styrene	5.0	U	5.0	U	5.0	U
m-Xylene	5.0	U	5.0	U	67	
o,p-Xylene	5.0	U	5.0	U	5.0	U
Units	(ug/l)		(ug/l)		(ug/l)	

AnalytiKEM

V. Analytical Results (Cont'd)

Volatile Organics

Parameter	Method Blank 2	A81104-7 MW #3	A81104-8 MW #4	A81104-9 MW #5	A81104-11 MW #7
			Sample Designation		
Chloromethane	10 U	10 U	10 U	10 U	10 U
Bromomethane	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10 U	10 U	10 U	10 U	10 U
Chloroethane	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10 U	10 U	10 U	1.8 J	10 U
2-Propanone (Acetone)	100 U	100 U	1.4 J	17 J	490
Carbon Disulfide	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone (MEK)	100 U	100 U	100 U	100 U	100 U
1,1,1-Trichloroethane	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Acetate	50 U	50 U	50 U	50 U	50 U
Bromodichloromethane	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	5.0 U	5.0 U	5.6	5.2	5.0 U
cis-1,3-Dichloropropene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chloroethyl Vinyl Ether	10 U	10 U	10 U	10 U	10 U
Bromoform	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone (MIBK)	50 U	50 U	50 U	50 U	50 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U
Tetrachloroethene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Ethylbenzene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	5.0 U	5.0 U	5.0 U	5.0 U	
m-Xylene	5.0 U	63	470 *	1,700 *	5.0 U
o,p-Xylene	5.0 U	5.3	110	140	5.0 U
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)

* Result obtained from rerun due to saturation in original run.

V. Analytical Results (Cont'd)

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Volatile Organics

Parameter	Method Blank 3		A81104-10 MW #6		A81104-12 MW #8	
			Sample Designation			
Chloromethane	2.0	U	2.0	U	2.0	U
Bromomethane	2.0	U	2.0	U	2.0	U
Vinyl Chloride	2.0	U	2.0	U	2.0	U
Chloroethane	2.0	U	2.0	U	2.0	U
Methylene Chloride	0.29	J	2.4		0.78	J
2-Propanone (Acetone)	20	U	7.0	J	20	U
Carbon Disulfide	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	1.0	U	1.0	U	1.0	U
Chloroform	1.0	U	0.19	J	1.0	U
1,2-Dichloroethane	1.0	U	1.0	U	1.0	U
2-Butanone (MEK)	20	U	20	U	20	U
1,1,1-Trichloroethane	1.0	U	0.54	J	0.41	J
Carbon Tetrachloride	1.0	U	1.0	U	1.0	U
Vinyl Acetate	10	U	10	U	10	U
Bromodichloromethane	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	1.0	U	1.0	U	1.0	U
Trichloroethene	1.0	U	1.0	U	1.0	U
Dibromochloromethane	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1.0	U	1.0	U	1.0	U
Benzene	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	2.0	U	2.0	U	2.0	U
Bromoform	1.0	U	1.0	U	1.0	U
4-Methyl-2-Pentanone (MIBK)	10	U	10	U	10	U
2-Hexanone	10	U	10	U	10	U
Tetrachloroethene	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	1.0	U	1.0	U	1.0	U
Toluene	1.0	U	1.0	U	1.0	U
Chlorobenzene	1.0	U	1.0	U	0.2	J
Ethylbenzene	1.0	U	1.0	U	1.0	U
Styrene	1.0	U	1.0	U	1.0	U
m-Xylene	1.0	U	1.0	U	1.0	U
o,p-Xylene	1.0	U	1.0	U	1.0	U
Units	(ug/l)		(ug/l)		(ug/l)	

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V. Analytical Results (Cont'd)

Semivolatile Organics (Page 1 of 2)

Parameter	Sample Designation: Method Blank 1	A81104-5 MW #1	A81104-6 MW #2
N-Nitrosodimethylamine	5.0 U	10 U	10 U
Phenol	5.0 U	10 U	10 U
Bis(2-chloroethyl) Ether	5.0 U	10 U	10 U
2-Chlorophenol	5.0 U	10 U	10 U
1,3-Dichlorobenzene	5.0 U	10 U	10 U
1,4-Dichlorobenzene	5.0 U	10 U	10 U
Benzyl Alcohol	5.0 U	10 U	10 U
1,2-Dichlorobenzene	5.0 U	10 U	10 U
2-Methylphenol	5.0 U	10 U	10 U
Bis(2-chloroisopropyl) Ether	5.0 U	10 U	10 U
3+4-Methylphenol (m+p-Cresols)	5.0 U	10 U	10 U
N-Nitrosodipropylamine	5.0 U	10 U	10 U
Hexachloroethane	5.0 U	10 U	10 U
Nitrobenzene	5.0 U	10 U	10 U
Isophorone	5.0 U	10 U	10 U
2-Nitrophenol	5.0 U	10 U	10 U
2,4-Dimethylphenol	5.0 U	10 U	10 U
Benzoic Acid	25 U	50 U	50 U
Bis(2-chloroethoxy)methane	5.0 U	10 U	10 U
2,4-Dichlorophenol	5.0 U	10 U	10 U
1,2,4-Trichlorobenzene	5.0 U	10 U	10 U
Naphthalene	5.0 U	10 U	17
4-Chloroaniline	5.0 U	10 U	10 U
Hexachlorobutadiene	5.0 U	10 U	10 U
4-Chloro-3-methylphenol	5.0 U	10 U	10 U
2-Methylnaphthalene	5.0 U	10 U	16
Hexachlorocyclopentadiene	5.0 U	10 U	10 U
2,4,6-Trichlorophenol	5.0 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	50 U	50 U
2-Chloronaphthalene	5.0 U	10 U	10 U
2-Nitroaniline	25 U	50 U	50 U
Dimethyl Phthalate	5.0 U	10 U	10 U
Acenaphthylene	5.0 U	10 U	10 U
3-Nitroaniline	25 U	50 U	50 U
Acenaphthene	5.0 U	10 U	10 U
2,4-Dinitrophenol	25 U	50 U	50 U
Units	(ug/l)	(ug/l)	(ug/l)

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V. Analytical Results (Cont'd)

Semivolatile Organics (Page 2 of 2)

Parameter	Sample Designation: Method Blank 1	A81104-5 MW #1	A81104-6 MW #2
4-Nitrophenol	25 U	50 U	50 U
Dibenzofuran	5.0 U	10 U	10 U
2,4-Dinitrotoluene	5.0 U	10 U	10 U
2,6-Dinitrotoluene	5.0 U	10 U	10 U
Diethyl Phthalate	5.0 U	10 U	10 U
4-Chlorophenyl Phenyl Ether	5.0 U	10 U	10 U
Fluorene	5.0 U	10 U	10 U
4-Nitroaniline	25 U	50 U	50 U
4,6-Dinitro-2-methylphenol	25 U	50 U	50 U
N-Nitrosodiphenylamine	5.0 U	10 U	10 U
4-Bromophenyl Phenyl Ether	5.0 U	10 U	10 U
Hexachlorobenzene	5.0 U	10 U	10 U
Pentachlorophenol	5.0 U	10 U	10 U
Phenanthrene	5.0 U	10 U	10 U
Anthracene	5.0 U	10 U	10 U
Dibutyl Phthalate	3.6 J	10 U	10 U
Fluoranthene	5.0 U	10 U	10 U
Benzidine	25 U	50 U	50 U
Pyrene	5.0 U	10 U	10 U
Butylbenzyl Phthalate	5.0 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	20 U	20 U
Benzo(a)anthracene	5.0 U	10 U	10 U
Bis(2-ethylhexyl) Phthalate	5.0 U	10 U	120
Chrysene	5.0 U	10 U	10 U
Dioctyl Phthalate	5.0 U	10 U	10 U
Benzo(b)fluoranthene	5.0 U	10 U	10 U
Benzo(k)fluoranthene	5.0 U	10 U	10 U
Benzo(a)pyrene	5.0 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	5.0 U	10 U	10 U
Dibenzo(a,h)anthracene	5.0 U	10 U	10 U
Benzo(g,h,i)perylene	5.0 U	10 U	10 U
Units	(ug/l)	(ug/l)	(ug/l)

V. Analytical Results (Cont'd)

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Semivolatile Organics (Page 1 of 2)

Parameter	Sample Designation: Method Blank 1	A81104-7 MW #3	A81104-9 MW #5
N-Nitrosodimethylamine	5.0 U	10 U	10 U
Phenol	5.0 U	10 U	10 U
Bis(2-chloroethyl) Ether	5.0 U	10 U	10 U
2-Chlorophenol	5.0 U	10 U	10 U
1,3-Dichlorobenzene	5.0 U	10 U	10 U
1,4-Dichlorobenzene	5.0 U	10 U	10 U
Benzyl Alcohol	5.0 U	10 U	10 U
1,2-Dichlorobenzene	5.0 U	10 U	10 U
2-Methylphenol	5.0 U	10 U	10 U
Bis(2-chloroisopropyl) Ether	5.0 U	10 U	10 U
3+4-Methylphenol (m+p-Cresols)	5.0 U	10 U	10 U
N-Nitrosodipropylamine	5.0 U	10 U	10 U
Hexachloroethane	5.0 U	10 U	10 U
Nitrobenzene	5.0 U	10 U	10 U
Isophorone	5.0 U	10 U	10 U
2-Nitrophenol	5.0 U	10 U	10 U
2,4-Dimethylphenol	5.0 U	10 U	10 U
Benzoic Acid	25 U	50 U	50 U
Bis(2-chloroethoxy)methane	5.0 U	10 U	10 U
2,4-Dichlorophenol	5.0 U	10 U	10 U
1,2,4-Trichlorobenzene	5.0 U	10 U	10 U
Naphthalene	5.0 U	10 U	50
4-Chloroaniline	5.0 U	10 U	10 U
Hexachlorobutadiene	5.0 U	10 U	10 U
4-Chloro-3-methylphenol	5.0 U	10 U	10 U
2-Methylnaphthalene	5.0 U	10 U	34
Hexachlorocyclopentadiene	5.0 U	10 U	10 U
2,4,6-Trichlorophenol	5.0 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	50 U	50 U
2-Chloronaphthalene	5.0 U	10 U	10 U
2-Nitroaniline	25 U	50 U	50 U
Dimethyl Phthalate	5.0 U	10 U	10 U
Acenaphthylene	5.0 U	10 U	10 U
3-Nitroaniline	25 U	50 U	50 U
Acenaphthene	5.0 U	10 U	10 U
2,4-Dinitrophenol	25 U	50 U	50 U
Units	(ug/l)	(ug/l)	(ug/l)

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V. Analytical Results (Cont'd)

Semivolatile Organics (Page 2 of 2)

Parameter	Method Blank 1	A81104-7 MW #3	A81104-9 MW #5
		Sample Designation	
4-Nitrophenol	25 U	50 U	50 U
Dibenzofuran	5.0 U	10 U	10 U
2,4-Dinitrotoluene	5.0 U	10 U	10 U
2,6-Dinitrotoluene	5.0 U	10 U	10 U
Diethyl Phthalate	5.0 U	10 U	10 U
4-Chlorophenyl Phenyl Ether	5.0 U	10 U	10 U
Fluorene	5.0 U	10 U	10 U
4-Nitroaniline	25 U	50 U	50 U
4,6-Dinitro-2-methylphenol	25 U	50 U	50 U
N-Nitrosodiphenylamine	5.0 U	10 U	10 U
4-Bromophenyl Phenyl Ether	5.0 U	10 U	10 U
Hexachlorobenzene	5.0 U	10 U	10 U
Pentachlorophenol	5.0 U	10 U	10 U
Phenanthrene	5.0 U	10 U	10 U
Anthracene	5.0 U	10 U	10 U
Dibutyl Phthalate	3.6 J	10 U	10 U
Fluoranthene	5.0 U	10 U	10 U
Benzidine	25 U	50 U	50 U
Pyrene	5.0 U	10 U	10 U
Butylbenzyl Phthalate	5.0 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	20 U	20 U
Benzo(a)anthracene	5.0 U	10 U	10 U
Bis(2-ethylhexyl) Phthalate	5.0 U	10 U	14
Chrysene	5.0 U	10 U	10 U
Dioctyl Phthalate	5.0 U	10 U	10 U
Benzo(b)fluoranthene	5.0 U	10 U	10 U
Benzo(k)fluoranthene	5.0 U	10 U	10 U
Benzo(a)pyrene	5.0 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	5.0 U	10 U	10 U
Dibenzo(a,h)anthracene	5.0 U	10 U	10 U
Benzo(g,h,i)perylene	5.0 U	10 U	10 U
Units	(ug/l)	(ug/l)	(ug/l)

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V. Analytical Results (Cont'd)

Semivolatile Organics (Page 1 of 2)

Parameter	Sample Designation: Method Blank 2		A81104-8 MW #4	
N-Nitrosodimethylamine	5.0	U	10	U
Phenol	5.0	U	10	U
Bis(2-chloroethyl) Ether	5.0	U	10	U
2-Chlorophenol	5.0	U	10	U
1,3-Dichlorobenzene	5.0	U	10	U
1,4-Dichlorobenzene	5.0	U	10	U
Benzyl Alcohol	5.0	U	10	U
1,2-Dichlorobenzene	5.0	U	10	U
2-Methylphenol	5.0	U	10	U
Bis(2-chloroisopropyl) Ether	5.0	U	10	U
3+4-Methylphenol (m+p-Cresols)	5.0	U	10	U
N-Nitrosodipropylamine	5.0	U	10	U
Hexachloroethane	5.0	U	10	U
Nitrobenzene	5.0	U	10	U
Isophorone	5.0	U	10	U
2-Nitrophenol	5.0	U	10	U
2,4-Dimethylphenol	5.0	U	10	U
Benzoic Acid	25	U	3.8	J
Bis(2-chloroethoxy)methane	5.0	U	10	U
2,4-Dichlorophenol	5.0	U	10	U
1,2,4-Trichlorobenzene	5.0	U	10	U
Naphthalene	5.0	U	2.7	J
4-Chloroaniline	5.0	U	10	U
Hexachlorobutadiene	5.0	U	10	U
4-Chloro-3-methylphenol	5.0	U	10	U
2-Methylnaphthalene	5.0	U	10	U
Hexachlorocyclopentadiene	5.0	U	10	U
2,4,6-Trichlorophenol	5.0	U	10	U
2,4,5-Trichlorophenol	25	U	50	U
2-Chloronaphthalene	5.0	U	10	U
2-Nitroaniline	25	U	50	U
Dimethyl Phthalate	5.0	U	10	U
Acenaphthylene	5.0	U	10	U
3-Nitroaniline	25	U	50	U
Acenaphthene	5.0	U	10	U
2,4-Dinitrophenol	25	U	50	U
Units	(ug/l)		(ug/l)	

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V. Analytical Results (Cont'd)

Semivolatile Organics (Page 2 of 2)

Parameter	Method Blank 1	A81104-8 MW #4
		Sample Designation
4-Nitrophenol	25 U	50 U
Dibenzofuran	5.0 U	10 U
2,4-Dinitrotoluene	5.0 U	10 U
2,6-Dinitrotoluene	5.0 U	10 U
Diethyl Phthalate	5.0 U	10 U
4-Chlorophenyl Phenyl Ether	5.0 U	10 U
Fluorene	5.0 U	10 U
4-Nitroaniline	25 U	50 U
4,6-Dinitro-2-methylphenol	25 U	50 U
N-Nitrosodiphenylamine	5.0 U	10 U
4-Bromophenyl Phenyl Ether	5.0 U	10 U
Hexachlorobenzene	5.0 U	10 U
Pentachlorophenol	5.0 U	10 U
Phenanthrene	5.0 U	10 U
Anthracene	5.0 U	10 U
Dibutyl Phthalate	5.0 U	10 U
Fluoranthene	5.0 U	10 U
Benzidine	25 U	50 U
Pyrene	5.0 U	10 U
Butylbenzyl Phthalate	5.0 U	10 U
3,3'-Dichlorobenzidine	10 U	20 U
Benzo(a)anthracene	5.0 U	10 U
Bis(2-ethylhexyl) Phthalate	5.0 U	100
Chrysene	5.0 U	10 U
Dioctyl Phthalate	5.0 U	10 U
Benzo(b)fluoranthene	5.0 U	10 U
Benzo(k)fluoranthene	5.0 U	10 U
Benzo(a)pyrene	5.0 U	10 U
Indeno(1,2,3-cd)pyrene	5.0 U	10 U
Dibenzo(a,h)anthracene	5.0 U	10 U
Benzo(g,h,i)perylene	5.0 U	10 U
Cyclohexane	5.0 U	10 U
Units	(ug/l)	(ug/l)

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V. Analytical Results (Cont'd)

Semivolatile Organics (Page 1 of 2)

Parameter	Sample Designation: Method Blank 3	A81104-10 MW #6	A81104-11 MW #7	A81104-12 MW #8
N-Nitrosodimethylamine	5.0 U	10 U	10 U	10 U
Phenol	5.0 U	10 U	2.8 J	10 U
Bis(2-chloroethyl) Ether	5.0 U	10 U	10 U	10 U
2-Chlorophenol	5.0 U	10 U	10 U	10 U
1,3-Dichlorobenzene	5.0 U	10 U	10 U	10 U
1,4-Dichlorobenzene	5.0 U	10 U	10 U	10 U
Benzyl Alcohol	5.0 U	10 U	10 U	10 U
1,2-Dichlorobenzene	5.0 U	10 U	10 U	10 U
2-Methylphenol	5.0 U	10 U	10 U	10 U
Bis(2-chloroisopropyl) Ether	5.0 U	10 U	10 U	10 U
3+4-Methylphenol (m+p-Cresols)	5.0 U	10 U	10 U	10 U
N-Nitrosodipropylamine	5.0 U	10 U	10 U	10 U
Hexachloroethane	5.0 U	10 U	10 U	10 U
Nitrobenzene	5.0 U	10 U	10 U	10 U
Isophorone	5.0 U	10 U	10 U	10 U
2-Nitrophenol	5.0 U	10 U	10 U	10 U
2,4-Dimethylphenol	5.0 U	10 U	10 U	10 U
Benzoic Acid	4.3 J	4.7 J	8.3 J	50 U
Bis(2-chloroethoxy)methane	5.0 U	10 U	10 U	10 U
2,4-Dichlorophenol	5.0 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	5.0 U	10 U	10 U	10 U
Naphthalene	5.0 U	10 U	10 U	10 U
4-Chloroaniline	5.0 U	10 U	10 U	10 U
Hexachlorobutadiene	5.0 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	5.0 U	10 U	10 U	10 U
2-Methylnaphthalene	5.0 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	5.0 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	5.0 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	50 U	50 U	50 U
2-Chloronaphthalene	5.0 U	10 U	10 U	10 U
2-Nitroaniline	25 U	50 U	50 U	50 U
Dimethyl Phthalate	5.0 U	10 U	10 U	10 U
Acenaphthylene	5.0 U	10 U	10 U	10 U
3-Nitroaniline	25 U	50 U	50 U	50 U
Acenaphthene	5.0 U	10 U	10 U	10 U
2,4-Dinitrophenol	25 U	50 U	50 U	50 U
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)

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V. Analytical Results (Cont'd)

Semivolatile Organics (Page 2 of 2)

Parameter	Method Blank 3		A81104-10 MW #6		A81104-11 MW #7		A81104-12 MW #8	
			Sample Designation					
4-Nitrophenol	25	U	50	U	50	U	50	U
Dibenzofuran	5.0	U	10	U	10	U	10	U
2,4-Dinitrotoluene	5.0	U	10	U	10	U	10	U
2,6-Dinitrotoluene	5.0	U	10	U	10	U	10	U
Diethyl Phthalate	5.0	U	10	U	10	U	10	U
4-Chlorophenyl Phenyl Ether	5.0	U	10	U	10	U	10	U
Fluorene	5.0	U	10	U	10	U	10	U
4-Nitroaniline	25	U	50	U	50	U	50	U
4,6-Dinitro-2-methylphenol	25	U	50	U	50	U	50	U
N-Nitrosodiphenylamine	5.0	U	10	U	10	U	10	U
4-Bromophenyl Phenyl Ether	5.0	U	10	U	10	U	10	U
Hexachlorobenzene	5.0	U	10	U	10	U	10	U
Pentachlorophenol	5.0	U	10	U	10	U	10	U
Phenanthrene	5.0	U	10	U	10	U	10	U
Anthracene	5.0	U	10	U	10	U	10	U
Dibutyl Phthalate	5.0	U	10	U	2.0	J	10	U
Fluoranthene	5.0	U	10	U	10	U	10	U
Benzidine	25	U	50	U	50	U	50	U
Pyrene	5.0	U	10	U	10	U	10	U
Butylbenzyl Phthalate	5.0	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	20	U	20	U	20	U
Benzo(a)anthracene	5.0	U	10	U	10	U	10	U
Bis(2-ethylhexyl) Phthalate	5.0	U	10	U	2.8	J	10	U
Chrysene	5.0	U	10	U	10	U	10	U
Dioctyl Phthalate	5.0	U	10	U	9.6	J	10	U
Benzo(b)fluoranthene	5.0	U	10	U	10	U	10	U
Benzo(k)fluoranthene	5.0	U	10	U	10	U	10	U
Benzo(a)pyrene	5.0	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	5.0	U	10	U	10	U	10	U
Dibenzo(a,h)anthracene	5.0	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	5.0	U	10	U	10	U	10	U
Units	(ug/l)		(ug/l)		(ug/l)		(ug/l)	

AnalytiKEM

V. Analytical Results (Cont'd)

Metals

Parameter	Method Blank		A81104-5 MW #1		A81104-6 MW #2		A81104-7 MW #3	
			Sample Designation					
Aluminum	200	U	50,000		150,000		33,000	
Antimony	60	U	60	U	60	U	60	U
Arsenic	10	U	5.0	J	34	J	10	U
Barium	200	U	1,100		1,100		380	
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U
Cadmium	10	U	10	U	10	U	10	U
Calcium	5,000	U	13,000		40,000		9,500	
Chromium	50	U	87		220		56	
Cobalt	50	U	33	J	59		16	J
Copper	50	U	72		120		40	J
Iron	31	J	100,000		170,000		57,000	
Lead	50	U	50	U	110		50	U
Magnesium	5,000	U	26,000		30,000		9,200	
Manganese	15	U	3,200		2,300		760	
Mercury	2.0	U	2.0	U	2.0	U	2.0	U
Nickel	40	U	41		92		39	J
Potassium	5,000	U	27,000		24,000		6,200	
Selenium	10	U	10	U	10	U	10	U
Silver	50	U	50	U	41	J	50	U
Sodium	5,000	U	9,600		9,200		6,900	
Thallium	40	U	40	U	40	U	40	U
Vanadium	50	U	100		220		63	
Zinc	14	J	230		720		210	
Sulfur	1,000	U	3,200		11,000		2,700	
Boron	20	U	20	U	20	U	20	U
Lithium	50	U	50	U	130		33	J
Molybdenum	20	U	20	U	20	U	20	U
Silicon	920		740,000		620,000		410,000	
Strontium	50	U	59		150		50	U
Tin	50	U	50	U	50	U	50	U
Titanium	50	U	77,000		78,000		27,000	
Zirconium	50	U	50	U	50	U	50	U
Units	(ug/l)		(ug/l)		(ug/l)		(ug/l)	

AnalytiKEM

V. Analytical Results (Cont'd)

Metals

Parameter	Method Blank		A81104-8 MW #4		A81104-9 MW #5		A81104-10 MW #6	
	Sample Designation							
Aluminum	200	U	1,300		180,000		21,000	
Antimony	60	U	5.3	J	60	U	60	U
Arsenic	10	U	10	U	10	U	10	U
Barium	200	U	150	J	1,200		1,800	
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U
Cadmium	10	U	10	U	10	U	10	U
Calcium	5,000	U	22,000		25,000		25,000	
Chromium	50	U	50	U	460		20	U
Cobalt	50	U	50	U	67		16	J
Copper	50	U	50	U	220		40	J
Iron	31	J	23,000		360,000		31,000	
Lead	50	U	50	U	50	U	50	U
Magnesium	5,000	U	7,500		31,000		9,200	
Manganese	15	U	5,800		3,100		4,000	
Mercury	2.0	U	2.0	U	2.0	U	2.0	U
Nickel	40	U	40	U	150		40	U
Potassium	5,000	U	1,500	J	18,000		7,500	
Selenium	10	U	10	U	10	U	10	U
Silver	50	U	50	U	27	J	16	J
Sodium	5,000	U	6,100		6,300		6,700	
Thallium	40	U	40	U	40	U	40	U
Vanadium	50	U	50	U	480		30	J
Zinc	14	J	24		560		700	
Sulfur	1,000	U	2,100		960	J	2,700	
Boron	20	U	14	J	20	U	20	U
Lithium	50	U	50	U	58		50	U
Molybdenum	20	U	20	U	20	U	20	U
Silicon	920		92,000		660,000		270,000	
Strontium	50	U	57		84		110	
Tin	50	U	50	U	50	U	50	U
Titanium	50	U	1,100		170,000		16,000	
Zirconium	50	U	50	U	50	U	50	U
Units	(ug/l)		(ug/l)		(ug/l)		(ug/l)	

AnalytiKEM

V. Analytical Results (Cont'd)

Metals

Parameter	Method Blank		A81104-11 MW #7		A81104-12 MW #8	
			Sample Designation			
Aluminum	200	U	5,400		3,800	
Antimony	60	U	60	U	60	U
Arsenic	10	U	10	U	10	U
Barium	200	U	140	J	130	J
Beryllium	5.0	U	5.0	U	5.0	U
Cadmium	10	U	10	U	10	U
Calcium	5,000	U	49,000		30,000	
Chromium	50	U	50		50	U
Cobalt	50	U	50	U	50	U
Copper	50	U	20	J	50	U
Iron	31	J	7,600		6,400	
Lead	50	U	50	U	50	U
Magnesium	5,000	U	2,800	J	6,700	
Manganese	15	U	400		110	
Mercury	2.0	U	2.0	U	2.0	U
Nickel	40	U	40	U	40	U
Potassium	5,000	U	6,600		2,700	J
Selenium	10	U	10	U	10	U
Silver	50	U	50	U	50	U
Sodium	5,000	U	9,900		8,900	
Thallium	40	U	40	U	40	U
Vanadium	50	U	25	J	50	U
Zinc	14	J	190		73	
Sulfur	1,000	U	5,100		3,900	
Boron	20	U	20	U	20	U
Lithium	50	U	50	U	50	U
Molybdenum	20	U	92		20	U
Silicon	920		200,000		180,000	
Strontium	50	U	71		65	
Tin	50	U	50	U	50	U
Titanium	50	U	4,800		4,300	
Zirconium	50	U	50	U	50	U
Units	(ug/l)		(ug/l)		(ug/l)	

AnalytiKEM

VI. Quality Control Data

Volatile Organics

Aqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Sample Spiked A72162-6W-2

Parameter	Amount of Spike	Recovery MS	Recovery MSD
1,1-Dichloroethene	0.25	94	88
Trichloroethene	0.25	112	99
Benzene	0.25	107	110
Toluene	0.25	97	102
Chlorobenzene	0.25	100	104
Units	(ug)	(%)	(%)

Aqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Sample Spiked A81104-12

Parameter	Amount of Spike	Recovery MS	Recovery MSD
1,1-Dichloroethene	0.25	102	101
Trichloroethene	0.25	108	102
Benzene	0.25	106	102
Toluene	0.25	89	88
Chlorobenzene	0.25	104	101
Units	(ug)	(%)	(%)

AnalytiKEM

VI. Quality Control Data (Cont'd)

Volatile Organics

Aqueous Surrogate Recovery Data

Sample Designation	Surrogate Recovery: 1,2-Dichloroethane-d_4 (0.25 ug Added)	Toluene-d_8 (0.25 ug Added)	4-Bromofluorobenzene (0.25 ug Added)
Method Blank 1	90	98	98
Method Blank 2	91	103	98
Method Blank 3	83	100	97
A72162-6W-2 Spike	89	97	93
A72162-6W-2 Spike Dup.	92	96	95
A81104-12 Spike	92	99	98
A81104-12 Spike Dup.	97	100	100
A81104-5	94	103	99
A81104-6	96	115	98
A81104-7	104	101	105
A81104-8	100	109	93
A81104-9	98	103	100
A81104-10	86	99	99
A81104-11	98	97	98
A81104-12	86	99	97
Units	(%)	(%)	(%)

VI. Quality Control Data (Cont'd)

AnalytiKEM

Semivolatile Organics

Aqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Sample Spiked A72161-EFF

Parameter	Amount of Spike	Recovery MS	Recovery MSD
1,4-Dichlorobenzene	50	66	70
N-Nitrosodipropylamine	50	56	37
1,2,4-Trichlorobenzene	50	71	75
Acenaphthene	50	74	72
2,4-Dinitrotoluene	50	96	89
Pyrene	50	52	50
Phenol	100	41	48
2-Chlorophenol	100	71	82
4-Chloro-3-methylphenol	100	79	86
4-Nitrophenol	100	40	40
Pentachlorophenol	100	86	89
Units	(ug)	(%)	(%)

AnalytiKEM

VI. Quality Control Data (Cont'd)

Semivolatile Organics

Aqueous Surrogate Recovery Data

Sample Designation	Surrogate Recovery 2-Fluorophenol (100 ppb Added)	Phenol-d_5 (100 ppb Added)	2,4,6-Tribromophenol (100 ppb Added)
Method Blank 1	38	24	52
Method Blank 2	36	16	62
Method Blank 3	36	24	46
A72161-EFF Spike	43	33	78
A72161-EFF Spike Dup.	50	40	84
A81104-5	41	28	48
A81104-6	13	10	30
A81104-7	45	32	70
A81104-8	1.2	*	2.6
A81104-8 Rerun	4.0	3.0	17
A81104-9	41	29	64
A81104-10	40	27	55
A81104-11	37	25	67
A81104-12	36	23	62
Units	(%)	(%)	(%)

Sample Designation	Surrogate Recovery Nitrobenzene-d_5 (50 ppb Added)	2-Fluorobiphenyl (50 ppb Added)	Terphenyl-d_{14} (50 ppb Added)
Method Blank 1	49	52	65
Method Blank 2	55	63	73
Method Blank 3	55	53	60
A72161-Eff Spike	72	76	70
A72161-Eff Spike Dup.	75	80	72
A81104-5	70	71	59
A81104-6	65	65	66
A81104-7	72	75	53
A81104-8	57	66	48
A81104-8 Rerun	56	62	49
A81104-9	67	68	71
A81104-10	60	65	60
A81104-11	52	54	60
A81104-12	36	35	46
Units	(%)	(%)	(%)

* Not recovered due to Matrix Interference.

AnalytiKEM

VI. Quality Control Data (Cont'd)

Metals

Aqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Parameter	Sample Spiked	Amount of Spike	Recovery MS	MSD
Antimony	A72106-P.C.	300	115	--
Antimony	DI Water	300	105	--
Arsenic	A81104-12	300	78	86
Barium	A81104-12	300	98	103
Beryllium	A81104-12	300	107	110
Cadmium	A81104-12	300	103	103
Chromium	A81104-12	300	102	104
Copper	A81104-12	300	101	103
Lead	A81104-12	300	103	107
Mercury	A81104-12	20	112	110
Nickel	A81104-12	300	101	104
Selenium	A81104-12	300	89	102
Silver	A81104-12	300	101	102
Thallium	A81104-12	300	106	114
Zinc	A81104-12	300	102	103
Units		(ppb)	(%)	(%)

Ref. 4

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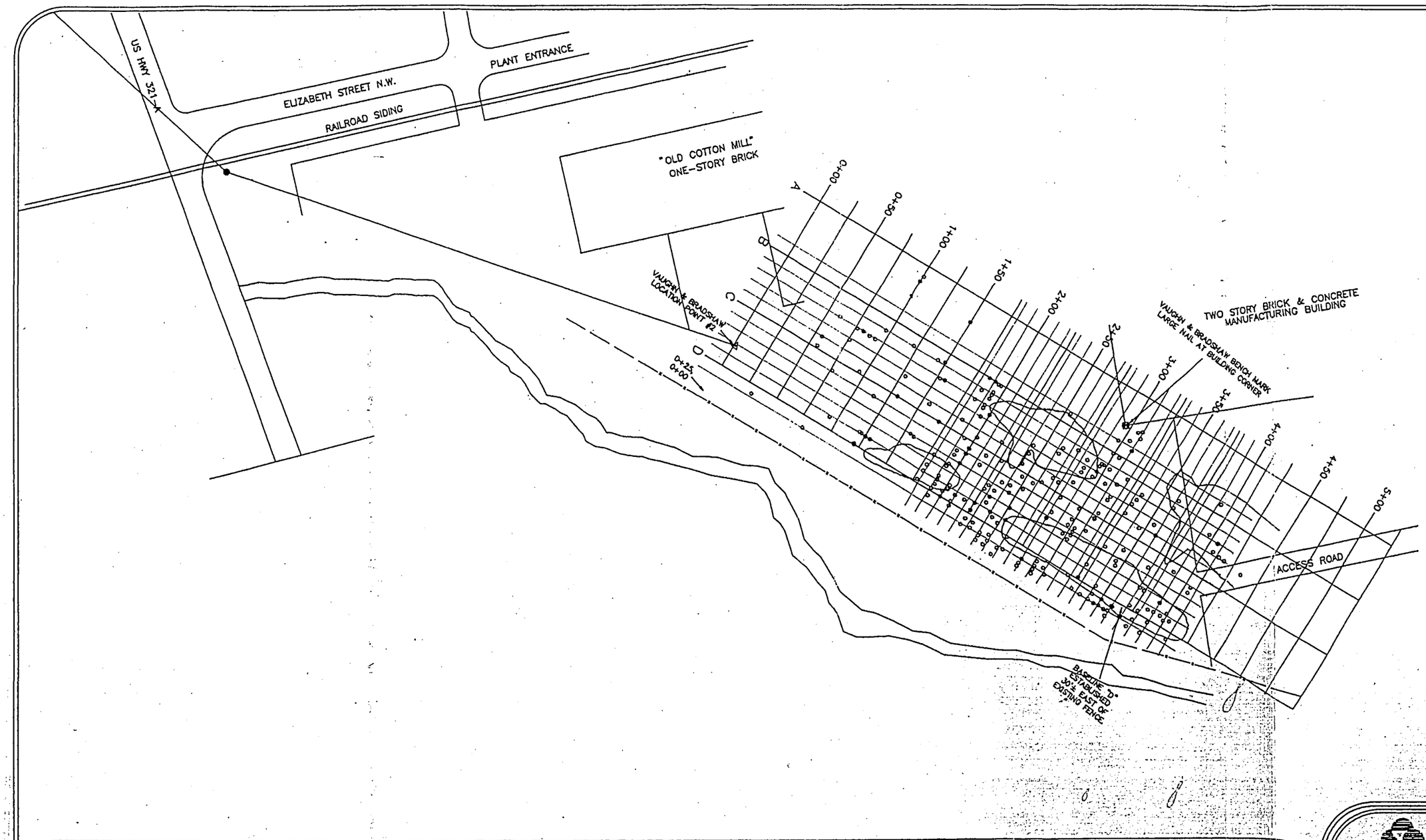
TFI Lenoir, North Carolina
Phase II Assessment Report

Prepared for
Thomasville Furniture Industries, Incorporated

May 6, 1992

ENSCI Corporation
1108 Old Thomasville Road
High Point, North Carolina 27260
(919) 883-7505



	BLAIR FORK CREEK	GRID SYSTEM SURVEY COMPLETED BY MARK TERRY & ASSOCIATES.	
	LOCATION OF HYPERBOLIC ANOMALY		
	POSSIBLE TRENCH OR SOIL INTERFACE BOUNDARY	COMPOUND:	
	10' X 10' GRID SYSTEM		

0 20 40 60 80 120 160

GRAPHIC SCALE IN FEET

NOTE:

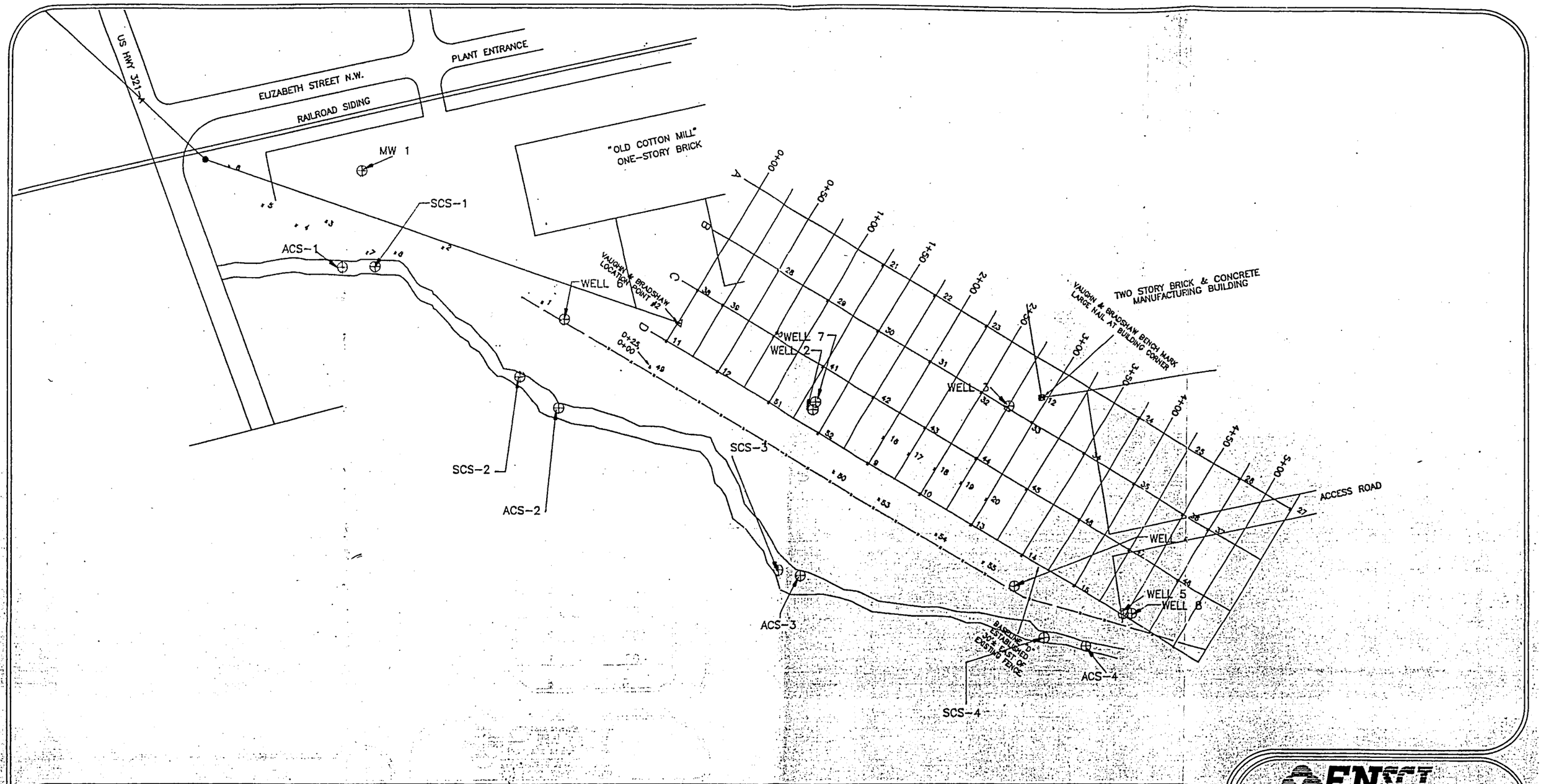
CREEK LOCATION IS APPROXIMATE. NO CREEK LOCATION SURVEY WAS COMPLETED. LOCATION OF CREEK DETERMINED USING DRAWING DATED 1-4-72. DRAWN BY HUTH ENGINEERS INC., OF LANCASTER PA., REFERENCE NO. TFI-LN-RE-2.

ENSCI
ENVIRONMENTAL SERVICES GROUP
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED

TITLE: SUBSURFACE INTERFACE RADAR ANOMALIES (WITH 25'X50' AND 10'X10' GRID SYSTEM)

SCALE: 1" = 80'	DWN BY: DJ	FIGURE: 2
DATE: 12/91	CK BY: BB	JOB #: H91017A



WELL 2	MONITORING WELL LOCATION AND IDENTIFICATION NUMBER	SURVEY OF MONITORING WELLS COMPLETED BY JAMES M. BRADSHAW ON 8 MAY 91. SURVEY GRID COMPLETED BY MARK TERRY AND ASSOCIATES.
+12	TOTAL IONIZATION SAMPLE LOCATION AND IDENTIFICATION NUMBER	
ACS-2	AQUEOUS CREEK SAMPLE LOCATION	
SCS-2	SEDIMENTARY CREEK SAMPLE LOCATION	

0 20 40 60 80 120 160

GRAPHIC SCALE IN FEET

NOTE:

CREEK LOCATION IS APPROXIMATE, AS NO SURVEY WAS ACCOMPLISHED. CREEK LOCATION DETERMINED WITH FOLLOWING REFERENCE DRAWING, DATED 1-4-72 DRAWN BY HUTH ENGINEERS INC., OF LANCASTER, PA. REFERENCE NO., TFI-LN-RE-2.

ENSCI
ENVIRONMENTAL SERVICES GROUP
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED

TITLE: MONITORING WELL AND SAMPLE LOCATIONS

SCALE: 1" = 80'	DWN BY: DJ	FIGURE: 6
DATE: 12/91	CK BY: BB	JOB #: H91017A

This Phase II Assessment Report is intended to supplement data generated in the Phase I investigation.

2. Scope of Work

Subsequent to the Phase I investigation, TFI undertook a Phase II investigation at the Lenoir facility. The Phase II Site Assessment targeted the following goals:

- Perform additional groundwater sampling with respect to library search results generated by AnalytiKEM, Incorporated for ENSCI Corporation.
- Acquire samples of sediment and water from Blair Fork Creek, upgradient and downgradient of the TFI facility. Test samples using parameters defined by the Phase I library search results.
- Make initial determination of the horizontal extent of the area impacted by a potential drum burial site, including potential drum cache locations and related contaminant levels.

To accomplish the above goals, the work was divided into two tasks. Task I included the detailed definition of any plume by soil gas analysis and the location of potential buried caches of drums. Task II included the re-sampling of existing monitoring wells, stream sediment, and stream water.

ENSCI Corporation personnel mobilized to the Lenoir facility in September, 1990 to implement the work. A brief description of the work follows:

2.1 Task I Summary

The goals of Task I include initial definition of the horizontal extent of the area impacted by any potential drum burial site, location of any potential drum burial caches, and estimation of contaminant identity and concentrations in soil. To accomplish these goals, ENSCI conducted a three-step process

- define soil gas anomalies using Petrex sampling tubes (initial horizontal extent)
- delineate possible trench locations and possible buried drum caches using ground-penetrating radar, and
- determine contaminant identity and estimated concentration by referencing the soil gas analysis to groundwater data generated in the Phase I Site Assessment and Task II of this scope of work.

inches. The data set of paper profiles generated by GSSI were supplied to ENSCI for further analysis and interpretation. Several sample profiles are shown as Figures 4 and 5. The profiles were also recorded on a color video display unit using a stereo tape recorder. The recorded profiles contain a higher resolution output which is reviewed on screen to enhance the interpretation of the hard copied data.

4.2 SIRS Results

The purpose of conducting the SIRS investigation was to detect the presence of possible buried drum caches and possible former trench locations. Figures 4 and 5 demonstrate examples of anomalous features at the facility that were detected using SIRS. These two figures demonstrate anomalies that may reflect both a trench position and drum locations. Figure 4 is an example of a profile in the north-south direction along a line 10-feet east of the D-line of the survey grid. There are three areas along this profile where concentrations of hyperbolic targets were interpreted. These hyperbolic targets are present from 100 feet to 150 feet, 200 feet to 260 feet, and 370 feet to 400 feet along the profile. As seen in the figure, there are multiple targets that have been circled. These reflections are thought to represent round top metallic targets that may be drums. This profile also shows an area where there is considerable attenuation of the radar signal from approximately 270 feet to 340 feet. This attenuation is interpreted as soils and/or sub-surface materials that differ from the surrounding areas, based on comparisons to other data profiles. These results are consistent with those which would exist at a trench location.

Figure 5 shows an SIRS profile acquired at the TFI Facility along the 260 line of the survey in an east-west direction. The anomaly indicated in the Figure is a steeply dipping reflector between the B & C marks of the profile. This area is possibly a reflection off a trench boundary, or a steeply dipping lateral change in the soil stratigraphy. Also present between the B & C marks is a signal ringing, or multiples, that are interpreted as near surface anomalies that are conductive. These reflections may represent crushed drums or other metallic debris. Figure 2 shows the TFI site plan and grid system with anomalies discovered by the SIRS. As seen in the Figure, approximately 225 hyperbolic anomalies were found. These types of anomalies are typical of round top targets that may be metallic.

SIRS anomalies mapped in Figure 2 indicate a concentration of parabolic targets, in a north-south orientation, sub-parallel to the fence along the western parking lot boundary (near the D grid line). Another linear concentration of parabolic targets is oriented east-west and immediately north of the 2+00 grid line. Another vague linear alignment of parabolic reflections lies to the

west of grid line C, between 1+75 and 4+00. Many anomalous reflections are present at the TFI facility, as seen in the Figure. However, there are also many parabolic reflections present that do not appear to have any discernable orientation. These reflections may represent false signals, targets other than buried drums, or they may indicate a random burial practice.

The total number of hyperbolic reflections detected during this SIRS is on the order of 225 individual anomalies. The bulk of these targets were detected between 1+75 and 4+00 to the west of grid line B (see Figure 2). This area was surveyed on a 10 foot grid spacing by SIRS. In general, when a transducer is towed across a survey grid, the width of the surveyed area is, by convention, considered to be a line centered directly below the SIRS transducer. In reality, the SIRS generated signal is approximately 3 feet in width (equal to the transducer). Allowing for a surveyed area 3 feet in width below each grid line, it becomes very obvious that the area actually surveyed is approximately 50% of the total area present within a 10 foot grid spacing. Assuming that 50% of the area of interest has been surveyed, it is plausible to conclude that more hyperbolic targets may be present within the surveyed area.

In addition to 50% coverage of the survey area using 10-foot grid spacings, one must consider that the detected hyperbolic anomalies represent the first contacted target. Any potential signal generated by targets that occur at depths below those shown in Figure 2 will be occluded by the uppermost hyperbolic signal. The net effect of this phenomenon is a potential for multiple anomalies being present where only one has been indicated.

ENSCI believes data yielded by this type of geophysical investigation is invaluable when conducting a site assessment. We do, however, also advocate the use of "ground truth" to confirm that detected anomalies are real. Accordingly, the data cannot be taken literally to conclude that buried drums are located at each of the hyperbolic reflections mapped in Figure 2.

5. Sampling and Analysis

Task II included detailed sampling and analysis of groundwater recovered from TFI monitoring wells (see Appendix B). In addition, ENSCI proposed to sample Blair Fork Creek water and sediment. During September, 1991, all existing monitoring wells were purged a minimum of three well volumes and sampled using the following analytical methodologies:

- EPA Method 608/8080 for Polychlorinated Biphenyls (PCBs)
- EPA Method 9020 for Total Organic Halogen
- Polar & Non-Polar Hydrocarbons by IR

5.2.3 Sedimentary Total Hydrocarbons and Organic Halogens

A summary of analytical results for Blair Fork Creek sediment samples can be found in Table 6 (see Appendix C). As seen in the Table, positive analytical results have been reported for Total Polar and Non-Polar Hydrocarbons, Oil & Grease, and Organic Halogen. Monitoring well data for this test method indicates highest concentrations of Polar compounds in the vicinity of MW #2 (4.7 ppm). Blair Fork Creek aqueous samples show equal concentrations of Polar compounds in both upgradient sample positions (ACS #1 & ACS #2). Observing the positions of SIRS hyperbolic target concentrations and SCS #2 & SCS #3 in Figures 2 and 6, it becomes obvious that the detected Polar compounds in the creek sediment would need to migrate strongly upgradient to appear at the sediment sample locations.

Upgradient migration is often possible when the released materials have very light density and groundwater flows at a very slow rate. In this instance, given the geology and miscibility of Polar compounds in water, a scenario such as this seems unlikely. A more plausible explanation for the high detected levels in the middle two samples might be a manifestation of the proposed gaining stream theory presented above. As explained, the detected contaminants are upwelling through the stream channel as the plume intersects the stream at a low angle with respect to the direction of flow. Given the detected levels of Polar compounds in the middle stream sediment samples (up to 94 ppm), and the low values detected in aqueous stream and groundwater samples, the two middle sediment samples may represent portions of the upwelling plume through the stream bottom. This theory would require a source in the direction of the Reliance facility that is migrating onto TFI property.

Non-Polar Petroleum Hydrocarbon (typical fuel hydrocarbon) results for creek sediment samples indicate a Non-Polar high in the vicinity of SCS #2 that decreases with distance downstream. These observations are in agreement with other hydrocarbon analyses discussed above and soil gas results discussed below. As discussed above, Blair Fork Creek appears to be a gaining stream; this data lends support to conclusions drawn above about a low angle intersection of the stream with a plume sourced hydraulically upgradient.

Oil & Grease analytical results for creek sediment samples are included in Table 6. These analytical results are variable and do not correlate well with the other TPH analyses discussed above. The results suggest two hot spots, with each high followed downgradient by lower values of TPH. If the detected levels of TPH are correct, the data could indicate two plumes intersecting the creek in a manner discussed above.

Results of a Total Organic Halogen test performed on creek sediment samples are included in Table 6. These results indicate the

TABLE 4

BLAIR FORK CREEK AQUEOUS SAMPLES
TARGET COMPOUND LIST
POSITIVE ANALYTICAL RESULTS
REPORTED IN ppm

Samples Collected 9/27/91

VOLATILE ORGANIC COMPOUNDS

	ACS #1	ACS #2	ACS #3	ACS #4	NC GROUNDWATER STANDARDS 15 NCAC SUBCHAPTER 2L SECTION .0200
2 - Propanone	.470	.510	.630	.660	NO STANDARD
2 - Butanone	.024	.020	.007	ND	.170
4 Methyl - 2 - Pentanone	ND	ND	ND	.023	NO STANDARD
Toluene	.008	.004	ND	.003	1.0
Ethylbenzene	.011	.005	ND	.005	.029
m - Xylene	.025	.017	.010	.013	* .40
o,p - Xylene	.018	.012	.008	.011	* .40

SEMIVOLATILE ORGANIC COMPOUNDS

	ACS #1	ACS #2	ACS #3	ACS #4	NC GROUNDWATER STANDARDS 15 NCAC SUBCHAPTER 2L SECTION .0200
2 - Methylphenol	ND	ND	ND	.011	NO STANDARD

ND = Not Detected
* = Total Xylenes (m, o, and p)

TABLE 6

BLAIR FORK CREEK SEDIMENT SAMPLES
POSITIVE ANALYTICAL RESULTS
REPORTED IN ppm

Samples Collected 9/27/91

TOTAL POLAR PETROLEUM HYDROCARBONS, BY IR

SCS #1	SCS #2	SCS #3	SCS #4
73.0	91.0	94.0	66.0

TOTAL NON-POLAR PETROLEUM HYDROCARBONS, BY IR

SCS #1	SCS #2	SCS #3	SCS #4
ND	46.0	39.0	36.0

OIL & GREASE

SCS #1	SCS #2	SCS #3	SCS #4
120.0	75.0	190.0	54.0

TOTAL ORGANIC HALOGEN, BY IC

SCS #1	SCS #2	SCS #3	SCS #4
1.4	1.5	ND	ND

Polar Petroleum Hydrocarbons - Possibly Alcohol

Non-Polar Petroleum Hydrocarbons - Typical Fuel Hydrocarbons

ND = Not Detected

actual concentration numbers on the sampling points. All information generated is presented as relative to the background levels detected in the peripheral boundary of the survey grid. To determine actual concentrations, physical samples need to be analyzed in a laboratory.

Prior to initiation of the Petrex sampling tube survey, ENSCI Corporation installed five time calibration tubes. These time calibration tubes were installed in the area suspected of possessing the highest concentrations of soil gas to establish an optimal exposure time for the activated carbon wires. The optimal Petrex tube residence time is calculated based on total ion sorption during a known interval of time. Following laboratory desorption of four time calibration tubes, it was determined that an optimal residence time for this soil gas survey was on the order of twenty-four hours. Table 7 presents a summary of the Petrex tube ID Number, Station Number, Installation Time, Removal Time, and data on the conditions of the boring into which the tube was installed.

As seen in Table 7, ENSCI Corporation installed a total of 55 Petrex sampling tubes at the TFI Facility. These sampling tubes were installed on a grid system established prior to initiation of the soil gas survey (see Figure 2). With the exception of sampling points seven and eight, all of the Petrex tubes were installed into 18-inch lengths of EMT electrical conduit 1½-inch in diameter (see Figure 14). In the field, a hammer drill was used to advance each of the bore holes. This hammer drill was equipped with a carbide tip drill bit 18" long. Following advancement of the drill bit, the EMT conduit was placed in the bore hole. Each of the Petrex sampling tubes were attached to a piece of decontaminated iron wire and lowered into the galvanized tube, open end down (see Figure 14).

After removal of the Petrex tubes, all of the tubes were sent via express courier to Northeast Research Institute, Incorporated Laboratories in Farmington, Connecticut. At the laboratory, the survey tubes were analyzed using the methodology summarized above. Included in Appendix D is a standard protocol for the use of Petrex tubes in performing a soil gas survey. This protocol was diligently followed, with any exceptions noted above.

6.2 Soil Gas Survey Results

Figures 15 - 20 are isoconcentration maps generated from total ion count data detected by the Petrex soil gas survey. As seen in the Figures, a variety of organic compounds have been detected at the facility. These organics include petroleum hydrocarbons, cycloalkanes/alkenes, and halogenated compounds. These compounds have been detected at various sampling points in the survey grid. As stated in Section 6.2.1, each individual sampling point in the

Petrex survey has the ability to generate multiple "fingerprints" from soil gas. These fingerprints are then used to create the various maps shown in Figures 15-20. The isoconcentration maps generated from this data ONLY demonstrate relative concentrations of the identified compounds as related to background levels. The information shown in the Figures pertains to soil gas only and should not be interpreted as reflective of actual concentrations of the identified constituent in soil or groundwater.

Figure 15 shows isoconcentrations of petroleum hydrocarbons detected at the TFI facility. The petroleum hydrocarbons shown in this map are totals of benzene, toluene, ethylbenzene, and xylene (BTEX) detected at each Petrex sampling point. As seen in the Figure, two areas of the TFI facility possess high levels of petroleum hydrocarbons in soil gas. These soil gas concentration areas occur in the northern portions and southwestern corner of the Petrex survey grid. The southwestern soil gas concentration may be connected to the SIRS target data discussed in Section 4.2. The soil gas concentration detected in the northern portion of Petrex survey suggests that an upgradient source is present.

Figures 16, 17, and 18 are the individual BTEX constituents making up the petroleum hydrocarbon map seen in Figure 15. By reviewing these maps in conjunction with Figure 15, it can be seen that the southwestern soil gas plume is composed mostly of benzene, ethylbenzene, and xylene. Toluene is present in the southwestern corner, but in low concentration compared to background levels. The interesting feature observed while reviewing Figures 15 to 18 is that the soil gas high detected in the northern Petrex survey area is composed almost entirely of toluene. It is very unlikely that a plume composed mostly of one constituent would fractionate from a general population of released materials and then migrate up a steep hydraulic gradient to the current position. A source of toluene almost certainly is present in the upgradient direction.

Figure 19 is an isoconcentration map of cycloalkanes/alkenes generated from the Petrex survey. Reviewing this map and Figure 15 demonstrates that these constituents contribute to a large portion of the southwestern soil gas plume. This group of organics is probably represented by alicyclic and aromatic hydrocarbon compounds. Examples of alicyclic hydrocarbons include naphthenes and cyclohexanes. Aromatic hydrocarbons would include benzene and naphthalene group hydrocarbons.

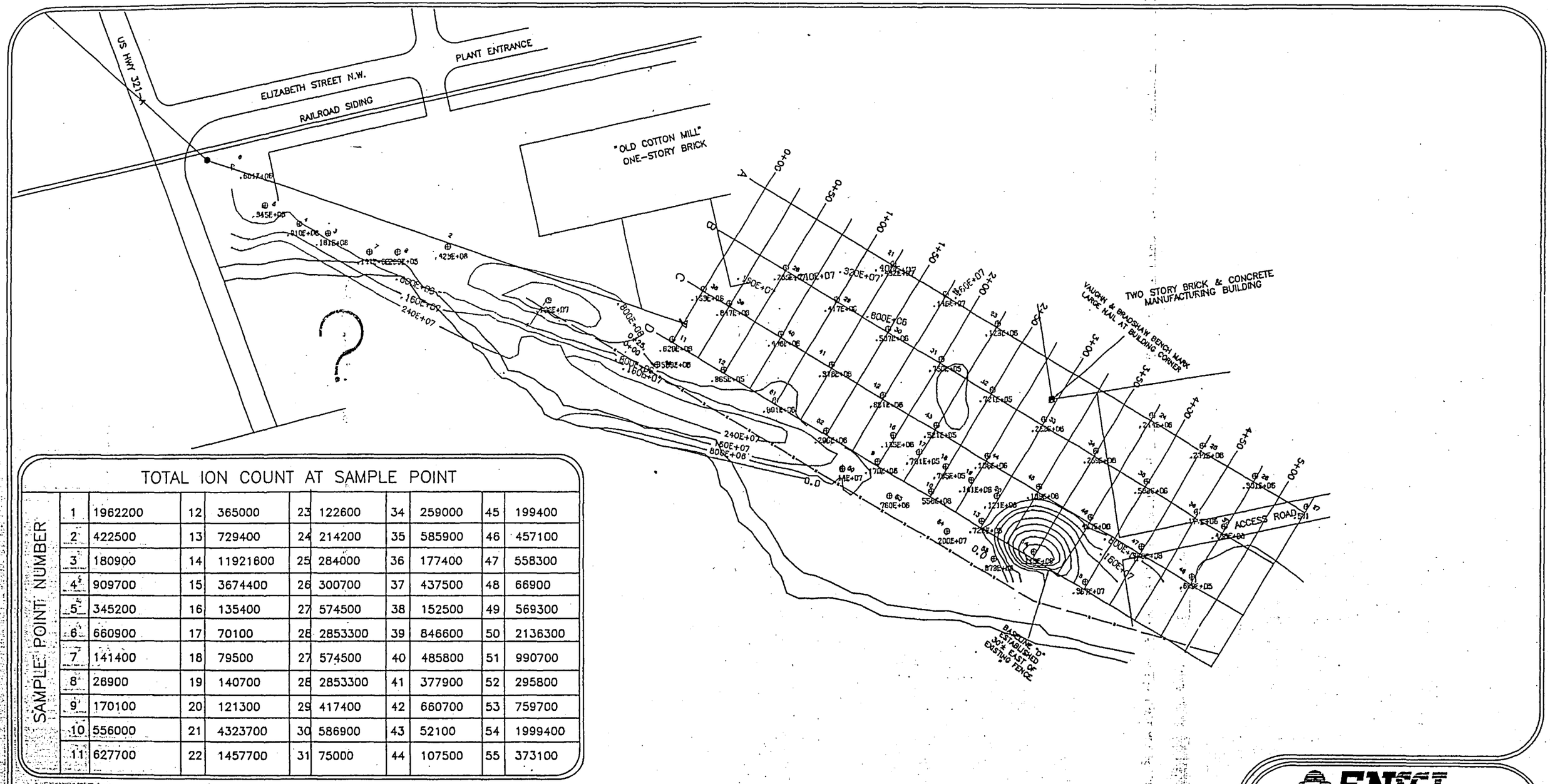
Several Petrex sampling tubes detected elevated levels of halogenated compounds in the survey area. Isoconcentrations of these compounds are presented in Figure 20. As shown in the Figure, the compound is thought to be trichloroethane or some type of freon, based on the mass weight of the ions. The identification of the compound as trichloroethane does not agree with current analytical data generated from Phase II monitoring well sampling. However, as indicated in the discussion under Section 5.1.1,

trichloroethane was picked up below a detection limit of 1 ppb in the Phase I analytical work. It may be possible to reconcile this disparity through additional sampling and analysis of monitoring wells near the halogenated soil gas high (MW #2 & MW #4).

7. Conclusions

Based on the results of the SIRS investigation, Petrex survey, and analytical work, the following conclusions can be drawn:

- SIRS data indicates several linear alignments of hyperbolic reflections, but a very random pattern also exists in the northern area of high target density.
- SIRS detected targets are on the order of 200+ individual hyperbolic reflections with 50% coverage of the suspect area. Due to SIRS limitations, this value only represents the uppermost or first target encountered.
- The detected materials are a combination of petroleum hydrocarbons and widespread, low-level halogenated compounds.
- Soil gas anomalies indicate a plume composed almost exclusively of toluene is present well north of SIRS clusters, possibly indicating a source near/at the Reliance facility.
- Soil gas plume definition, groundwater plume definition and impacted soil delineation has not been completed to the south/southwest along Blair Fork Creek.
- North Carolina State Superfund Section reports indicate the Reliance facility is fraught with plumes of widely disparate chemicals that impact Blair Fork Creek, groundwater, and soil to an undetermined extent.



TOTAL ION COUNT AT SAMPLE POINT

SAMPLE POINT NUMBER									
1	1962200	12	365000	23	122600	34	259000	45	199400
2	422500	13	729400	24	214200	35	585900	46	457100
3	180900	14	11921600	25	284000	36	177400	47	558300
4	909700	15	3674400	26	300700	37	437500	48	66900
5	345200	16	135400	27	574500	38	152500	49	569300
6	660900	17	70100	28	2853300	39	846600	50	2136300
7	141400	18	79500	27	574500	40	485800	51	990700
8	26900	19	140700	28	2853300	41	377900	52	295800
9	170100	20	121300	29	417400	42	660700	53	759700
10	556000	21	4323700	30	586900	43	52100	54	1999400
11	627700	22	1457700	31	75000	44	107500	55	373100

8.4 — ISOCONCENTRATION CONTOUR

40 — SAMPLE NUMBER

⊕ — SAMPLE LOCATION

.136E+07 — TOTAL ION COUNT FOR SAMPLE

ANALYTICAL RESULTS OBTAINED FROM:

NORTHEAST RESEARCH INSTITUTE
FARMINGTON, CT.

COMPOUND:

BENZENE

0 20 40 60 80 120 160

GRAPHIC SCALE IN FEET

NOTE:

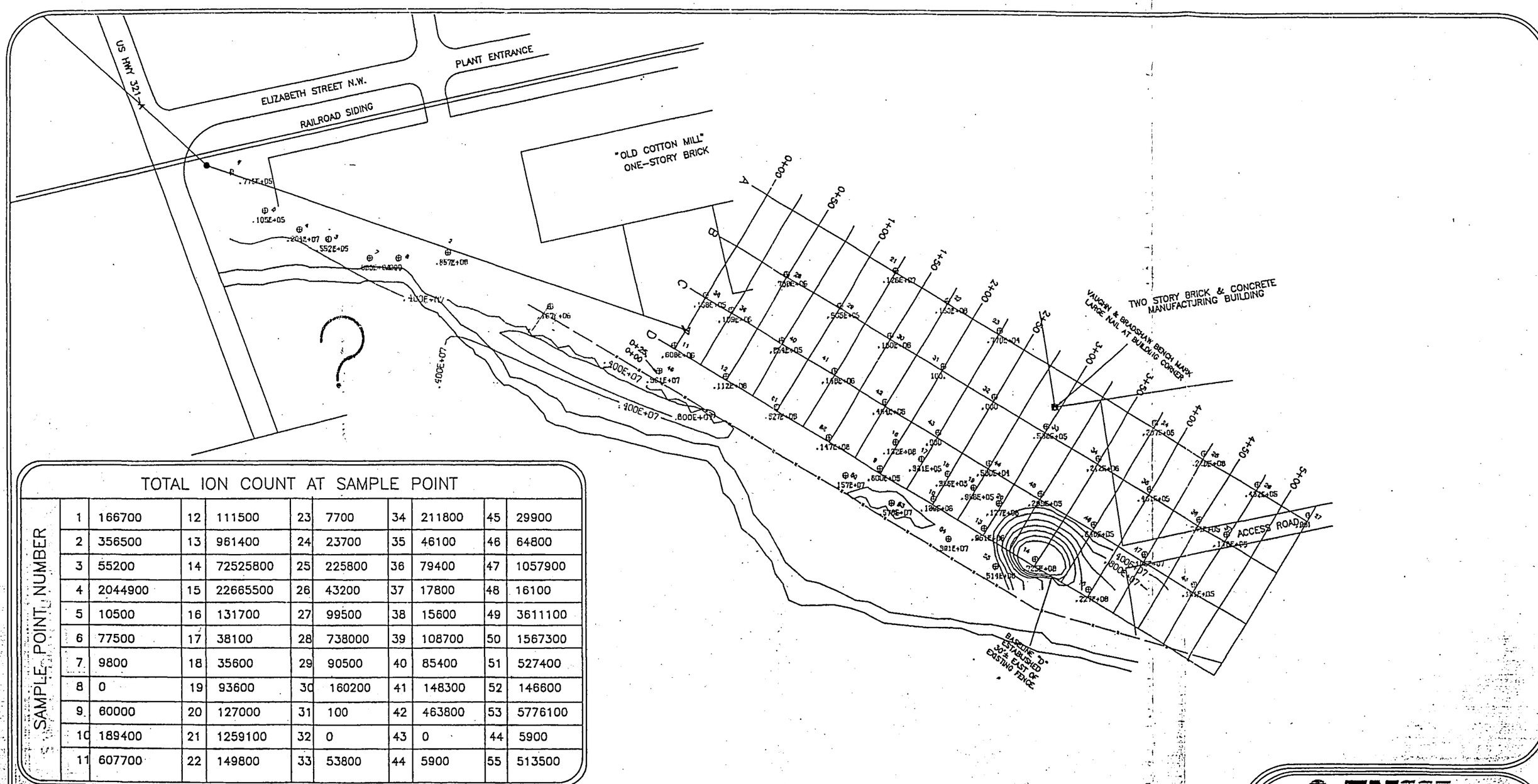
CREEK LOCATION IS APPROXIMATE. NO CREEK LOCATION SURVEY WAS COMPLETED. LOCATION OF CREEK DETERMINED USING DRAWING DATED 1-4-72, DRAWN BY HUTH ENGINEERS INC., OF LANCASTER PA., REFERENCE NUMBER TFI-LN-RE-2.

ENSCI
ENVIRONMENTAL SERVICES GROUP
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED

TITLE: BENZENE ION COUNT MAP

SCALE:	DWN BY:	FIGURE:
1"=80'	DJ	16
DATE: 12/91	CK BY: BB	JOB #: H91017A



TOTAL ION COUNT AT SAMPLE POINT

SAMPLE POINT NUMBER									
1	166700	12	111500	23	7700	34	211800	45	29900
2	356500	13	961400	24	23700	35	46100	46	64800
3	55200	14	72525800	25	225800	36	79400	47	1057900
4	2044900	15	22665500	26	43200	37	17800	48	16100
5	10500	16	131700	27	99500	38	15600	49	3611100
6	77500	17	38100	28	738000	39	108700	50	1567300
7	9800	18	35600	29	90500	40	85400	51	527400
8	0	19	93600	30	160200	41	148300	52	146600
9	60000	20	127000	31	100	42	463800	53	5776100
10	189400	21	1259100	32	0	43	0	44	5900
11	607700	22	149800	33	53800	44	5900	55	513500

8.4 — ISOCONCENTRATION CONTOUR

40 — SAMPLE NUMBER

⊕ — SAMPLE LOCATION

.136E+07 — TOTAL ION COUNT FOR SAMPLE

ANALYTICAL RESULTS OBTAINED FROM:

NORTHEAST RESEARCH INSTITUTE
FARMINGTON, CT.

COMPOUND:

ETHYLBENZENE/XYLENES

0 20 40 60 80 120 160

GRAPHIC SCALE IN FEET

NOTE:

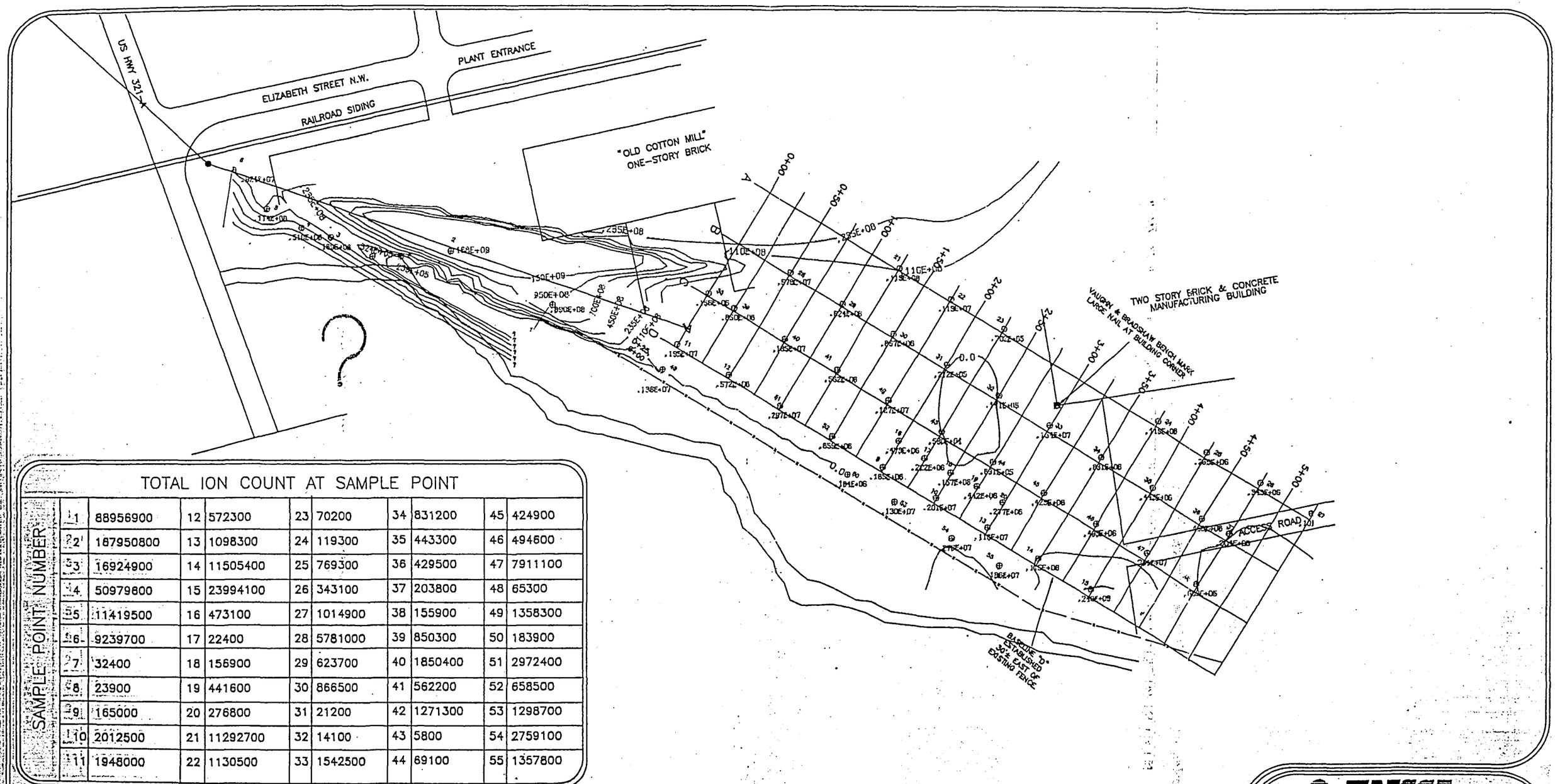
CREEK LOCATION IS APPROXIMATE. NO CREEK LOCATION SURVEY WAS COMPLETED. LOCATION OF CREEK DETERMINED USING DRAWING DATED 1-4-72. DRAWN BY HUTH ENGINEERS INC., OF LANCASTER PA., REFERENCE NUMBER TFI-LN-RE-2.

ENSCI
ENVIRONMENTAL SERVICES GROUP
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED

TITLE: ETHYLBENZENE/XYLENES ION COUNT MAP

SCALE:	DWN BY:	FIGURE:
1"=80'	DJ	17
DATE: 12/91	CK BY: BB	JOB #: H91017A



TOTAL ION COUNT AT SAMPLE POINT

SAMPLE POINT NUMBER									
1	88956900	12	572300	23	70200	34	831200	45	424900
2	187950800	13	1098300	24	119300	35	443300	46	494600
3	16924900	14	11505400	25	769300	36	429500	47	7911100
4	50979600	15	23994100	26	343100	37	203800	48	65300
5	11419500	16	473100	27	1014900	38	155900	49	1358300
6	9239700	17	22400	28	5781000	39	850300	50	183900
7	32400	18	156900	29	623700	40	1850400	51	2972400
8	23900	19	441600	30	866500	41	562200	52	658500
9	165000	20	276800	31	21200	42	1271300	53	1298700
10	2012500	21	11292700	32	14100	43	5800	54	2759100
11	1948000	22	1130500	33	1542500	44	69100	55	1357800

8.4 — ISOCONCENTRATION CONTOUR

1 — SAMPLE NUMBER

⊕ — SAMPLE LOCATION

.136E+07 — TOTAL ION COUNT FOR SAMPLE

ANALYTICAL RESULTS OBTAINED FROM:

NORTHEAST RESEARCH INSTITUTE
FARMINGTON, CT.

COMPOUND:

TOLUENE

0 20 40 60 80 120 160

GRAPHIC SCALE IN FEET

NOTE:

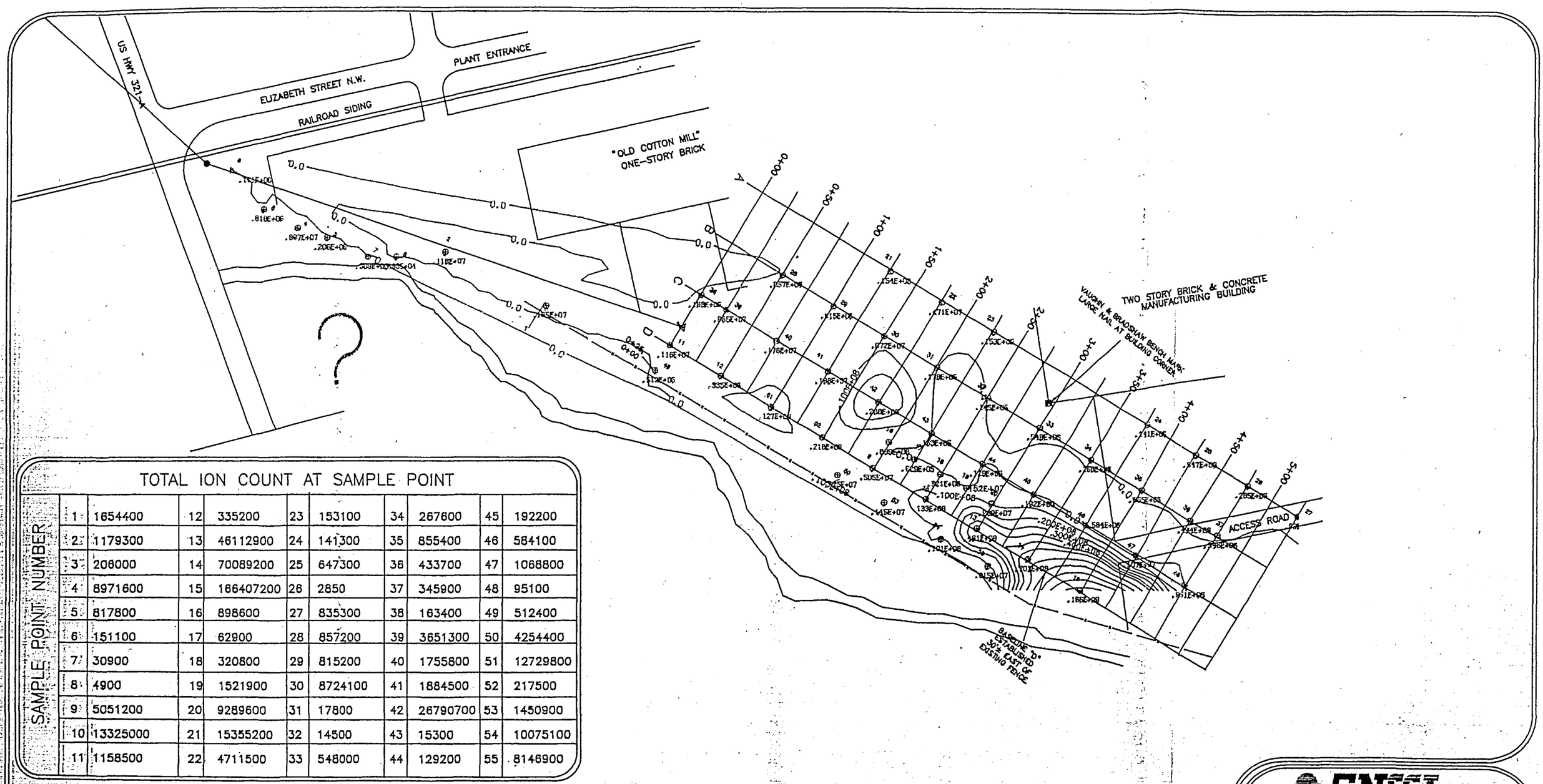
CREEK LOCATION IS APPROXIMATE. NO CREEK LOCATION SURVEY WAS COMPLETED. LOCATION OF CREEK DETERMINED USING DRAWING DATED 1-4-72. DRAWN BY HUTH ENGINEERS INC., OF LANCASTER PA., REFERENCE NUMBER TFI-LN-RE-2.

ENSCI
ENVIRONMENTAL SERVICES GROUP
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED

TITLE: TOLUENE ION COUNT

SCALE:	DWN BY:	FIGURE:
1"=80'	DJ	18
DATE: 12/91	CK BY: BB	JOB #: H91017A



TOTAL ION COUNT AT SAMPLE POINT

SAMPLE POINT NUMBER									
1	1654400	12	335200	23	153100	34	267600	45	192200
2	1179300	13	46112900	24	141300	35	855400	46	584100
3	206000	14	70089200	25	647300	36	433700	47	1068800
4	8971600	15	166407200	26	2850	37	345900	48	95100
5	817800	16	898600	27	835300	38	163400	49	512400
6	151100	17	62900	28	857200	39	3651300	50	4254400
7	30900	18	320800	29	815200	40	1755800	51	12729800
8	4900	19	1521900	30	8724100	41	1884500	52	217500
9	5051200	20	9289600	31	17800	42	26790700	53	1450900
10	13325000	21	15355200	32	14500	43	15300	54	10075100
11	1158500	22	4711500	33	548000	44	129200	55	8146900

8.4 — ISOCONCENTRATION CONTOUR

SAMPLE NUMBER

⊕ — SAMPLE LOCATION

.138E+07 — TOTAL ION COUNT FOR SAMPLE

ANALYTICAL RESULTS OBTAINED FROM:

NORTHEAST RESEARCH INSTITUTE
FARMINGTON, CT.

COMPOUND:

CYCLOALKANES/ALKENES

0 20 40 60 80 120 160

GRAPHIC SCALE IN FEET

NOTE:

CREEK LOCATION IS APPROXIMATE. NO CREEK LOCATION SURVEY WAS COMPLETED. LOCATION OF CREEK DETERMINED USING DRAWING DATED 1-4-72. DRAWN BY HUTH ENGINEERS INC., OF LANCASTER PA., REFERENCE NUMBER TFI-LN-RE-2.

ENSCI
ENVIRONMENTAL SERVICES GROUP
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED

TITLE: CYCLOALKANES/ALKENES ION COUNT MAP

SCALE:	DWN BY:	FIGURE:
1"=80'	DJ	19
DATE: 12/91	CK BY: BB	JOB #: H91017A

Executive Summary

On December 27, 1990, Thomasville Furniture Industries, Inc. (TFI) discovered a drum believed to contain a solvent material in an excavation located in the parking lot of the TFI facility in Lenoir, North Carolina. ENSCI Corporation was contracted by TFI to perform an initial (Phase I) assessment of the area where the drum was found.

As detailed in ENSCI's June 24, 1991 Phase I Assessment Report, the assessment consisted of the following activities and resulted in the following findings:

- Installation of eight monitoring wells (MW-1 through MW-8) in order to assess the area where the drum was located and obtain geologic information to determine characteristics of the potentially impacted aquifer underlying the facility. Aquifer characteristics are documented in the report.
- Collection and laboratory analysis of groundwater samples from the monitoring wells in order to determine the potential existence and identity of contaminants. A variety of volatile and semivolatile organic compounds were detected in groundwater in levels which exceed 15A NCAC 2L standards.

Subsequent to the Phase I investigation, TFI contracted ENSCI to conduct a Phase II investigation at the subject facility. ENSCI's May 6, 1992 Phase II Assessment Report details the scope of work and findings of the investigation, which are summarized as follows:

- A soil gas survey of the TFI facility was conducted using Petrex sampling tubes. Results of this survey indicate the presence of two distinct contamination plumes present in soils underlying the TFI facility. Soil gas anomalies indicate that a plume composed almost exclusively of toluene is present well north of the drum burial location, possibly indicating a hydraulically upgradient source unrelated to the TFI facility.
- A Sub-Surface Interface Radar Survey (SIRS) was conducted in the southern end of the site to delineate possible trench locations and possible buried drum caches. Several linear alignments of hyperbolic reflections were identified in the data. The SIRS detected 200+ individual hyperbolic reflections with 50 percent coverage of the suspect area.
- Laboratory analysis of sediment and water from Blair Fork Creek, which were collected upstream and downstream of the potential drum burial area, indicates

Ref. 5

Phase III Site Assessment

Thomasville Furniture Industries, Inc.
Lenoir, North Carolina

Prepared for
Thomasville Furniture Industries, Inc.

October 14, 1992

Thomas Lennon
Environmental Scientist

Bruce K. Braswell, P.G.
Senior Hydrogeologist

ENSCI Corporation
1108 Old Thomasville Road
High Point, North Carolina 27260
(919) 883-7505

the presence of some compounds which are found in groundwater. These results indicate a potential upgradient contamination source unrelated to the TFI facility.

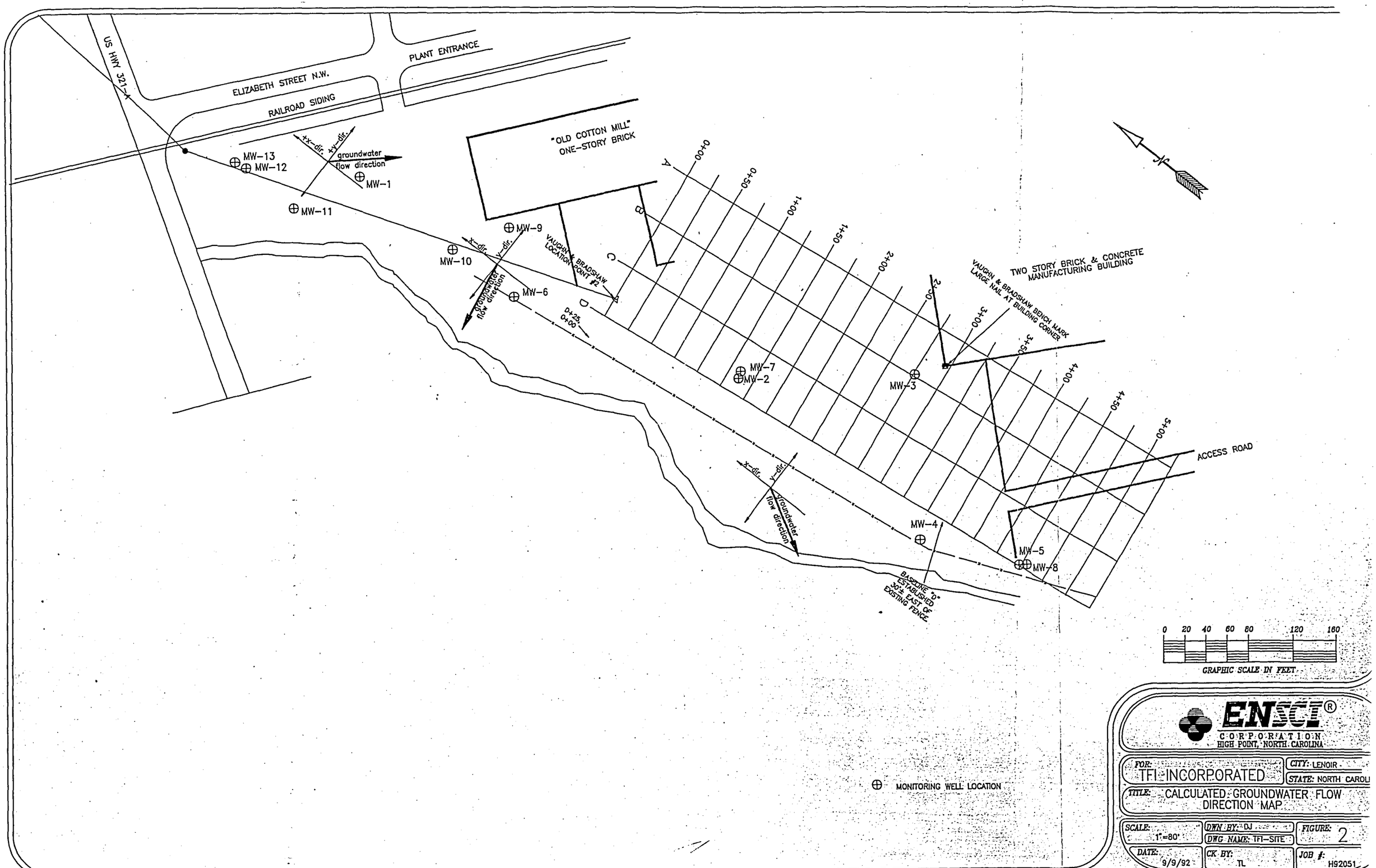
- Resampling existing monitoring wells was conducted in order to determine contaminant identity. The detected materials are a combination of petroleum hydrocarbons and widespread, low-level halogenated compounds.

Based on the findings of the Phase II investigation indicating the presence of two distinct contamination plumes underlying the TFI facility, a Phase III investigation was undertaken. This investigation consisted of the following activities and targeted the following goals:

- An additional five monitoring wells (MW-8 through MW-13) were installed in the northern end of the facility to delineate the suspected contamination plume found in the soil gas survey conducted during the Phase II investigation.
- Groundwater samples from all existing monitoring wells (MW-1 through MW-13) were acquired and analyzed to further substantiate the existence of two separate contamination plumes and determine the identity of any additional contaminants potentially present in groundwater.

Following is a summary of the results of the Phase III investigation:

- Analysis of groundwater samples acquired from newly installed monitoring wells MW-9 through MW-13 did not indicate the presence of toluene. The findings of the soil gas survey conducted in the Phase II investigation indicated a soil gas plume composed almost exclusively of toluene to be present in the immediate vicinity of these monitoring wells. However, it may be that the soil gas plume extends laterally beyond contaminated groundwater.
- A comparison of types and concentrations of contaminants detected in analysis of groundwater samples acquired from monitoring wells located in the northern and southern ends of the facility indicates that there are two apparently separate contamination plumes. The source of contamination found in monitoring wells located in the northern end of the facility seems to be upgradient and unrelated to the TFI facility.
- Results of testing for volatile and semivolatile organic compounds of groundwater samples acquired from the southern end of the facility in the vicinity of the suspected drum burial site indicated the presence of compounds generally associated with solvents.



ENSCI®
CORPORATION
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED	CITY: LENOIR STATE: NORTH CAROLI
TITLE: CALCULATED GROUNDWATER FLOW DIRECTION MAP	
SCALE: 1"=80'	DWN BY: DJ DWG NAME: TFI-SITE
FIGURE: 2	
DATE: 9/9/92	CK BY: TL
JOB #: HS2051	

Vaughn & Bradshaw Surveying Company of Hickory, North Carolina. Well casing elevation data from this survey was used, in conjunction with depth to groundwater measurements collected on June 11, 1992, to determine relative groundwater elevations for each monitoring well. **Table 1** contains the well casing elevations, depth to groundwater measurements, and relative groundwater elevation data. This data, in addition to the survey data concerning relative horizontal locations of the wells, was used to determine groundwater flow direction.

Table 1: Groundwater Elevation Data
(As measured in existing monitoring wells, June 11, 1992)

Monitoring Well	Elevation of Top of Casing	Depth to Groundwater	Groundwater Elevation
MW-1	1127.80	9.10	1118.7
MW-2	1125.47	7.35	1118.12
MW-3	1125.20	7.34	1117.86
MW-4	1122.71	5.59	1117.12
MW-5	1122.83	5.74	1117.09
MW-6	1128.00	9.89	1118.11
MW-7 *	1125.66	7.73	1117.93
MW-8 *	1122.76	8.71	1114.05
MW-9	1129.48	6.78	1122.70
MW-10	1129.34	10.90	1118.44
MW-11	1128.74	9.05	1119.69
MW-12	1129.10	8.73	1120.37
MW-13 *	1129.29	8.94	1120.35

* Type III (vertical extent) well

Table 2: Groundwater Analysis for Volatile Organics

EPA Test Method 8240 in parts per million

(Phase III Analytical Results - Samples Collected June 1992)

PARAMETER	2-PROPANONE (ACETONE)	CARBON DISULFIDE	CHLOROFORM	BENZENE	M-XYLENE	O P-XYLENE
MW-1	.073J	ND	ND	ND	ND	ND
MW-2	.120	.0094	ND	ND	ND	ND
MW-3	.014J	.002J	ND	ND	.10	ND
MW-4	.096J	.00085J	ND	.0083	.900+	.031
MW-5	.017J	.002J	ND	.0013J	.14	.0015J
MW-6	ND	.0089	ND	ND	ND	ND
MW-7*	.660	.0066	ND	ND	ND	ND
MW-8*	ND	ND	.0013J	ND	ND	ND
MW-9	ND	ND	ND	ND	ND	ND
MW-10	.028J	ND	ND	ND	ND	ND
MW-11	ND	ND	.0066	ND	ND	ND
MW-12	.200	ND	ND	ND	ND	ND
MW-13*	.039J	ND	.0077	ND	ND	ND
NCAC 2L Standards	# .10	.005	.00019	.001	.4**	.4**

ND Not Detected

* = Type III (Vertical Extent) Monitoring Well.

J = Detected below quantitative level.

\# = No specific standard is listed under 15A NCAC 2L; therefore, in accordance with regulations under this section, the standard is set at the quantitative detection limit for the analysis.

** = .4 ppm is 15A NCAC 2L standard for total sylene. Results from sample MW-4 exceed this level.

Table 3: Volatile Organic Compounds Library Search
in parts per billion
(Phase III Analytical Results - Samples Collected June 1992)

Monitoring Well	1,1,2 Trichloro-1,2,2 Trifluroethane	Isopropyl Ether	UNKNOWN Cycloalkane	UNKNOWN
MW-1	ND	ND	16,10	ND
MW-2	ND	ND	14,5	ND
MW-3	ND	ND	29,13,6.2	ND
MW-4	13	ND	8.6,17,8.2	20,5.1
MW-5	14	ND	ND	6.9
MW-6	15	ND	ND	ND
MW-7*	ND	ND	ND	ND
MW-8*	ND	ND	ND	ND
MW-9	ND	ND	ND	ND
MW-10	ND	ND	ND	ND
MW-11	ND	ND	ND	ND
MW-12	ND	6	ND	ND
MW-13*	ND	ND	ND	41

* = Vertical Extent Well.
ND = No Detection.

Table 4: Semi-volatile Organics
EPA Test Method 8270 in Parts Per Million
(Phase III Analytical Results - Samples Collected June 1992)

Sample	Naphthalene	2-Methyl-Naphthalene	Dibutyl Phthalate	BIS (2-Ethylhexyl) Phthalate**
MW-1	ND	ND	.025	.037
MW-2	.014	.013	.0022J	.140
MW-3	.001J	ND	.001J	.032
MW-4	.013	.012	ND	.160
MW-5	.042	.011	ND	.075
MW-6	ND	ND	ND	.056
MW-7*	ND	ND	.0038J	.10
MW-8*	ND	ND	.0017J	.049
MW-9	ND	ND	ND	ND
MW-10	ND	ND	ND	.0034J
MW-11	ND	ND	ND	.029
MW-12	ND	ND	ND	.026
MW-13*	ND	ND	.012	.120
15A NCAC 2L Standard	# .005	# .01	# .005	# .01

* = Vertical Extent Well
** = Compound used as plasticizer in latex gloves worn during sampling
\# = No 15A NCAC 2L Standard. In accordance with regulations, standard set at quantitative detection limit for analysis.

isopropanol (isopropyl alcohol) in levels exceeding the 15A NCAC 2L groundwater standard of .6 ppm.

4. Conclusions

Based on analytical results of groundwater sampling of all existing monitoring wells located on the TFI facility, the following conclusions can be drawn:

- Analysis of groundwater samples acquired from monitoring wells (MW-9 through MW-13) installed in this Phase III investigation did not detect the presence of toluene. The findings of the soil gas survey conducted during the Phase II investigation indicated a soil gas plume composed almost exclusively toluene in the immediate vicinity of these monitoring wells. However, it may be that the soil gas plume extends laterally beyond contaminated groundwater. In conversations with Northeast Research Institute, Inc. (NERI), the firm which manufactured the Petrex tubes used in the survey, representatives indicate that given the loading rates of toluene on the activated carbon wires of the Petrex tubes used in the Phase II investigation, toluene-impacted soil and possibly groundwater should be expected at the site.
- Results of testing for volatile and semivolatile organic compounds in groundwater indicated the presence of compounds generally associated with solvents in samples acquired from the southern end of the facility in the vicinity of the suspected drum burial site.
- Type II monitoring wells MW-4, MW-5 and MW-6, located in the southern and central portions of the facility, contain many of the same contaminants. The close proximity of these wells to Blair Fork Creek indicates that the creek is a potential additional source of contamination, however the majority of contaminants found in monitoring wells MW-4 and MW-5 may be attributed to the alleged drum burial site.
- The source of contamination found in monitoring wells MW-1, MW-11, MW-12 and MW-13 seems to be upgradient and unrelated to the TFI facility. A comparison of analytical results of samples from monitoring wells located in the northern end of the facility to those of samples from monitoring wells in the southern end seems to indicate the presence of two separate contamination plumes on the TFI facility. The highest concentrations of dibutyl phthalate in groundwater was detected in monitoring wells MW-1 and MW-13, located on the northern end of the facility. Because these wells are located hydraulically upgradient of the

drum burial site, it is unlikely that the drum site is the source of this contaminant.

- The presence of Alkane compounds and Alkane derivatives was indicated only in samples from monitoring well MW-13. Due to the lack of detection of these compounds in groundwater samples acquired from monitoring wells located further to the south (hydraulically downgradient), the source of these contaminants is likely to be hydraulically upgradient.

Appendix B

Field Drilling and Monitoring Well Installation Records and Permit

DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, NC 27611-7687
PHONE (919)733-3221

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

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: ENSCI Corporation

DRILLER REGISTRATION NUMBER: 1233

MW #9

STATE WELL CONSTRUCTION PERMIT NUMBER: 13-0221-WM-0044

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

2. OWNER: Thomasville Furniture Industries
ADDRESS: 315 Elizabeth St., N. W. (Street or Route No.)
Lenoir (City or Town) NC (State) (Zip Code)

3. DATE DRILLED: 6-10-92 USE OF WELL: Monitor GW
4. TOTAL DEPTH: 21' CUTTINGS COLLECTED: [X] Yes [ ] No
5. DOES WELL REPLACE EXISTING WELL? [ ] Yes [X] No
6. STATIC WATER LEVEL: 6.78 FT. [ ] above [X] below TOP OF CASING.
TOP OF CASING IS 0 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): NA METHOD OF TEST: NA
8. WATER ZONES (depth): NA
9. CHLORINATION: Type NA Amount NA
10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	10	2"		S.S.

11. GROUT:

	Depth From	Depth To	Material	Method
	.5	6.5	Portland	
	6.5	8	Bentonite	

12. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	10	20.1	2"	.010 in.	Stainless Steel

13. GRAVEL PACK:

	Depth From	Depth To	Size	Material
	8	21	#2	Filter Sand

14. REMARKS:

DRILLING LOG

Depth From	Depth To	Formation Description
0	3	Brown silty clay soil.
3	5	Tan brown-trace orange, medium grained, silty, loose, firm, moist.
8	10	Gray-orange tan, silty, loose wet, zone black stained organics, abundant mica, trace rock fragments.
13	15	Orange tan coarse sand, rock fragments, loose-firm, wet, trace mica, quartz, feldspars
18	20	Tan mottled w/gray, sandy saprolite, relic crystals, firm yet friable, wet.

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)

MONITORING WELL #9

ON MAP

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.

Dan Finn 9-1-92
SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 REVISED 2/90

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

ENSCI CORPORATION

FIELD DRILLING RECORD

BORING #	MW-9	LOCATION:	T.F.I. - Lenoir
START DATE:	6-10-92	COMPLETED:	6-10-92
GEOLOGIST:	T. Lennon	DRILLER:	K. Cranford
DRILL METHOD:	H.S.A.	SAMPLE METHOD:	Split Spoon
BORING DIA:	6.25"	CASING DIA:	2"
TOTAL DEPTH:	21'	CASING DEPTH:	20.1'

DEPTH		LITHOLOGIC DESCRIPTION	PENETRATION TEST RESULTS				
FROM	TO	Color,texture,structure,consistency,etc.	REC	6"	12"	18"	24"
0	3	Brown silty clay soil.					
3	5	Tan brown to trace orange	24	2	2	3	4
		ocassional bands of gray					
		(clay rich), medium grained					
		ocassionally sand, slightly					
		silty, loose to trace firm,					
		moist, abundant mica, trace					
		rock fragments, no odor.					
		PID = Out of Order.					
8	10	Gray to orange tan, poorly	24	1	2	3	6
		sorted sand occasionally					
		slightly silty, loose, wet,					
		zone of black stained					
		organics (weed or roots),					
		abundant mica, trace rock					
		fragments.					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH(ft)_____DEPTH(ft)_____DIAMETER(in)_____MATERIAL_____
SCREEN LENGTH(ft)_____DEPTH(ft)_____DIAMETER(in)_____MATERIAL_____
DEPTH TO TOP OF SAND_____BAGS OF SAND_____
DEPTH TO TOP SEAL_____BENTONITE USED_____
BAGS OF CEMENT USED_____

ENSCI CORPORATION

FIELD DRILLING RECORD

BORING #	MW-9 (Cont'd)	LOCATION:	T.F.I. - Lenoir
START DATE:	6-10-92	COMPLETED:	6-10-92
GEOLOGIST:	T. Lennon	DRILLER:	K. Cranford
DRILL METHOD:	H.S.A.	SAMPLE METHOD:	Split Spoon
BORING DIA:	6.25"	CASING DIA:	2"
TOTAL DEPTH:	21'	CASING DEPTH:	20.1'

DEPTH		LITHOLOGIC DESCRIPTION	PENETRATION TEST RESULTS				
FROM	TO	Color,texture,structure,consistency,etc.	REC	6"	12"	18"	24"
13	15	Orange tan, predominantly	24	7	8	8	5
		coarse sands, trace silty					
		sands, some rock fragments					
		(pebbles alluvium), loose to					
		slightly firm (when more					
		silty), wet, trace mica,					
		quartz, feldspars, no odor.					
18	20	Tan mottled with gray, sandy	20	1	1	3	6
		saprolite, relic crystals					
		(feldspars & mica), relic					
		fractures filled with black					
		relic micas, firm yet					
		friable, wet, no odor.					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH(ft) 10 DEPTH(ft) 0-10 DIAMETER(in) 2 MATERIAL Stainless Steel
SCREEN LENGTH(ft) 10 DEPTH(ft) 10-20.1 DIAMETER(in) 2 MATERIAL Stainless Steel
DEPTH TO TOP OF SAND 8 BAGS OF SAND 4
DEPTH TO TOP SEAL 6.5 BENTONITE USED 1/2
BAGS OF CEMENT USED 3

ENSCI CORPORATION

MONITORING WELL INSTALLATION SKETCH

PROJECT: T.F.I. - Lenoir

PIEZOMETER NUMBER: MW #9

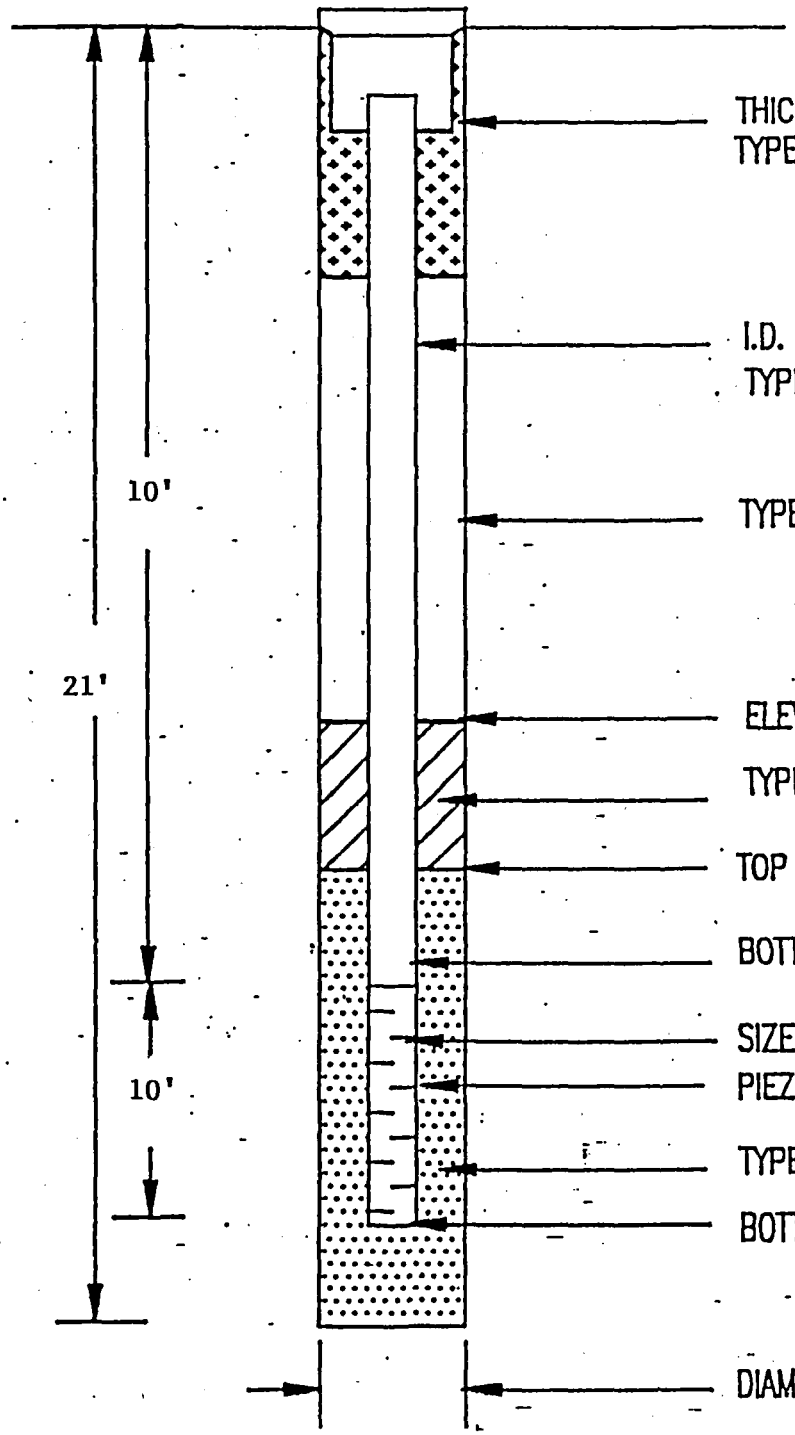
GROUND ELEVATION: 1129.48

DEPTH TO WATER LEVEL: 6.78

BENCH MARK DATA: TBM 100

ELEVATION OF WATER LEVEL: 1122.70

ELEVATION OF TOP OF PIEZOMETER: 1129.48



THICKNESS OF SURFACE SEAL	3'
TYPE OF SURFACE SEAL	Portland
I.D. OF RISER PIPE	2"
TYPE OF RISER PIPE	Stainless Steel
TYPE OF BACKFILL	Portland
ELEVATION OF TOP OF SEAL	1122.98
TYPE OF SEAL	Bentonite
TOP ELEVATION OF FILTER SAND	1121.48
BOTTOM ELEVATION OF RISER	1119.48
SIZE OF SCREEN OPENINGS	.010"
PIEZOMETER SCREEN DIAMETER	2"
TYPE OF FILTER SAND	#2 Filter Sand
BOTTOM ELEVATION OF PIEZOMETER	1109.38
DIAMETER OF BOREHOLE	6 1/4"

DIVISION OF ENVIRONMENTAL MANAGEMENT
P.O. BOX 27687 - RALEIGH, NC 27611-7687
PHONE (919)733-3221

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

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR Ensci

DRILLER REGISTRATION NUMBER 1233

STATE WELL CONSTRUCTION PERMIT NUMBER: 113-0221-WM-0044

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Lenoir County: Caldwell

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

2. OWNER TFI

ADDRESS 315 Elizabeth St., NE (Street or Route No.)

Lenoir NC (City or Town, State, Zip Code)

3. DATE DRILLED 6/8/92 USE OF WELL Monitor GW

4. TOTAL DEPTH 21' CUTTINGS COLLECTED ☐ Yes ☐ No

5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No

6. STATIC WATER LEVEL: 10.9 FT. ☐ above ☒ below TOP OF CASING.

TOP OF CASING IS 0 FT. ABOVE LAND SURFACE

7. YIELD (gpm): NA METHOD OF TEST NA

8. WATER ZONES (depth):

9. CHLORINATION: Type NA Amount

10. CASING:

	Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	0	10		2"	Sch 5	5.5

11. GROUT:

	Depth From	To	Ft.	Material	Method
	.5	6		Portland	
	6	8		Bentonite	

12. SCREEN:

	Depth From	To	Ft.	Diameter	Slot Size	Material
	10	20.14		2" in.	.010 in.	5.5
				in.	in.	
				in.	in.	

13. GRAVEL PACK:

	Depth From	To	Ft.	Size	Material
	8	21		#2	Filter Sand

14. REMARKS:

Depth From	To	DRILLING LOG Formation Description
0	3	Asphalt & gravel, brown sandy loam.
3	5	Brown to tan-brown, sandy loam, loose-firm, moist, trace mica.
8	10	Tan to orange-tan, medium to coarse sand, loose to friabl wet, mica, quartz, feldspars
13	15	Tan brown, poorly sorted san w/ pebbles of feldspar, tan brown sand slightly firm, we
18	20	Orange, sandy loam saprolite relicfoliation, fractures, firmhard, wet, feldspars, mic

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)

MONITORING WELL #10

ON MAP

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.

Jan Jamm 9.1.92

SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 REVISED 2/90

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

ENSCI CORPORATION

FIELD DRILLING RECORD

BORING #	MW-10 (Cont'd)	LOCATION:	T.F.I. - Lenoir
START DATE:	6-8-92	COMPLETED:	6-8-92
GEOLOGIST:	T. Lennon	DRILLER:	K. Cranford
DRILL METHOD:	H.S.A.	SAMPLE METHOD:	Split Spoon
BORING DIA:	6.25"	CASING DIA:	2"
TOTAL DEPTH:	21'	CASING DEPTH:	20.14'

DEPTH		LITHOLOGIC DESCRIPTION	PENETRATION TEST RESULTS				
FROM	TO	Color,texture,structure,consistency,etc.	REC	6"	12"	18"	24"
18	20	Orange, sandy loam saprolite,	21	12	21	26	15
		relic foliation, some					
		fractures filled with black					
		material (mica), firm to					
		hard, wet, feldspars, mica,					
		no odor. PID = 0.4 ppm					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH(ft) 10 DEPTH(ft) 0-10 DIAMETER(in) 2 MATERIAL Stainless Steel
SCREEN LENGTH(ft) 10 DEPTH(ft) 10-20.14 DIAMETER(in) 2 MATERIAL Stainless Steel
DEPTH TO TOP OF SAND 8 BAGS OF SAND 3
DEPTH TO TOP SEAL 6 BENTONITE USED 1
BAGS OF CEMENT USED 4

ENSCI CORPORATION

FIELD DRILLING RECORD

BORING #	MW-10	LOCATION:	T.F.I. - Lenoir
START DATE:	6-8-92	COMPLETED:	6-8-92
GEOLOGIST:	T. Lennon	DRILLER:	K. Cranford
DRILL METHOD:	H.S.A.	SAMPLE METHOD:	Split Spoon
BORING DIA:	6.25"	CASING DIA:	2"
TOTAL DEPTH:	21'	CASING DEPTH:	20.14'

DEPTH		LITHOLOGIC DESCRIPTION	PENETRATION TEST RESULTS				
FROM	TO	Color,texture,structure,consistency,etc.	REC	6"	12"	18"	24"
0	3	Asphalt & gravel, brown					
		sandy loam.					
3	5	Brown to tan-brown, sandy	24	3	2	2	2
		loam (medium to fine grained					
		river sands), loose to					
		slightly firm, moist, trace					
		mica, no odor. PID = .5 ppm					
8	10	Tan to orange tan, medium to	8	1	1	2	4
		coarse sand, loose to					
		friable, wet, mica, quartz,					
		feldspars, no odor.					
		PID = 1 ppm					
13	15	Tan brown occasionally	24	1	2	3	13
		streaked with gray (sandy					
		loam), predominantly poorly					
		sorted sands with pebbles of					
		feldspar (alluvium), tan					
		brown sand loose while gray					
		loam is slightly firm, wet,					
		no odor, mica. PID = 0.6 ppm					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH(ft)_____DEPTH(ft)_____DIAMETER(in)_____MATERIAL_____
SCREEN LENGTH(ft)_____DEPTH(ft)_____DIAMETER(in)_____MATERIAL_____
DEPTH TO TOP OF SAND_____BAGS OF SAND_____
DEPTH TO TOP SEAL_____BENTONITE USED_____
BAGS OF CEMENT USED_____

ENSCI CORPORATION

ONITORING WELL INSTALLATION SKETCH

T T.F.I. - Lenoir

PIEZOMETER NUMBER MW #10

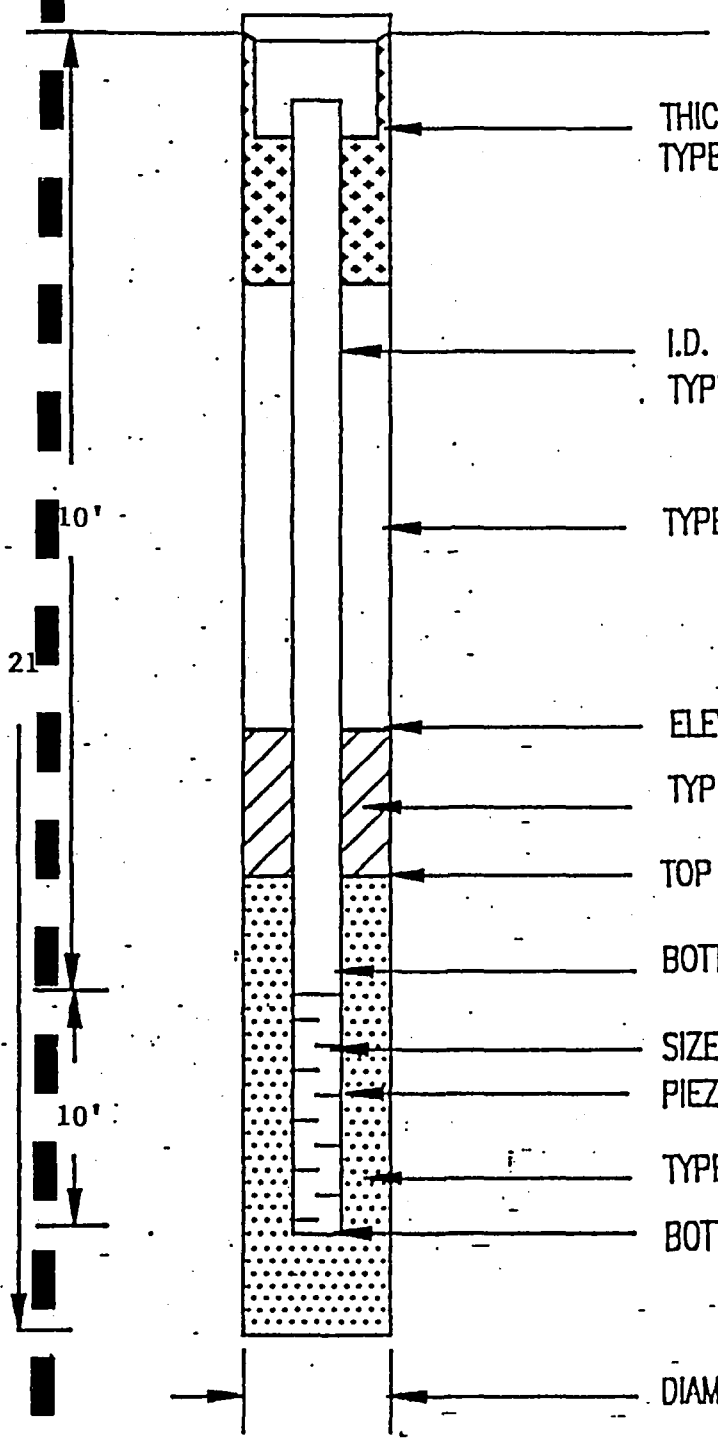
D ELEVATION 1129.34

DEPTH TO WATER LEVEL 10.9

I MARK DATA TBM 100

ELEVATION OF WATER LEVEL 1118.44

ION OF TOP OF PIEZOMETER 1129.34



THICKNESS OF SURFACE SEAL 3'

TYPE OF SURFACE SEAL Portland

I.D. OF RISER PIPE 2"

TYPE OF RISER PIPE Stainless Steel

TYPE OF BACKFILL Portland

ELEVATION OF TOP OF SEAL 1123.34

TYPE OF SEAL Bentonite

TOP ELEVATION OF FILTER SAND 1121.34

BOTTOM ELEVATION OF RISER 1119.34

SIZE OF SCREEN OPENINGS .010"

PIEZOMETER SCREEN DIAMETER 2"

TYPE OF FILTER SAND #2 Filter Sand

BOTTOM ELEVATION OF PIEZOMETER 1109.20

DIAMETER OF BOREHOLE 6 1/4"

DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, NC 27611-7687
PHONE (919)733-3221

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

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR Ensci
DRILLER REGISTRATION NUMBER 1233

STATE WELL CONSTRUCTION PERMIT NUMBER: 13-0221-WM-0044

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

2. OWNER TFI
ADDRESS 315 Elizabeth St., NW (Street or Route No.)
Lenoir NC
City or Town State Zip Code

3. DATE DRILLED 6-9-92 USE OF WELL Monitor GW
4. TOTAL DEPTH 16' CUTTINGS COLLECTED ☐ Yes ☐ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 9.0 FT. ☐ above ☒ below TOP OF CASING.
TOP OF CASING IS 0 FT. ABOVE LAND SURFACE
7. YIELD (gpm): NA METHOD OF TEST NA
8. WATER ZONES (depth):
9. CHLORINATION: Type NA Amount

10. CASING:

	Depth From	To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	5	2"	.010	Stainless Steel

11. GROUT:

	Depth From	To	Material	Method
	.5	3	Portland	
	3	4	Bentonite	

12. SCREEN:

	Depth From	To	Diameter	Slot Size	Material
	5	15.2	2" in.	.010 in.	Stainless Steel
			in.	in.	
			in.	in.	

13. GRAVEL PACK:

	Depth From	To	Size	Material
	4	16	#2	Filter Sand

14. REMARKS:

Depth From	To	DRILLING LOG Formation Description
3	5	Brown, fine-med. grain sands w/silt, firm, moist, trace mica feldspar rock fragments.
8	10	Tan to brownish tan, coarse sands, slightly silty. Rock frag. or pebbles, loose-firm, wet.
13	15	Tan to orange brown, sandy loam saprolite, relic foliation fractures; loose-friable.
14		Auger refusal.
14	16	Roller Cone.

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)

MONITORING WELL #11
ON MAP

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 9.1.92 DATE

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

GW-1 REVISED 2/90

ENSCI CORPORATION

FIELD DRILLING RECORD

BORING #	MW-11	LOCATION:	TFI Lenoir
START DATE:	6-9-92	COMPLETED:	6-10-92
GEOLOGIST:	T. Lennon	DRILLER:	K. Cranford
DRILL METHOD:	HSA/Roller cone	SAMPLE METHOD:	Split Spoon
BORING DIA:	6.25"	CASING DIA:	2"
TOTAL DEPTH:	16	CASING DEPTH:	15.2

DEPTH		LITHOLOGIC DESCRIPTION	PENETRATION TEST RESULTS				
FROM	TO	Color,texture,structure,consistency,etc.	REC	6"	12"	18"	24"
3	5	Brown, fine to medium grain	20"				
		sands with a trace amount					
		of silt, firm, moist, trace					
		mica, trace feldspar rock					
		fragments.					
8	10	Tan to brownish tan, coarse	10"				
		sands. Occasionally slightly					
		silty: Some rock fragments or					
		pebbles (alluvium) loose to					
		moderately firm (silty), wet					
		no odor, PID=0 ppm.					
13	15	Tan to orange brown, sandy	6"				
		loam saprolite, relic folia-					
		tions, fractures filled with					
		black material (relic mica)					
		loose - friable, no odor, PID=0 ppm.					
14		Auger refusal					
14	16	Roller cone					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH(ft) 5 DEPTH(ft) 0-5 DIAMETER(in) 2" MATERIAL Stainless Steel SCREEN LENGTH(ft) 10 DEPTH(ft) 5-15.2 DIAMETER(in) 2"
MATERIAL Stainless Steel DEPTH TO TOP OF SAND 4 BAGS OF SAND 6
DEPTH TO TOP SEAL 3 BENTONITE USED 1 BAGS OF CEMENT USED 2.5

ENSCI CORPORATION

MONITORING WELL INSTALLATION SKETCH

PROJECT: T.F.I. - Lenoir

PIEZOMETER NUMBER: MW #11

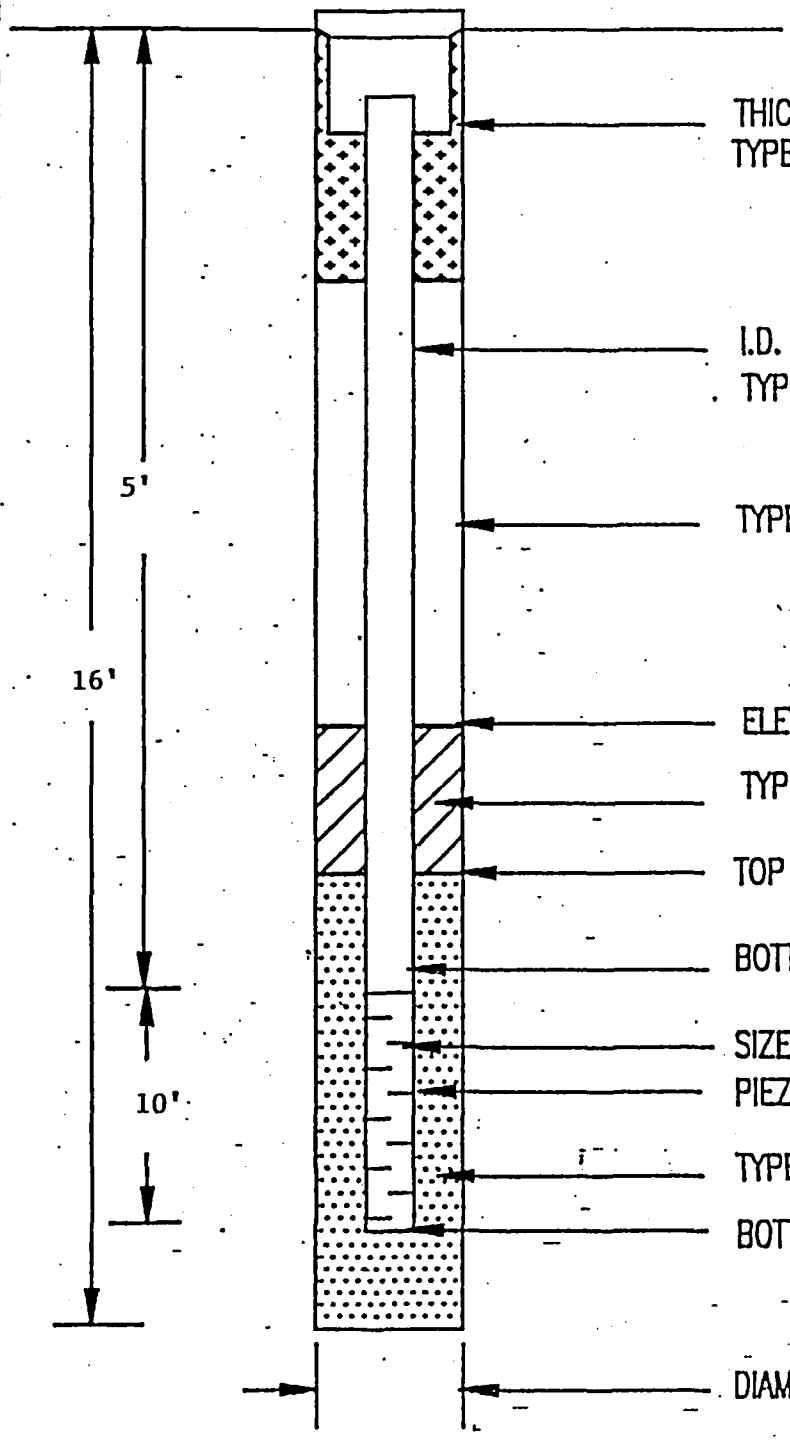
GROUND ELEVATION: 1128.74

DEPTH TO WATER LEVEL: 9.0

BENCH MARK DATA: TBM 100

ELEVATION OF WATER LEVEL: 1119.74

ELEVATION OF TOP OF PIEZOMETER: 1128.74



THICKNESS OF SURFACE SEAL	3'
TYPE OF SURFACE SEAL	Portland
I.D. OF RISER PIPE	2"
TYPE OF RISER PIPE	Stainless Steel
TYPE OF BACKFILL	Portland
ELEVATION OF TOP OF SEAL	1125.74
TYPE OF SEAL	Bentonite
TOP ELEVATION OF FILTER SAND	1124.74
BOTTOM ELEVATION OF RISER	1123.74
SIZE OF SCREEN OPENINGS	.010"
PIEZOMETER SCREEN DIAMETER	2"
TYPE OF FILTER SAND	#2 Filter Sand
BOTTOM ELEVATION OF PIEZOMETER	1113.54
DIAMETER OF BOREHOLE	6 1/4"

DIVISION OF ENVIRONMENTAL MANAGEMENT
P.O. BOX 27687 - RALEIGH, NC 27611-7687
PHONE (919)733-3221

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

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: Ensci
DRILLER REGISTRATION NUMBER: 1233

STATE WELL CONSTRUCTION PERMIT NUMBER: 13-0221-WM-0044

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

2. OWNER: TFI
ADDRESS: 315 Elizabeth St. NW (Street or Route No.)
Lenoir (City or Town) NC (State) (Zip Code)

3. DATE DRILLED: 6/8/92 USE OF WELL: Monitor GW
4. TOTAL DEPTH: 21' CUTTINGS COLLECTED: ☐ Yes ☐ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 8.73 FT. ☐ above ☒ below TOP OF CASING.
TOP OF CASING IS 0 FT. ABOVE LAND SURFACE
7. YIELD (gpm): NA METHOD OF TEST: NA
8. WATER ZONES (depth): NA
9. CHLORINATION: Type NA Amount _____

10. CASING:

	Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	0	10		2"	.010	5.5

11. GROUT:

	Depth From	To	Ft.	Material	Method
	.5	6		Portland	
	6	8		Bentonite	

12. SCREEN:

	Depth From	To	Ft.	Diameter	in.	Slot Size	in.	Material
	10	20.15		2"		.010		5.5

13. GRAVEL PACK:

	Depth From	To	Ft.	Size	Material
	8	21		#2	Filter Sand

14. REMARKS:

DRILLING LOG

Depth From	To	Formation Description
3	5	Tan-tan brown, fine-medium grained sand, trace loam, loo moist; trace mica & pebbles.
8	10	Tan-tan brown, coarse sand, trace pebbles, friable, moist mica, trace quartz.
13	15	Tan brown grading into orange poorly sorted sands, loose-firm, wet, trace rock frag., bordering on saprolite.
18	20	Orange - gray, sandy loam saprolite, relic foliation or fractures, relic feldspar crystals, firm, wet, mica.

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)

MONITORING WELL #12

ON MAP

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: [signature] DATE: 9.1.92

GW-1 REVISED 2/90

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

ENSCI CORPORATION

FIELD DRILLING RECORD

BORING #	MW-12	LOCATION:	TFI Lenoir
START DATE:	6-8-92	COMPLETED:	6-8-92
GEOLOGIST:	T. Lennon	DRILLER:	K. Cranford
DRILL METHOD:	HSA	SAMPLE METHOD:	Split Spoon
BORING DIA:	6.25"	CASING DIA:	2"
TOTAL DEPTH:	21	CASING DEPTH:	20.15

DEPTH		LITHOLOGIC DESCRIPTION	PENETRATION TEST RESULTS				
FROM	TO	Color,texture,structure,consistency,etc.	REC	6"	12"	18"	24"
3	5	Tan to tan brown trace dark	20"	2	3	3	4
		brown and orange, fine-medium					
		grained sand trace sandy loam					
		loose, moist, trace mica,					
		trace pebbles (alluvium),					
		PID = o ppm.					
8	10	Tan to tan brown, pre-	12	3	4	3	
		dominantly coarse sand trace					
		pebbles (alluvium), fiable,					
		moist, mica, trace quartz,					
		no odor, PID = o ppm.					
13	15	Tan brown grading into					
		orange, poorly sorted sands					
		(predominantly coarse grained)					
		Loose to form, wet, trace					
		rock fragments. Seems to be					
		bordering on saprolite, no					
		odor. PID = 0 ppm.					
18	20	Orange grading into gray-	10"	5	4	4	5
		brown, sandy loam saprolite,					
		relic foliation or fractures					
		filled with black material relic micas), relic feldspar crystals, firm, wet, mica, no odor, PID = 0 ppm.					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH(ft) 10 DEPTH(ft) 0-10 DIAMETER(in) 2" MATERIAL Stainless Steel SCREEN LENGTH(ft) 10 DEPTH(ft) 10-20 DIAMETER(in) 2" MATERIAL Stainless Steel DEPTH TO TOP OF SAND 8 BAGS OF SAND 2
DEPTH TO TOP SEAL 6 BENTONITE USED 1 BAGS OF CEMENT USED 5

ENSCI CORPORATION

MONITORING WELL INSTALLATION SKETCH

PROJECT: T.F.I. - Lenoir

PIEZOMETER NUMBER: MW #12

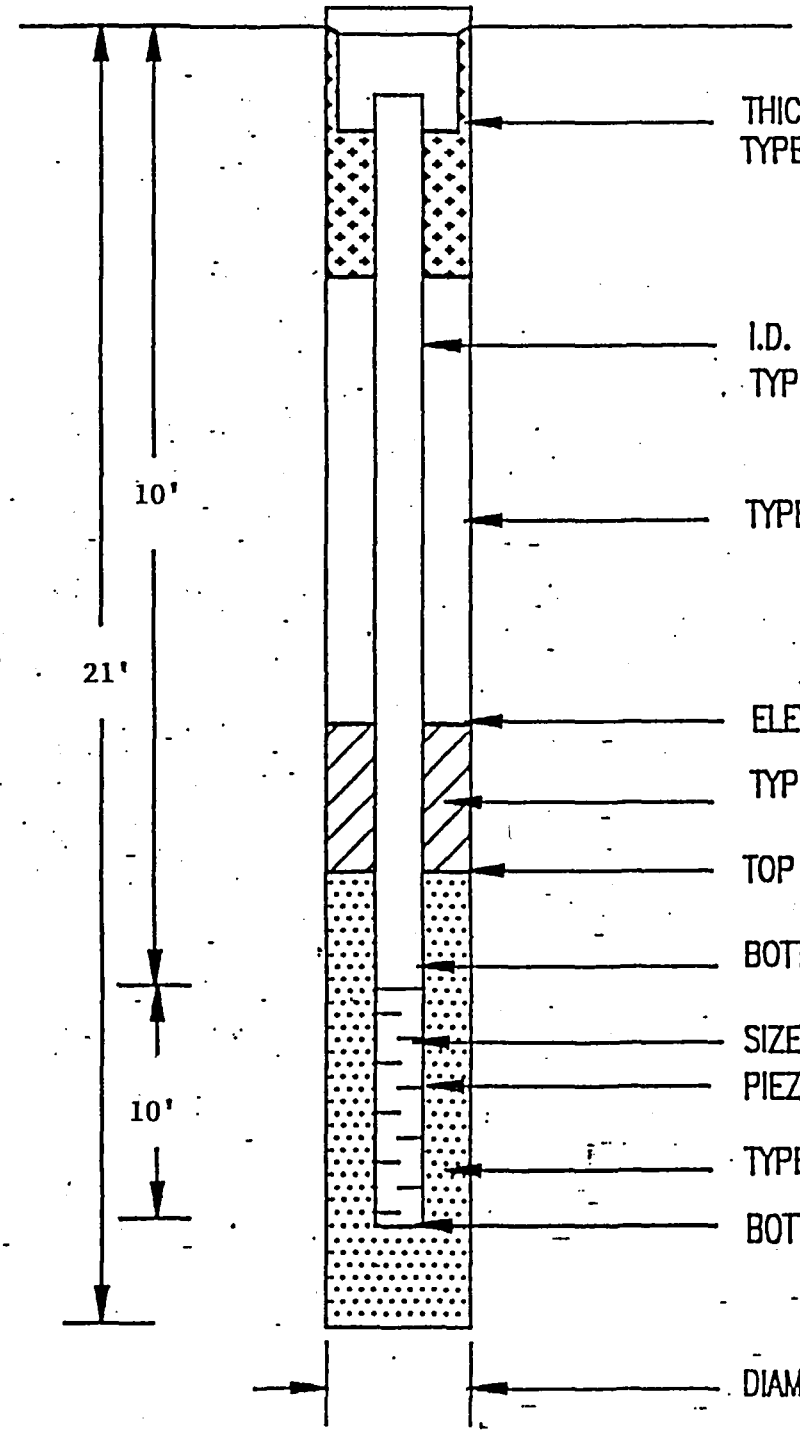
GROUND ELEVATION: 1129.10

DEPTH TO WATER LEVEL: 8.73

BENCH MARK DATA: TBM 100

ELEVATION OF WATER LEVEL: 1120.37

ELEVATION OF TOP OF PIEZOMETER: 1129.10



THICKNESS OF SURFACE SEAL	3'
TYPE OF SURFACE SEAL	Portland
I.D. OF RISER PIPE	2"
TYPE OF RISER PIPE	Stainless Steel
TYPE OF BACKFILL	Portland
ELEVATION OF TOP OF SEAL	1123.10
TYPE OF SEAL	Bentonite
TOP ELEVATION OF FILTER SAND	1121.10
BOTTOM ELEVATION OF RISER	1119.10
SIZE OF SCREEN OPENINGS	.010"
PIEZOMETER SCREEN DIAMETER	2"
TYPE OF FILTER SAND	#2 Filter Sand
BOTTOM ELEVATION OF PIEZOMETER	1108.95
DIAMETER OF BOREHOLE	6 1/4"

DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, NC 27611-7687
PHONE (919)733-3221

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

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: ENSCI

DRILLER REGISTRATION NUMBER: 1233

STATE WELL CONSTRUCTION PERMIT NUMBER: 13-0221-WM-0044

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Lenoir

County: Caldwell

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

2. OWNER: TFI

ADDRESS: 315 Elizabeth St., NW
(Street or Route No.)

Lenoir NC
City or Town State Zip Code

3. DATE DRILLED: 6/8/92 USE OF WELL: _____

4. TOTAL DEPTH: 40' CUTTINGS COLLECTED ☐ Yes ☐ No

5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No

6. STATIC WATER LEVEL: 8.94 FT. ☐ above ☒ below TOP OF CASING.
TOP OF CASING IS 0 FT. ABOVE LAND SURFACE

7. YIELD (gpm): NA METHOD OF TEST: NA

8. WATER ZONES (depth): NA

9. CHLORINATION: Type NA Amount _____

10. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From 0	To 25	Ft.	2"	Sch 5	5.5
From 0	To 20	Ft.	4"	Sch 40	PVC
From	To	Ft.			

11. GROUT:

	Depth		Material	Method
From .5	To 15	Ft.	Portland	
From 15	To 18	Ft.	Bentonite	

12. SCREEN:

	Depth		Diameter		Slot Size		Material
From 25	To 40	Ft.	2"	in.	.010	in.	5.5
From	To	Ft.		in.		in.	
From	To	Ft.		in.		in.	

13. GRAVEL PACK:

	Depth		Size	Material
From 18	To 40	Ft.	#2	Filter Sand
From	To	Ft.		

DRILLING LOG

Depth From	To	Formation Description
3	5	Brown-slightly orange brown, sand to silty sand, trace cla loose to firm where clay rich moist, trace organics.
8	10	Tan-tan brown into dk brown, poorly grade sands, loose to friable, wet, abundant mica, quartz & feldspars.
13	15	Tan grading into gray, poorly sorted river sands, trace silt loose, wet, trace mica, quart feldspars.
18	20	Auger refusal at 20 ft.
20	40	Roller cone, gray/white Metamorphose amphibolite.

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)

MONITORING WELL #13

ON MAP

14. REMARKS: _____

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.

Jim Turner 9.1.92
SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 REVISED 2/90

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

ENSCI CORPORATION

FIELD DRILLING RECORD

BORING #	MW-13	LOCATION:	TFI Lenoir
START DATE:	6-8-92	COMPLETED:	6-10-92
GEOLOGIST:	T Lennon	DRILLER:	K. Cranford
DRILL METHOD:	HSA/Roller cone	SAMPLE METHOD:	Split Spoon
BORING DIA:	10.75"	CASING DIA:	4" pit casing/2" Stainless Steel
TOTAL DEPTH:	40	CASING DEPTH:	40.00

DEPTH		LITHOLOGIC DESCRIPTION	PENETRATION TEST RESULTS				
FROM	TO	Color,texture,structure,consistency,etc.	REC	6"	12"	18"	24"
3	5	Brown to slightly orange	24"	3	2	2	3
		brown, sand to silty sand					
		trace clay, loose to firm					
		where clay rich, moist, trace					
		organics.					
8	10	Tan to tan brown grades into	12	1	1	1	1
		dark brown, poorly grade					
		sands (dark brown), loose to					
		friable, wet, abundant mica,					
		quartz and feldspars (alluvium), no odor. .6 ppm.					
13	15	Tan grading into gray, poorly	24	2	1	1	1
		sorted river sands trace					
		silty (gray), loose, wet,					
		trace mica, quartz, occasional feldspars.					
18	20	As above/Auger refusal at	3	35	20	12	
		20 feet.					
20	40	Roller cone: Gray and white					
		Metamorphose Amphibolite.					

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH(ft) 25 DEPTH(ft) 0-25 DIAMETER(in) 2" MATERIAL Stainless Steel
SCREEN LENGTH(ft) 15 DEPTH(ft) 25-40 DIAMETER(in) 2" MATERIAL Stainless Steel
DEPTH TO TOP OF SAND 18 BAGS OF SAND 3
DEPTH TO TOP SEAL 15 BENTONITE USED 1½
BAGS OF CEMENT USED 10

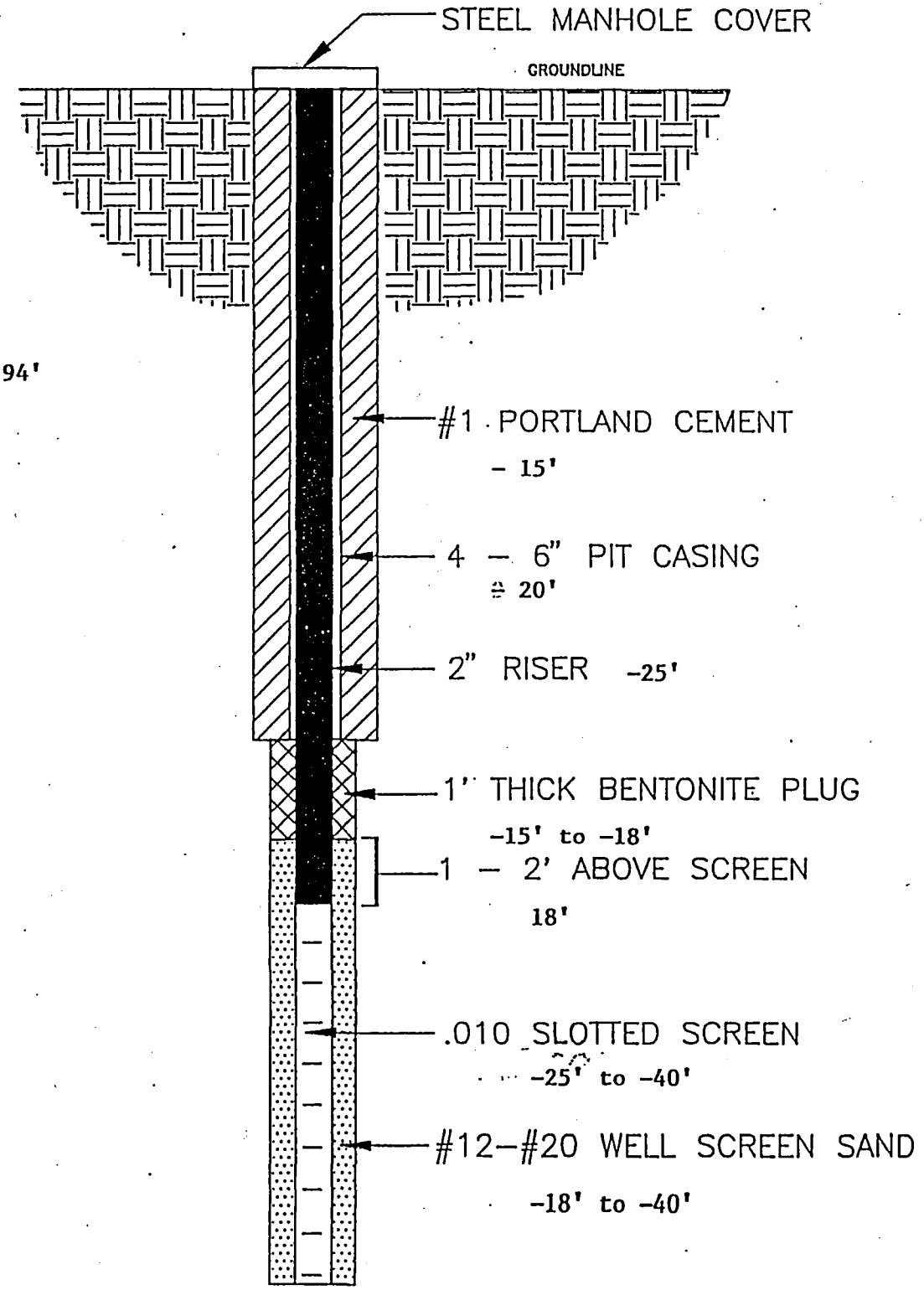
ENSCI

ENVIRONMENTAL SERVICES GROUP
HIGH POINT, NORTH CAROLINA

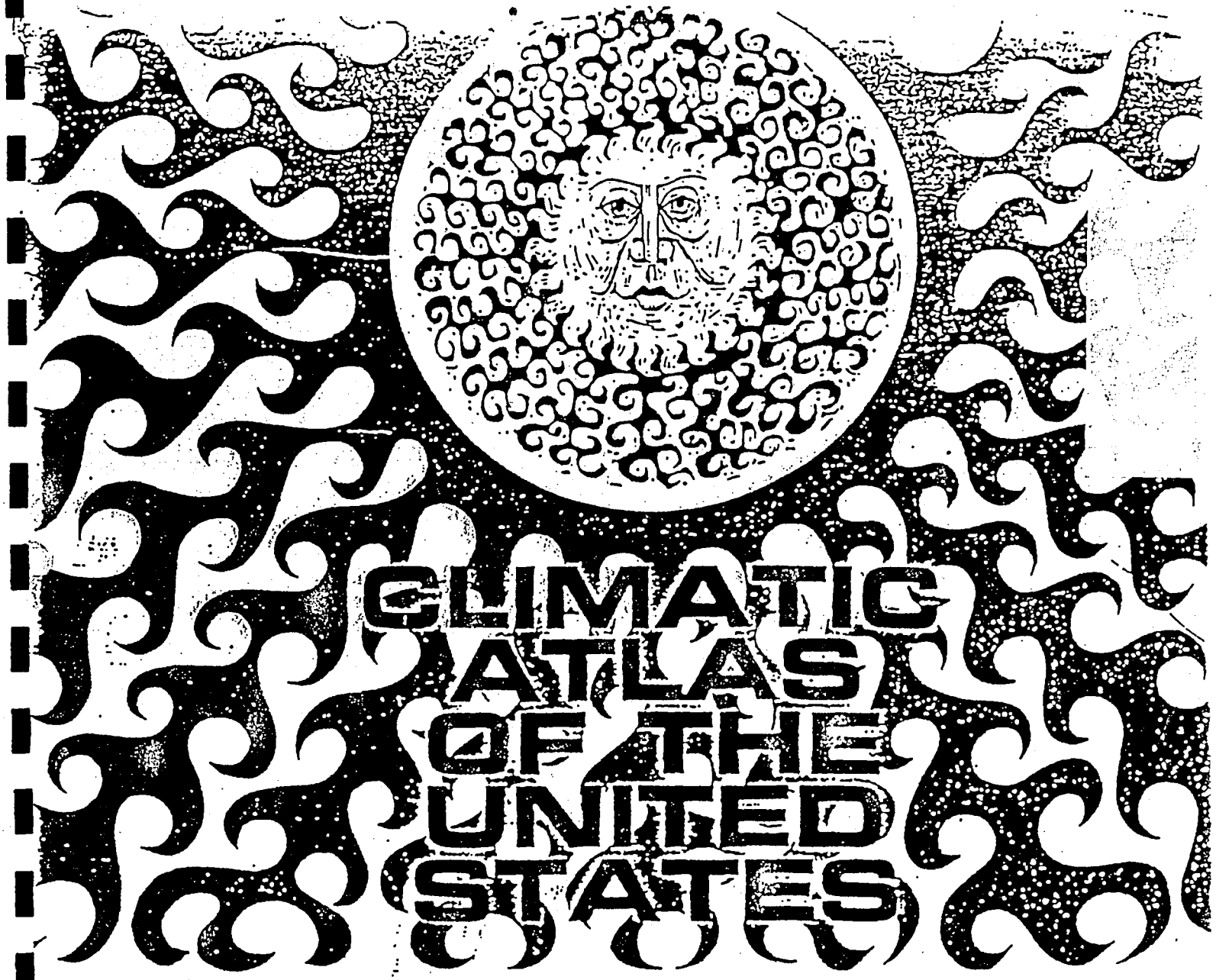
TYPE III MONITORING WELL

MW #13

Groundwater 8.94'



Ref. 6



CE . Environmental Science Services Administration . Environmental Data Service

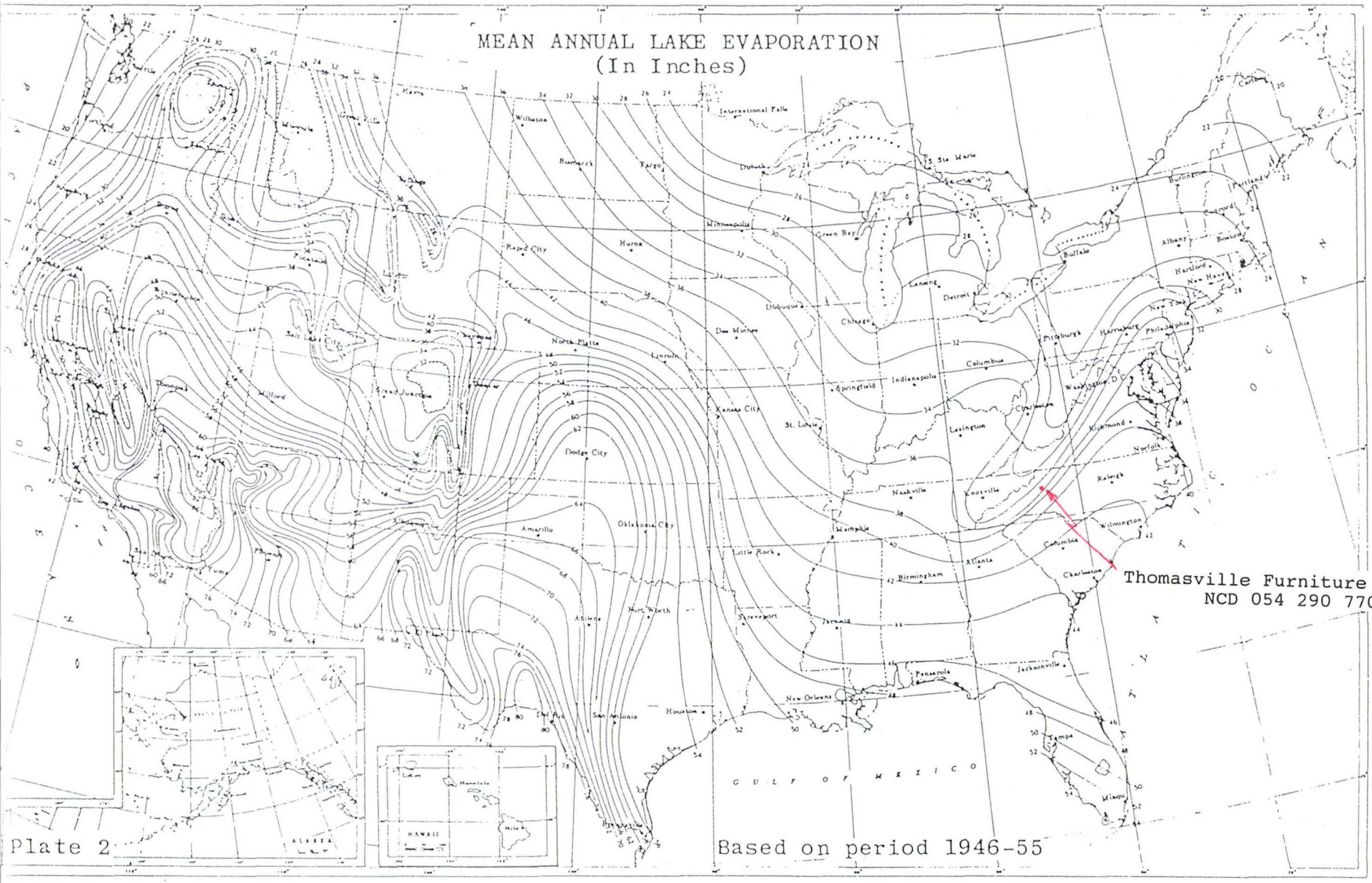
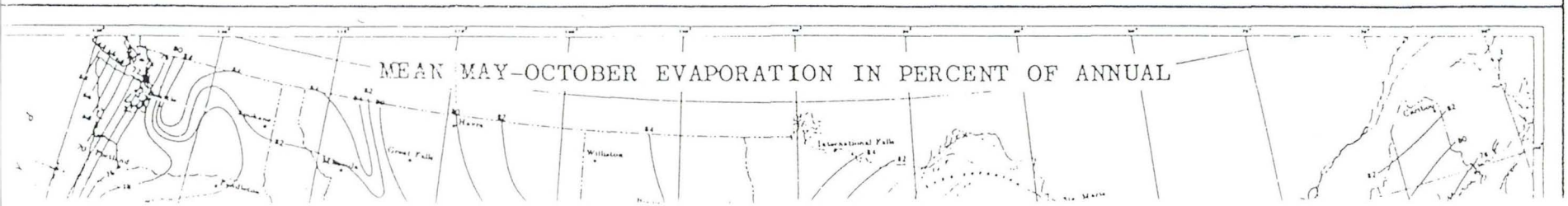
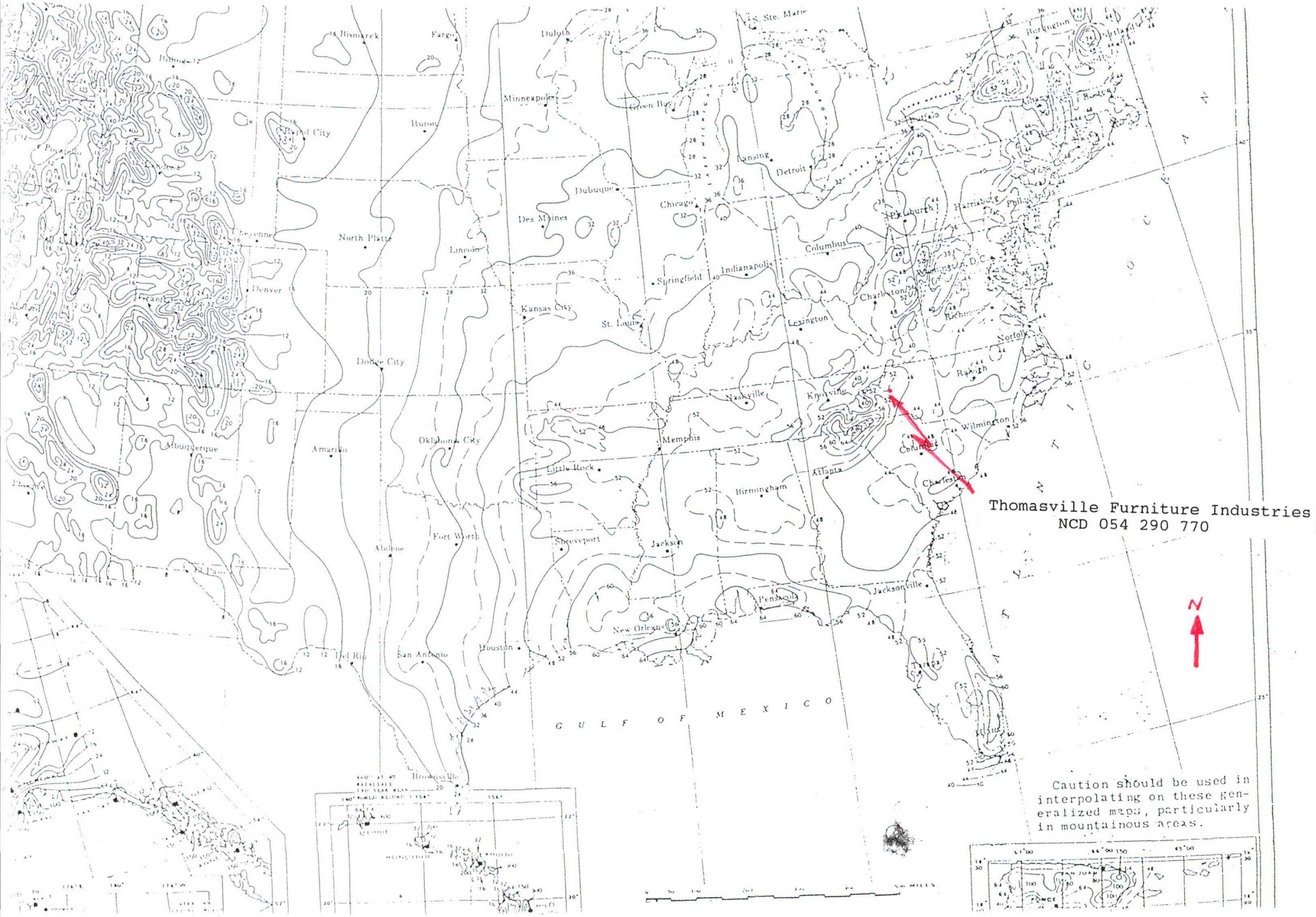

MEAN ANNUAL LAKE EVAPORATION
(In Inches)
Thomasville Furniture Industries
NCD 054 290 770
Based on period 1946-55
GULF OF MEXICO
ALASKA
HAWAII
N

Plate 2


MEAN MAY-OCTOBER EVAPORATION IN PERCENT OF ANNUAL

NORMAL ANNUAL TOTAL PRECIPITATION (INCHES)



DEPARTMENT OF COMMERCE
Jesse H. Jones, Secretary

WEATHER BUREAU
F. W. Reichelderfer, Chief

TECHNICAL PAPER NO. 40

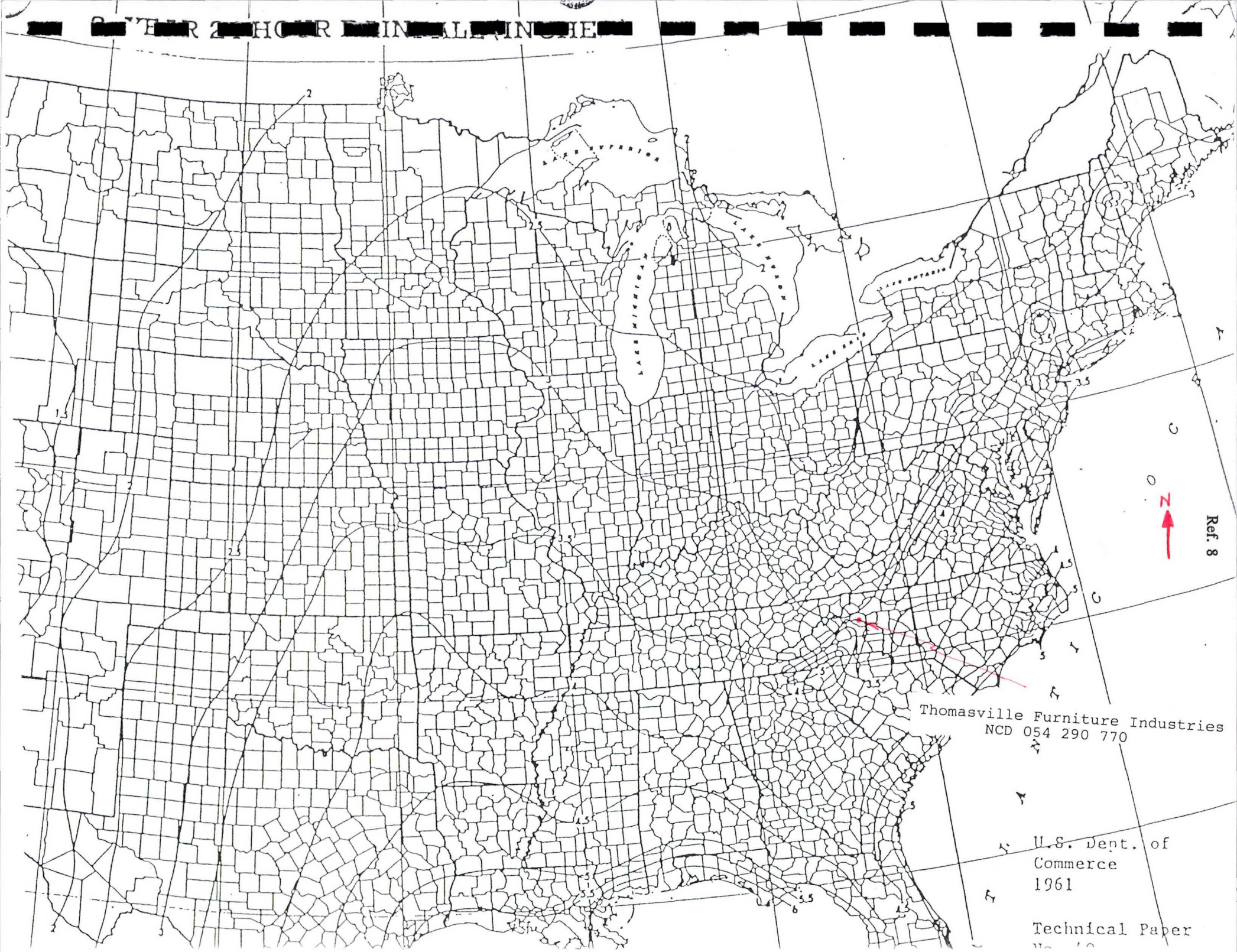
RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

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. 7


Thomasville Furniture Industries
NCD 054 290 770
U.S. Dept. of
Commerce
1961
Technical Paper
Ref. 8
N

Ref. 9

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

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

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

September 3, 1987

Ms. Denise Smith
EPA NC CERCLA Project Officer
EPA Region IV Waste Division
345 Courtland Street, N.E.
Atlanta, GA 30365

Dear Ms. Smith:

RE: Preliminary Assessment Report
Thomasville Furniture Industries
NC D054290770

Please find attached the Preliminary Assessment Report for the subject site. This report is based on documents on file at this office, and on communication with persons knowledgeable of this site.

The thirty acre Thomasville Furniture Industries site has been used for furniture manufacturing by various companies since the early 1900s. Wastes generated at the facility have included flammable D001 solids and non-halogenated F003 and F005 solvents. Thomasville Furniture operated an incinerator on the site until 1983. Presently the facility is regulated as a RCRA large quantity generator.

Sherry Stookey of Thomasville Furniture Industries has indicated that between 1975 and 1979, scrapings from filler and lacquer booths were disposed in on-site trenches, along with solidified formaldehyde-based and poly vinyl acetate-based glues. It has also been reported that formaldehyde-based glue spill once caused a release to a nearby tributary. The facility has underground storage tanks for fuel oil, naptha, and varsol.

There are an estimated 1694 ground water users within three miles of Thomasville Furniture whose water supply could potentially be impacted from past waste handling practices at the site. Although there is no indication that the Thomasville Furniture site poses a public health threat at present, it is recommended that a site inspection be conducted. Priority assigned for inspection is Medium.

On September 3, 1987, this Preliminary Assessment was reviewed by CERCLA Unit personnel, and by the following representatives from the North Carolina Department of Natural Resources and Community Development, Division of Environmental Management: Glenn Ross, Air Quality Section, and; Vince Schneider, Water Quality Section.

Please contact me at (919) 733-2801, if you have any questions concerning this report.

Sincerely,

D. Mark Durway

D. Mark Durway, Geologist
CERCLA Unit
Solid and Hazardous Waste Management Branch
Environmental Health Section

Thomasville Furniture Industries 4/27/93

2:50 Arrive at site & check in at Security Gate. Guard says that he will tell Tom Gibson that we are here. Sunny, 70°. Meet Dave Mastes, Tom Gibson, Mark Holton (Humble & Coyle)

3:05 walk over to work Trailer

Bruce (Ensite) All solids & soils going to GSX S.L. Pinewood

Excavation to Groundwater ≈ 8 ft bls still encountered contaminated soil

Bedrock ≈ 25-28 ft bls

Excavation trenches along Blair Fork have been completed. Site is fenced.

3:15 Excavations have been back filled with Crusher Run & Clean Fill Dirt

3:30 Read & signed site Safety Plan.

Extension of Building (warehouse) built in 1988 - Parking area also paved in 1988

3:45 Dave Mastes leaves site

The following monitor wells have been removed due to excavation

MW-4, 5, 2, 7

10

Thomasville Furniture Industries 4/27/93

3:50 Tom Gibson tells me the facility has about 225 employees

135 overpacked drums with ≈ 6 of those were liquid solvents are present

4:00 Carter Berlin Collect runoff from site & settles with overflow running to tributary of Blair Fork. Tom says it continuously flows

4:05 Picture #22 East view of Tributary that runs through site shows storm Drain emerging from under warehouse. Property to the South of TFI was a former concrete plant. Majority of site runoff is directed to Tributary that runs through property. No visibly stressed vegetation is present.

4:15 Plant still operates on production well for Boiler use. Tom will get me the specs on this well

4:25 Doug Moore takes picture of mw-12 & 13 wells with Reliance in Background Tom says there are drinking water wells East (upgradient) of site towards

RT 321.

Thomasville Furniture Facility 4/27/93

4:45 Dip Tank is 13' x 23' x 8' - Removed from service in late 1970's. Tank did not show signs of rupture at time of removal. Haz. waste (Doug Holyfield) should have file on monitor well and Pentachlorophenol Dip Tank. One Monitor well located near former Dip Tank area well is 20 ft deep, 2" screened 5' to 20' bls. installed 5/22/91

5:15 leave site. Mark Holton was Wamble, Carlyle representative

5:30 Contract well House count - Stop at 214 Elizabeth St. & Thelma Johnson. She said she has well (1 person) so does 211 H (4 people); 210 (2 people); 206 (2 people) and so does house next church (unknown occupants at #302

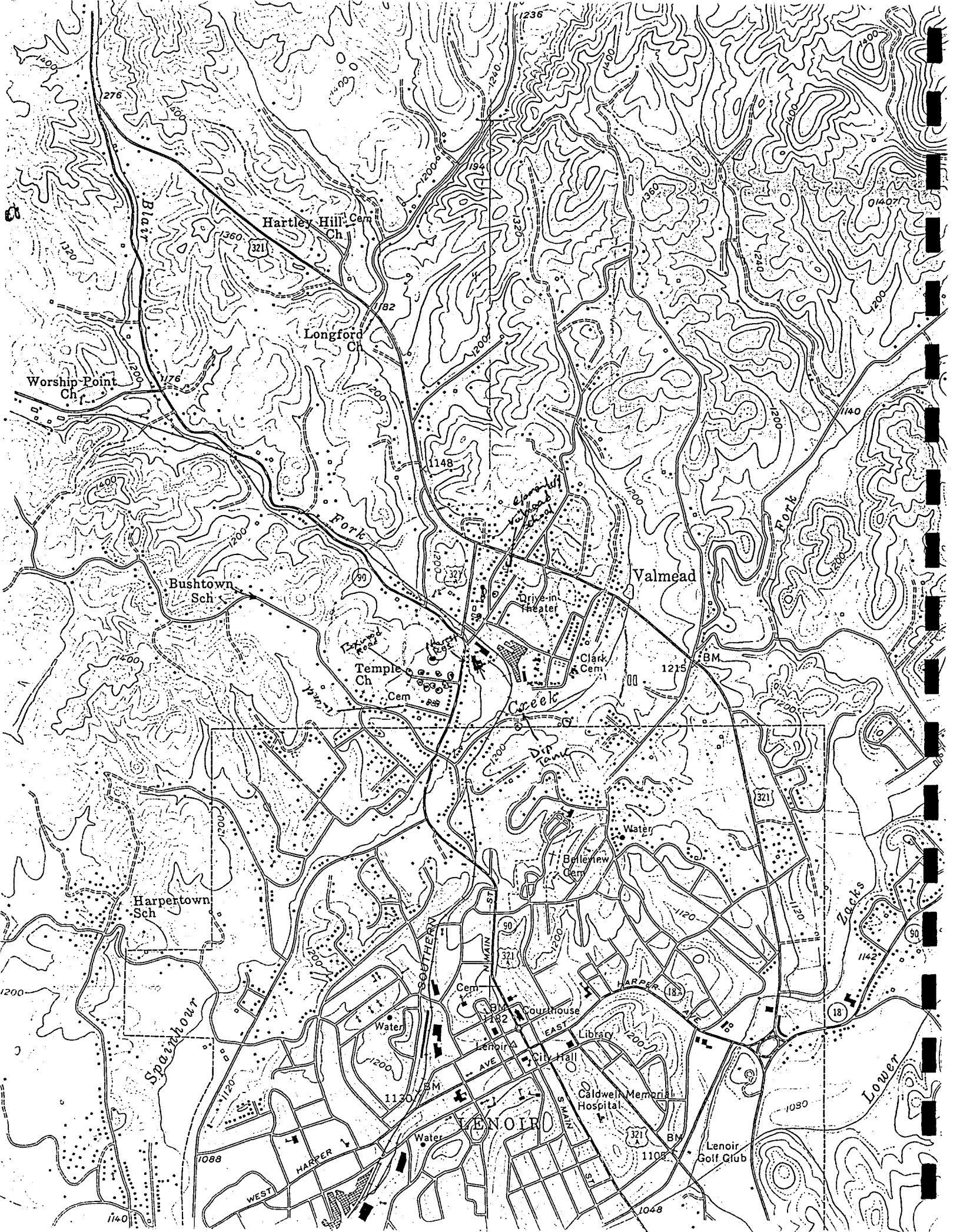
6:00 Stop at 305 Sunset St. because we see a well casing in back yard but nobody answers Door.

Thomasville Furniture Industries 4/27/93

6:20 Drive up Boxwood - Stop at # 1322 Boxwood - They have a well and tell me so do all people on hill

6:35 Talk to Jim Avery at # Advent Circle - He say they have city supplied water ~~and~~ ~~So do~~ CAR The clerks who live up the street have a well. Cathy Avery said that the "Clean water fund" sampled their well 2 1/2 year ago but they no longer use it. Call Millie

6:45 Finish doing House count here Lenoir. Head to Raleigh. Did not see any other schools than Valmead Elementary which is North of site on Rt 321. See Field log Map.


Hartley Hill Ch
Cem
Longford Ch
Worship Point Ch
Bushtown Sch
Temple Ch
Cem
Valmead
Drive-in Theater
Clark Cem
BM
1215
Creek
Dip Tank
Water
Belleview Cem
Harpertown Sch
Sparrow
Zacks
Lower
Fork
Cem
BM
1182
Courthouse
Water
Library
City Hall
Caldwell Memorial Hospital
LENOIR
Lenoir Golf Club
BM
1130
BM
1105
Water
SOUTHERN
N MAIN ST
EAST
Lenoir AVE
S MAIN ST
HARPER AVE
HARPER
WEST
321
90
18

Thomasville Senior 4/27/93

Photodocumentation Log

Photo 1-5 Pan

South to West from Office Trailer looking at Excavation area

Photo 6-7 - 2 shots facing E. looking at excavation beside new warehouse bldg.

Photo 8-9 - 2 more shots of excavation area beside new bldg.

Photo 10-11 - Blair Fork Creek along main exca. area w/ red fence.

Thomasville Furniture Lenoir 4/27/93

→ Contact Clean Water Fund
Millie Buchanan
re: well survey

Roll 2 -

Photo 1 - Facing NW
at Dip Tank Area
(20' deep) ~~the~~ Top
Ribbon reports well clean.

Photo 2 - "

Photo 3 - Facing NW / valve at
catch basin which
comes drains 5 to
tributary -

Photo 4 "

Thomasville Furniture Lenoir 4/27/93

Photo #5-6 - culvert entering storm
tributary behind dip tank
Area

Ref. 11

RECEIVED
MAR 30 1993
SUPERFUND SECTION

WOMBLE CARLYLE SANDRIDGE & RICE
1600 ONE TRIAD PARK
AND
2400 WACHOVIA BUILDING
WINSTON-SALEM, NORTH CAROLINA 27101

CHARLOTTE OFFICE
3300 ONE FIRST UNION CENTER
301 SOUTH COLLEGE STREET
CHARLOTTE, NORTH CAROLINA 28202-6025
TELEPHONE (704) 331-4900
TELECOPY (704) 331-4955

MAILING ADDRESS
POST OFFICE DRAWER 84
WINSTON-SALEM, NORTH CAROLINA 27102
TELEPHONE (919) 721-3600
OTP TELECOPY (919) 721-3660
WACHOVIA TELECOPY (919) 721-3599
TELEX 806498

RALEIGH OFFICE
800 WACHOVIA BUILDING
POST OFFICE BOX 831
RALEIGH, NORTH CAROLINA 27602
TELEPHONE (919) 755-2100
TELECOPY (919) 755-2150

R. HOWARD GRUBBS
(919) 721-3537

March 26, 1993

Mr. Doug Rumsford
Inactive Hazardous Sites Branch
Superfund Section
P. O. Box 27687
Raleigh, North Carolina 27611-7687

Re: Thomasville Furniture Industries, Inc./Lenoir Facility NCD054290770

Dear Mr. Rumsford:

This letter follows up on your inquiry to my partner, Mark Holton, on March 3, 1993, wherein you asked if Thomasville (TFI) would provide an ownership history of the Site in addition to providing information on the prior cleanup of pentachlorophenol (PCP) contaminated soil at the facility.

Caldwell Furniture, Inc. owned the facility from 1905 through 1968, and Thomasville Furniture has owned the plant from that time forward. With regard to the prior PCP contamination, TFI investigated the contents of an unused dip tank which had been out of service for approximately fifteen years. Approximately 3,700 gallons of liquid in the dip tank and soil adjacent to the dip tank were shown to contain PCP. Once the liquid and soil were characterized as containing PCP, TFI investigated disposal options. The liquid in the dip vat was sold except for the unusable portions which were put into five 55-gallon drums. The soil was excavated on December 20, 1990, and further excavation was done on March 6 and June 7 of 1991. The excavated soil was then placed in roll-offs. All of the drums and roll-offs were removed from the facility on the 1st, 2nd, and 5th of August, 1991, and copies of manifests were submitted to the State on August 16, 1991. The North Carolina Division of Solid Waste Management, Hazardous Waste Section, issued two Notices of Violations (NOVs) to TFI for the incident, and TFI worked under state deadlines and extensions of time in order to get the facility in compliance. This facility is currently considered "clean closed" and thus is not subject to permitting requirements or interim status.

Should you desire any further information regarding this matter, please feel free to give me a call.

Very truly yours,

R. Howard Grubbs

RHG:mfe
cc: Mr. David R. Masters
David D. Wilson, Esquire

Ref. 12

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART I - INFORMATION AND ASSESSMENT

I. IDENTIFICATION
01 STATE: NC | 02 SITE NUMBER: D 0542900770

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): Thomasville Furniture Industries
02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: Blowing Rock Highway

03 CITY: Lenoir | 04 STATE: NC | 05 ZIP CODE: 28645 | 06 COUNTY: Caldwell | 07 COUNTY CODE: 14 | 08 CONG DIST: 10

09 COORDINATES: LATITUDE 35°56'10" | LONGITUDE 81°32'10"

10 DIRECTIONS TO SITE (Starting from nearest public road) From downtown Lenoir, take Main Street 1.2 miles miles north. Find facility on right.

III RESPONSIBLE PARTIES

01 OWNER (If known): Armstrong World Industries, Inc.
02 STREET (Business, mailing, residential): PO Box 339

03 CITY: Thomasville | 04 STATE: NC | 05 ZIP CODE: 27360 | 06 TELEPHONE NUMBER: (919) 472-4000

07 OPERATOR (If known and different from owner): Thomasville Furniture Industries
08 STREET (Business, mailing, residential): Blowing Rock Highway

09 CITY: Lenoir | 10 STATE: NC | 11 ZIP CODE: 28645 | 12 TELEPHONE NUMBER: (704) 754-4581

13 TYPE OF OWNERSHIP (Check one)
[x] A. PRIVATE [ ] B. FEDERAL: _____ (Agency) [ ] C. STATE [ ] D. COUNTY [ ] E. MUNICIPAL
[ ] F. OTHER: _____ (Specify) [ ] G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply) (CERCLA 103c)
[x] A. RCRA 3001 DATE RECEIVED: 5/15/86 RCRA Part A on 11-17-80 [ ] B. UNCONTROLLED WASTE SITE DATE RECEIVED [ ] C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION BY (Check all that apply)
[ ] YES DATE [ ] A. EPA [ ] B. EPA CONTRACTOR [ ] C. STATE [ ] D. OTHER CONTRACTOR
[ ] E. LOCAL HEALTH OFFICIAL [ ] F. OTHER: _____
[x] NO CONTRACTOR NAME(s): _____

02 SITE STATUS (Check one)
[ ] A. ACTIVE [ ] B. INACTIVE [ ] C. UNKNOWN

03 YEARS OF OPERATION
Early 1900's | [ ] UNKNOWN
(Thomasville Furniture Industries acquired plant in 1968.)
BEGINNING YEAR ENDING YEAR

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT. KNOWN, OR ALLEGED This 30 acre site has been used for furniture manufacturing since the early 1900's. Wastes known to have been generated on-site have included flammable solids (D001) and non-halogenated solvents (F003 and F005). Thomasville Furniture operated an incinerator until the

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION early 1980's, and is currently classified as a large generator. Between 1975 and 1979, scrapings from filler and lacquer booths were disposed in on-site trenches, along with solidified formaldehyde-based and poly vinyl acetate-based glues. Reported formaldehyde-based glue spill into nearby tributary. Fuel oil, naptha, and varsol underground tanks. Estimated 1694 ground water users within 3 mi. of site.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
[ ] A. HIGH (Inspection required promptly) [X] B. MEDIUM (Inspection required) [ ] C. LOW (Inspection on time available basis) [ ] D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT: Sherry Stookey, Environ. Compliance
02 OF (Agency/Organization): Armstrong World Inds., Thomasville, NC
03 TELEPHONE NUMBER: (919) 472-4000

04 PERSON RESPONSIBLE FOR ASSESSMENT: Mark Durway
05 AGENCY: NC S&HW Mg | ORGANIZATION: CERCLA | 03 TELEPHONE NUMBER: (919) 733-2801 | 08 DATE: 8/5/87

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NC	D054290770

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE: ____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ — 04 NARRATIVE DESCRIPTION

UNKNOWN

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: UNKNOWN) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ — 04 NARRATIVE DESCRIPTION

Formaldehyde based glue reported to have spilled into near-site tributary.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE: ____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ — 04 NARRATIVE DESCRIPTION

UNKNOWN

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE: ____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ — 04 NARRATIVE DESCRIPTION

UNKNOWN

01 [X] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE: ____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ — 04 NARRATIVE DESCRIPTION

UNKNOWN

01 [X] F. CONTAMINATION OF SOIL — 02 [ ] OBSERVED (DATE: ____) — [X] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: ____ (Acres) — 04 NARRATIVE DESCRIPTION

Potentially hazardous wastes were disposed into on-site trenches between 1975 and 1979.

01 [X] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: ____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ — 04 NARRATIVE DESCRIPTION

UNKNOWN

01 [X] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: ____) — [X] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: ____ — 04 NARRATIVE DESCRIPTION

UNKNOWN

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: ____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ — 04 NARRATIVE DESCRIPTION

UNKNOWN

Thomasville Furniture Lenoir 4/27/93

Photo 12 - Hazardous pile

Photo 13 Ret. Pond

Photo 14 - Overpacked drums to be ~127 overpacks 6 solvents

Photo 15 - Empty Roll offs

Photo 16 - Drain facing from drain curbed parking lot area

Photo 17 facing N. flows runoff to drain area.

Photo 18 - Facing N Retention Pond

Photo 19 Dominant ditch to trib (for pond overflow)

Thomasville Furniture Lenoir 4/27/93

Photo 20 - Tributary which flows under site to Blair's Fk Creek facing West.

Photo 21 - Mining Ditch or Trib facing S.

Photo 22 - facing E. trib facing plant flows under parking lot to Blair Fk Creek. Metal pipes show Drain for foot of new bldg.

Photo 23 - facing N. under foot of excavation area

Photo 24 - Facing N } wells shown at X-st from
" 25 - Facing E } Reliance

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NC	D054290770

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A. SOLID
- [ ] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] D. OTHER _____ (Specify)
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____
CUBIC YARDS unknown
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

?-26

- [ ] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [ ] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [X] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	unknown		wastes were disposed in on-site
PSD	PESTICIDES			trenches between 1975 and 1979.
OCC	OTHER ORGANIC CHEMICALS	unknown		
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	non-haloq. solvents	------	stored or incinerated on-site		
OOC	spray booth scrapings	------	buried on-site		
OOC	dried glues	--------	"		

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

1) Files at NC S&HWM
2) Sherry Stookey of Thomasville Furniture Industries, pers. comm., 8-31-87
3) Records from the NC Public Water Supply Branch, Raleigh, NC

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NC	D054290770

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

UNKNOWN

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

UNKNOWN

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

UNKNOWN

III. TOTAL POPULATION POTENTIALLY AFFECTED: UNKNOWN

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

As previously cited

Please print or type in the unshaded areas only (fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Ref. 13

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

EPA I.D. NUMBER: F N C D 0 5 4 2 9 0 7 7 0

GENERAL INSTRUCTIONS: If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI (except VI-B which must be completed regardless). Complete all Items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

0 0 0 6 2

NCD054290770

THOMASVILLE FURNITURE INDUSTRIES
PO BOX 640
LENOIR, NC 28645

BLOWING ROCK HYW
LENOIR, NC 28645

RECEIVED EPA/REGION

09 13 11 15 AM

ENF DIVISION

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK "X" YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X	
B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	1
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		X	
D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

C. SKIP

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title): McNeill, Ralph, Sr. Proj. Engineer

B. PHONE (area code & no.): 919 475 1361

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: P.O. Box 339

B. CITY OR TOWN: Thomasville

C. STATE: NC

D. ZIP CODE: 27360

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: Blowing Rock Highway

B. COUNTY NAME: Caldwell

C. CITY OR TOWN: Lenoir

D. STATE: NC

E. ZIP CODE: 28645

F. COUNTY CODE (if known):

ONTINUED FROM THE FRONT

VIII. SIC CODES (4-digit, in order of priority)

A. FIRST		B. SECOND	
2511	(specify) Wood Household Furniture		(specify)
C. THIRD		**D. FOURTH**	
	(specify)		(specify)

IX. OPERATOR INFORMATION

A. NAME: Thomasville Furniture Industries, Inc

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL, S = STATE, P = PRIVATE, M = PUBLIC (other than federal or state), O = OTHER (specify)

P (specify)

D. PHONE (area code & no.): A 919 475 1361

E. STREET OR P.O. BOX: P. O. Box 339

F. CITY OR TOWN: Thomasville

G. STATE: NC

H. ZIP CODE: 27360

X. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): N NC0005592

D. PSD (Air Emissions from Proposed Sources):

B. UIC (Underground Injection of Fluids): U

E. OTHER (specify): (specify)

C. RCRA (Hazardous Wastes): R

E. OTHER (specify): (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Manufacture of wood household furniture, not upholstered.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
C. G. O'Brien, Sr. Vice President Gen. Mgr., Thomasville Division	C. G. O'Brien	11/17/80

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

EPA I.D. NUMBER: F N C D 0 5 4 2 9 0 7 7 0 (T/A)

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*: YR. 80 MO. 01 DAY 28

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN: YR. MO. DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY — For each code entered in column A, enter the capacity of the process.

1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

DUP (T/A) 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. 1. AMOUNT	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G		5				
X-2	T03	20	E		6				
1	T03	0.1	D		7				
2					8				
3					9				
					10				

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III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CO OR FOR DESCRIBING OTHER PROCESSES *(co. T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER — Enter the four—digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four—digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non—listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non—listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non—listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non—listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				included with above

CONTINUE ON PAGE 3

Continued from page 2.

NOTE: Photocopy this page before completing if you h[illegible]ore than 26 wastes to list.

Form Approved OMB No. 158-S00004

EPA I.D. NUMBER (enter from page 1)													T/A	C
W	N	C	D	0	5	4	2	9	0	7	7	0		1

FOR OFFICIAL USE ONLY													T/A	C		
W	D	U	P											2	D	U	P

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	D001	50	T	T03	D80			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
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24								
25								
26								

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DESCRIPTION OF HAZARDOUS W TES (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. (enter from page 1)												T/A	C
N	C	D	0	5	4	2	9	0	7	7	0		6

FACILITY DRAWING

ll existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

I. PHOTOGRAPHS

ll existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, eatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)	LONGITUDE (degrees, minutes, & seconds)
3 5 5 5 0 0 N	0 8 1 3 2 3 0 W

III. FACILITY OWNER

[X] A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. (area code & no.)

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
	G		

X. OWNER CERTIFICATION

certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached ocuments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the bmitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, cluding the possibility of fine and imprisonment.

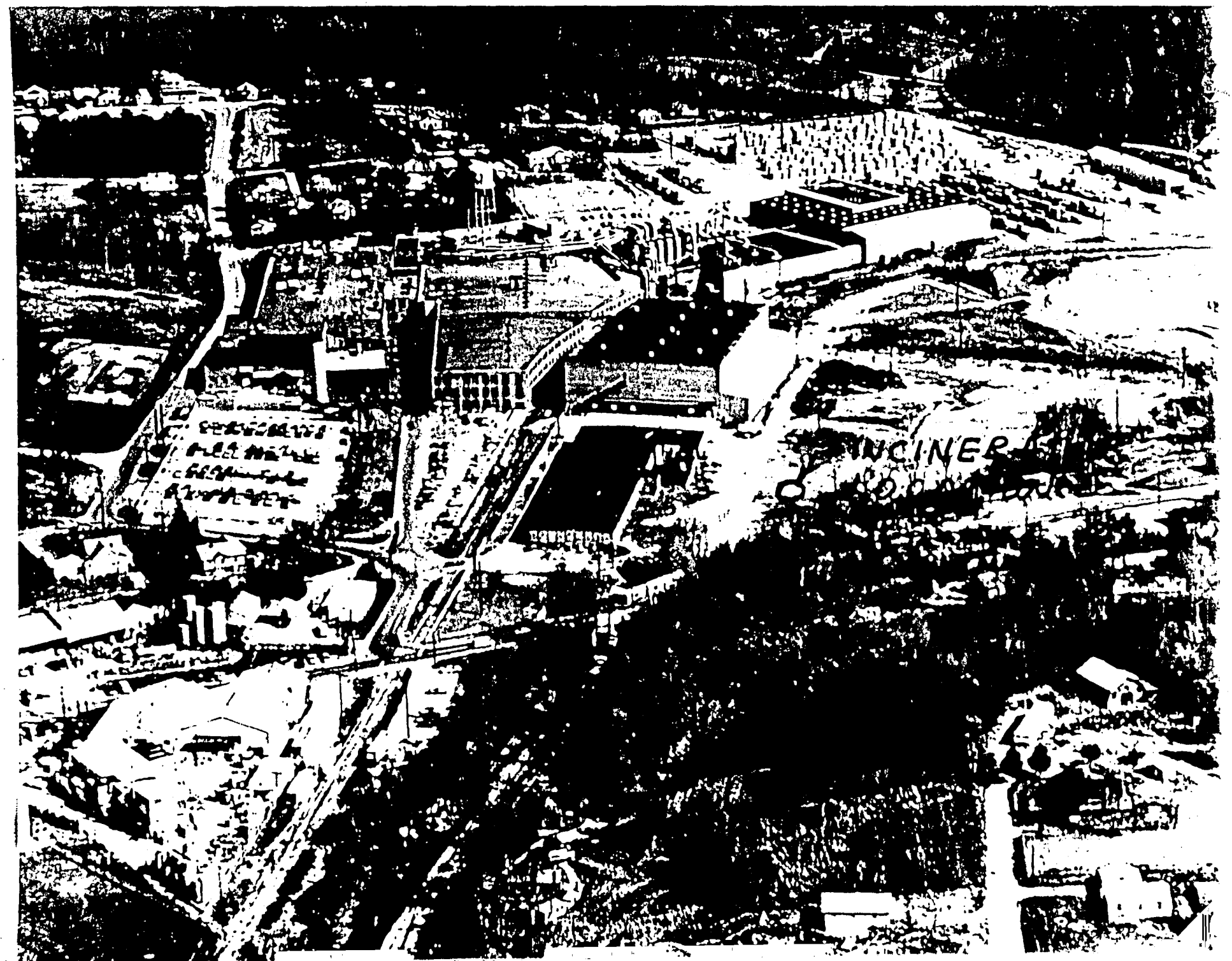
A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
. G. O'Brien, Sr. Vice President en Mgr., Manufacturing	G O'Brien	11/17/80

. OPERATOR CERTIFICATION

certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached ocuments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the bmitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, cluding the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED

CONTINUE ON PAGE 5


INCINER

Ref. 14

NORTH CAROLINA
ENVIRONMENTAL MANAGEMENT COMMISSION
DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
RALEIGH

P E R M I T

For the Discharge of Air Contaminants Into the Atmosphere

In accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations,

PERMISSION IS HEREBY GRANTED TO

Thomasville Furniture Industries, Inc.
Lenoir Plant
Lenoir, North Carolina

FOR THE

construction and operation of air cleaning devices and appurtenances consisting of two fabric filters (4800 square feet of filter area each, ID No. F9 and F10) installed in parallel on the machine room wood dust collection system, and the

operation of:

1. A closed loop classifier cyclone,

2. A natural gas fired, 380 pounds per hour, Type 0 waste, multiple chambered incinerator with a 400,000 BTU per hour (minimum) primary burner and a 400,000 BTU per hour (minimum) secondary burner,

3. Thirty-five (35) paint spray booths, utilizing nonphotochemically reactive or exempt painting materials, installed on furniture finishing operations,

and air cleaning devices and appurtenances consisting of:

4. A baghouse (3255 square feet of filter area) and a simple cyclone (96 inches in diameter) installed in series on the exhausts of sanding equipment,

5. Thirteen baghouses (5130, 5130, 3825, 3825, 3825, 3020, 3020, 3020, 2460, 1155, 1155, 1155, and 600 square feet of cloth area, respectively) installed on the woodwaste collection system, and

6. Two multicyclones (20 nine inch diameter tubes each) installed one each on two finishing wastes/woodwaste/coal fired boilers (26.8 MBTU/hour maximum heat input each),

to remove particulate and visible emissions,

and for the discharge of the associated stack gases and treated air into the outdoor atmosphere at its facility located at 315 Elizabeth Street, Lenoir, North Carolina, Caldwell County,

in accordance with the application received February 2, 1984 and in conformity with the plans, specifications, and other supporting data, all of which are filed with the Department of Natural Resources and Community Development and are incorporated as part of this Permit.

This Permit shall be effective from the date of its issuance until October 1, 1987, is nontransferable to future owners and operators, and shall be subject to the following specified conditions and limitations:

1. The facilities shall be properly operated and maintained at all times in such a manner as to effect an overall reduction in air pollution in keeping with the application and otherwise to reduce air contamination to the extent necessary to comply with applicable Environmental Management Commission Regulations, including 15 NCAC 2D .0503, .0504, .0505, .0512, .0515, .0516, .0518, .0521, and .0535(f).

2. Reports on the operation and maintenance of the facilities shall be submitted to the Division of Environmental Management at such intervals and in such form and detail as may be required by the Division. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

3. As required by 15 NCAC 2D .0535(f), when particulate and/or visible emissions exceed Environmental Management Commission Regulations for more than four hours the Regional Supervisor, Mooresville Region, of the Division of Environmental Management shall be notified as promptly as possible but in no case later than 24 hours of becoming aware of the occurrence. Such notice shall specify the facility name and location, the nature and cause of the excess emissions, the time when first observed, the expected duration, and the estimated rate of emissions. This reporting requirement does not allow the operation of the facility in excess of Environmental Management Regulations.

4. The total amount of finishing wastes burned in the boiler shall not exceed 180 pounds per hour. Halogenated wastes and PCB's shall not be burned in the boiler.

5. The Permittee shall retain records at the facility of all finishing wastes that are burned in the boiler for a period of two years. These records shall include the type of finishing wastes burned and the amount of each waste burned hourly.

6. This Permit does not relieve the Permittee of the responsibility of complying with any Federal, State, or local requirements governing the handling, disposal, or incinerator of hazardous wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the North Carolina Department of Human Resources.

7. This Permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or local water quality or land quality control authority.

8. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the Division of Environmental Management. If appropriate, modifications to the permit may then be made by the Division of Environmental Managemnt to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.

9. The Permittee at least 90 days prior to the expiration of this Permit, shall request its extension by letter. The letter should include the Permit number and a description of modifications, if any, that have been made.

10. This Permit is subject to revocation or modification upon a determination that information contained in the application or presented in support thereof is incorrect, conditions under which the Permit renewal was granted have changed, or violations of conditions contained in the Permit have occurred.

11. A violation of any term or condition of this Permit shall subject the Permittee to enforcement procedures contained in North Carolina General Statutes 143-215.114, including assessment of civil penalties.

Permit issued this the 15th day of March, 1984.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Richard R. Peace, Jr.

Richard R. Peace, Jr., Regional Supervisor
Division of Environmental Management
By Authority of the Environmental Management Commission

Permit No. 4172R5

Ref. 15

Keith ↓ Robin (1)

Thomasville

RECEIVED

JUN 12 1991

HAZARDOUS WASTE SECTION

E Thomasville NCD 054290770

June 5, 1991

Mr. Jerome Rhodes
NCDEHNR
Hazardous Waste Section
P.O. Box 27687
Raleigh, NC 27611-7687

Dear Mr. Rhodes:

Subject: Status Report
Compliance Schedule
Thomasville Furniture Industries, Inc.
Lenoir, NC
EPA ID No. 054290770

This letter and attachments will serve as an update to the March 27, 1991 report concerning soil contamination of our lumberyard by pentachlorophenol bearing wood treatment solution and closure of the wood treatment tank. By that date, we had accumulated two (2) roll-offs of pentachlorophenol (PCP) contaminated soil as a result of excavation of the impacted area and completed analyses of their contents. Composite samples at the base and the perimeter of the two (2) excavations were also analyzed. Closure of the wood treatment vat had not been addressed.

As you are aware, we have encountered obstacles in locating a hazardous waste management facility to accept and dispose of the two (2) roll-offs of PCP tainted soil. While the TCLP concentration of PCP is low, less than 0.100 ppm in roll-off no.1 and 0.8 ppm in roll-off no.2, the EPA waste code consistently attached to it by hazardous waste management facilities is F027. Our understanding is that there is no disposal outlet in the U.S. for an F027 waste and only one (1) approved storage facility for it in the U.S. (See attachment 1). We have contacted the one approved storage facility in the U.S., a hazardous waste management facility outside the U.S. and are currently exploring other alternatives. We will be contacting you in the near future to arrange a meeting to discuss our dilemma and proposed solution.

A question remained as to the high detectable quantitation limit of 0.6 ppm for a soil sample from the perimeter of the second excavation. The sample was reanalyzed, the quantitation limit successfully reduced to 0.115 ppm, and no PCP was detected. Also of concern at this second excavation was the concentration of PCP at the base of the excavation 0.7 ppm. (See attachment 2) To date, the additional soil has not been removed due to problems encountered in disposal of the soil already accumulated in the two (2) existing roll-off containers. The additional excavation is scheduled for June 6, 1991.

Thomasville Furniture Industries, Inc.
Thomasville, North Carolina

The last item of concern is closure of the wood treatment vat. The remaining contents of the vat, approximately 4500 gallons was sold to a lumber company in South Carolina for use in their wood treatment oeration. The solids removed from the vat were placed in three (3) drums, properly labeled, and sampled in preparation for disposal. Once the solids were removed, the tank was steam cleaned. The water from the cleaning was placed in two (2) drums, properly labeled, and sampled in preparation for disposal. The cleaned vat was rinsed with distilled water and a rinsate sample collected. Analysis results of the sludge, water, and rinsate are attached. (See attachments 3-3e) We are currently waiting for approval from a hazardous waste management facility to dispose of the sludge and wastewater. The "clean" vat has been removed and cut up for scrap. Three (3) samples from beneath the vat were collected and analyzed. (See attachment 4)

A site assessment was performed in the area surrounding the wood treatment vat on May 22 and 23, 1991 by Trigon Engineering Consultants, Inc. out of Greensboro, N.C.. The assessment consisted of the installation of one (1) groundwater monitoring well and the drilling of two (2) soil test borings. The samples collected from both the groundwater monitoring well and the soil borings are being analyzed for purgeable halocarbons by EPA Method 601, phenols by EPA Method 604, and TCLP RCRA metals. The final report will be submitted to your office after we receive and review it.

If you require further information or have any questions you may call me at (919) 476-2264.

Sincerely,

Sherry Stookey

Sherry Stookey, Supervisor
Environmental Compliance

cc: Jim Siceloff, Thomasville Furniture Ind., Inc.
Tom Gibson, Thomasville Furniture Ind., Inc.
Paul Albertson, Thomasville Furniture Ind., Inc.
Carlyle Nance, Thomasville Furniture Ind., Inc.
Dave Masters, Thomasville Furniture Ind., Inc.

LAIDLAW ENVIRONMENTAL SERVICES

C. Mitchell McDowell
Customer Service C

Service Center

Laidlaw Environmental Services (TS), Inc.
Route 11, Box 3
Watlington Industrial Road
Reidsville, N.C. 27320

Wats 1.800.334.5953
Phone 919.342.6106
Fax 919.342.7767

Ms. Sherry Stookey
THOMASVILLE FURNITURE
P.O. Box 339
Thomasville, North Carolina 27361

Dear Ms. Stookey:

Laidlaw Environmental Services (TS), Inc. has determined that your soil contaminated with Pentachlorophenol should be listed as F027 waste. This determination was made after extensive research into all applicable regulations and variances in place at this time, and in conjunction with Laidlaw Environmental's Corporate Regulatory Compliance Office.

There currently are no legal disposal outlets within the continental United States for F027 listed waste. Incineration of Dioxin related materials is available in Canada, however, there is no legal means of transporting this material out of this country at this time.

Laidlaw Environmental Services (TS), Inc. will keep you abreast of any changes in disposal options for F027 waste. At this time we can provide Thomasville Furniture packaging materials of proper integrity for storage of F027 waste and would be pleased to discuss the option of transporting the material to LaPorte, Texas to a facility that stores Dioxin related materials until other disposal options are available.

We appreciate the opportunity to be of service to you and look forward to servicing your waste management needs in the future. Feel free to call anytime you need information.

Sincerely,

Mitch McDowell

Mitch McDowell
Customer Service Chemist

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

Perimeter of 2nd excavation

CLIENT: Thomasville Furniture Industries, Inc.
PO Box 339
Thomasville, N.C. 27361-0339

Attention: Ms. S. Stookey

DATE REQUESTED: April 3, 1991

DATE REPORTED: April 18, 1991

SAMPLE NUMBER	SAMPLE DESCRIPTION
103-0125C	TF-014 for Total Pentachlorophenol

PARAMETER	RESULTS
103-0125C - TotalPentachlorophenol	< 0.115 mg/kg

The above sample was reanalyzed to obtain lower detection limits as requested. Please note that the above was run via SW-846 method 8040.

REPORTED BY: D R Wessinger
D. R. Wessinger General Manager

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Thomasville Furniture Industries, Inc.
PO Box 339
Thomasville, N.C. 27361-0339

Attention: Ms. S. Stookey

DATE RECEIVED: March 20, 1991

DATE REPORTED: April 12, 1991

SAMPLE NUMBER	SAMPLE DESCRIPTION
103-0150A	Thomasville Furniture #25, TF-015 for TCLP Pentachlorophenol
103-0150B	Thomasville Furniture #25, TF-016 for TCLP Pentachlorophenol

PARAMETER	RESULTS	
103-0150A - TCLP Pentachlorophenol	0.839	mg/l — 2 drums solids + 1 drum animals
103-0150B - TCLP Pentachlorophenol	4.760	mg/l — 2 drums cleaning H_2O.

The above were run via SW-846 method 8040.

REPORTED BY: D R Wessinger
D. R. Wessinger General Manager

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Thomasville Furniture Industries, Inc.
PO Box 339
Thomasville, N.C. 27361-0339

Attention: Ms. S. Stookey

DATE REQUESTED: April 3, 1991

DATE REPORTED: April 12, 1991

SAMPLE NUMBER	SAMPLE DESCRIPTION
103-0150A	Thomasville Furniture #25, TF-015 for TCLP 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol and 2,4,5,6-Tetrachlorophenol
103-0150B	Thomasville Furniture #25, TF-016 for TCLP 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol and 2,4,5,6-Tetrachlorophenol

PARAMETER	RESULTS
103-0150A - TCLP 2,4,5-Trichlorophenol	< 0.100 mg/l
- TCLP 2,4,6-Trichlorophenol	< 0.100 mg/l
- TCLP 2,4,5,6-Tetrachlorophenol ***	
103-0150B - TCLP 2,4,5-Trichlorophenol	< 0.100 mg/l
- TCLP 2,4,6-Trichlorophenol	< 0.100 mg/l
- TCLP 2,4,5,6-Tetrachlorophenol ***	

> solids
ok.
> water

*** Unable to purchase a commercial reference standard for 2,4,5,6-Tetrachlorophenol. Unable to quantify for item without GC/MS.

The above were run via SW-846 method 8040.

REPORTED BY: DR Wessinger
D. R. Wessinger - General Manager

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Thomasville Furniture Industries, Inc.
PO Box 339
Thomasville, N.C. 27361-0339

Attention: Ms. S. Stookey

DATE REQUESTED: April 3, 1991

DATE REPORTED: April 12, 1991

SAMPLE NUMBER	SAMPLE DESCRIPTION
103-0150A	Soil; TF-015 for Methylene Chloride — drummed solids
103-0176A	Soil; TF-037 for Methylene Chloride
103-0176B	Soil; TF-038 for Methylene Chloride
103-0176B	Soil; TF-039 for Methylene Chloride

PARAMETER	RESULTS	
103-0150A - Methylene Chloride	< 0.050	mg/kg drummed solids
103-0176A - Methylene Chloride	< 0.050	mg/kg
103-0176B - Methylene Chloride	0.184	mg/kg
103-0176C - Methylene Chloride	< 0.050	mg/kg

base of excavation dip tank

REPORTED BY: DR Wessinger
D. R. Wessinger - General Manager

Attachment 3c

Drummed sludge

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Thomasville Furniture Industries, Inc.
PO Box 339
Thomasville, N.C. 27361-0339

Attention: Ms. S. Stookey

DATE RECEIVED: May 13, 1991

DATE REPORTED: May 14, 1991

SAMPLE NUMBER	SAMPLE DESCRIPTION
105-0291	Thomasville #25; TF-40 for TCLP Pb.

PARAMETER	RESULTS
105-0291 - TCLP Pb	0.06 mg/l

REPORTED BY: D. R. Wessinger - General Manager

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Thomasville Furniture Industries, Inc.
PO Box 339
Thomasville, N.C. 27361-0339

Attention: Ms. S. Stookey

DATE RECEIVED: March 28, 1991

DATE REPORTED: April 3, 1991

SAMPLE NUMBER	SAMPLE DESCRIPTION
103-0175A	Water; TF-033 for TCLP Pentachlorophenol — Rinsate ~~2 drums~~
103-0175B	Water; TF-034 for TCLP Pentachlorophenol

PARAMETER	RESULTS
103-0175A - TCLP Pentachlorophenol	< 0.100 mg/l
103-0175B - TCLP Pentachlorophenol	Not run as per S. Stookey 4/3/91

REPORTED BY: _____
D. R. Wessinger - General Manager

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Thomasville Furniture Industries, Inc.
PO Box 339
Thomasville, N.C. 27361-0339

Attention: Ms. S. Stookey

DATE REQUESTED: April 3, 1991

DATE REPORTED: April 12, 1991

SAMPLE NUMBER	SAMPLE DESCRIPTION
103-0175A	Water; TF-033 for TCLP 2,4,5-Trichlorophenol, ~~2,4,6-~~ Trichlorophenol and 2,4,5,6-Tetrachlorophenol

Rinsate

PARAMETER	RESULTS	
103-0175A - TCLP 2,4,5-Trichlorophenol	< 0.100	mg/l
- TCLP 2,4,6-Trichlorophenol	< 0.100	mg/l
- TCLP 2,4,5,6-Tetrachlorophenol	***	

> O.K.

*** Unable to purchase a commercial reference standard for 2,4,5,6-Tetrachlorophenol. Unable to quantify for item without GC/MS.

The above were run via SW-846 method 8040.

REPORTED BY: D R Wessinger
D. R. Wessinger General Manager

Soil beneath Vat

Blue Ridge Labs
P.O. Box 2940 • Pine Mountain Road
Lenoir, North Carolina 28645
Telephone (704) 728-0149

CLIENT: Thomasville Furniture Industries, Inc.
PO Box 339
Thomasville, N.C. 27361-0339

Attention: Ms. S. Stookey

DATE REQUESTED: May 6, 1991

DATE REPORTED: May 16, 1991

SAMPLE NUMBER	SAMPLE DESCRIPTION
105-0302A	Soil; TF-037 for 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol and Pentachlorophenol
105-0302B	Soil; TF-038 for TCLP 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol and Pentachlorophenol
105-0302C	Soil; TF-039 for TCLP 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol and Pentachlorophenol

PARAMETER	RESULTS
105-0302A - 2,4,5-Trichlorophenol	< 0.100 mg/kg
- 2,4,6-Trichlorophenol	< 0.100 mg/kg
- Pentachlorophenol	< 0.100 mg/kg
105-0302B - 2,4,5-Trichlorophenol	< 0.100 mg/kg
- 2,4,6-Trichlorophenol	< 0.100 mg/kg
- Pentachlorophenol	< 0.100 mg/kg

WOMBLE CARLYLE SANDRIDGE & RICE
800 WACHOVIA BUILDING
RALEIGH, NORTH CAROLINA 27601

CHARLOTTE OFFICE
3300 ONE FIRST UNION CENTER
301 SOUTH COLLEGE STREET
CHARLOTTE, NORTH CAROLINA 28202-6025
TELEPHONE (704) 331-4900
TELECOPY (704) 331-4955
TELEX 853609

MAILING ADDRESS
POST OFFICE BOX 831
RALEIGH, NORTH CAROLINA 27602
TELEPHONE (919) 755-2100
TELECOPY (919) 755-2150
TELEX 806498

WINSTON-SALEM OFFICES
1600 ONE TRIAD PARK
AND
2400 WACHOVIA BUILDING
POST OFFICE DRAWER 84
WINSTON-SALEM, NORTH CAROLINA 27102
TELEPHONE (919) 721-3600
TELECOPY (919) 721-3660
TELEX 806498

WRITER'S DIRECT NUMBER

(919) 755-2129

August 16, 1991

Jerome H. Rhodes, Chief
Hazardous Waste Section
Division of Solid Waste Management
Department of Environment, Health and
Natural Resources
Post Office Box 27687
Raleigh, North Carolina 27611-7687

Re: Thomasville Furniture Industries, Inc./Lenoir Facility
NCD 054290770; Notice of Violation; Docket No. 91-320

Dear Jerry:

We represent Thomasville Furniture Industries, Inc. ("Thomasville"). This letter is in response to your July 30, 1991, Notice of Violation ("NOV") which is referenced above. In that NOV, you set out a Compliance Schedule which ordered Thomasville to comply with 40 CFR 262.43 by submitting to your office by August 20, 1991, a copy of the manifests for the off-site shipment of hazardous waste for one roll-off of PCP contaminated soil accumulated under the extension granted on March 18, 1991. This matter concerns three 55-gallon drums of PCP contaminated sludge, two 55-gallon drums of PCP contaminated waste water and a total of three roll-offs containing PCP contaminated soil. All of the drums and roll-offs were removed from the facility on August 1, 2 and 5, 1991. Enclosed are copies of the manifests which evidence this.

With this submittal, Thomasville is now in compliance with the above-referenced NOV and with the requirements contained in the June 12 and June 21, 1991 letters.

R#37919

If you need any further information, or have any questions or comments, do not hesitate to call me.

Very truly yours,

Yvonne C. Bailey

YCB:phe
Enclosures
cc: Sherry Stookey
David Wilson, Esquire
Dave Masters
Keith Masters
Robin Purcell
R. Howard Grubbs, Esquire
R. Douglas Holyfield

R#37919

South Carolina Department of Health and Environmental Control

Bureau of Solid & Hazardous Waste Mgt.
2600 Bull Street, Columbia, SC 29201
Phone: (803) 734-5200
Emergency & Holidays: (803)253-5488

PLEASE PRINT or TYPE (Form designed for use on elite (12-pitch) typewriter) Form Approved. OMB No. 2050-0039 Expires 9-3

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's U.S. EPA ID No. / Manifest Document No.: N C D 0 5 4 2 9 0 7 7 0 0 0 0 4 8
2. Page 1 of

Information in the shaded areas is required by Federal law, but is by State l

3. Generator's Name and Mailing Address:
Thomasville Furniture Industries, Inc.
315 Elizabeth Street, NW Lenoir, NC 28645
4. Generator's Phone (919) 754-4581

A. State Manifest Document Number
B. State Generator's ID

5. Transporter 1 Company Name: STAT, Inc.
6. U.S. EPA ID Number: N C D 9 8 0 7 9 9 1 4 2
C. State Transporter's ID
D. Transporter's Phone (704) 396-2304

7. Transporter 2 Company Name
8. U.S. EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address:
Laidlaw Environmental Services (TOC), Inc.
P.O. Box 308, Railroad Street
Roebuck, SC 29376
10. U.S. EPA ID Number: S C D 9 8 1 4 6 7 6 1 6
G. State Facility's ID
H. Facility's Phone (803) 576-1085

11. U.S. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Numbe
a. Hazardous Waste Liquid, N.O.S., ORM-E, NA 9189	0 0 2	D M		G	K 0 0 1
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above:
a. T 0 - 0 8 2 2 0 - 3 3 7 5
b.
c.
d.

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
See Land Disposal Restriction Form W.O. # 11635
Thomasville Furniture Emergency
Response Phone No. (919) 476-2200

Public reporting burden for this collection of information is estima average: 27 minutes for generators, 15 minutes for transporters, minutes for treatment storage and disposal facilities. This includ for reviewing instructions, gathering data, and completing and rev the form. Send comments regarding the burden estimate, inc suggestions for reducing this burden, to Chief, Information Branch, PM-223, U.S. Environmental Protection Agency, 401 M St Washington, D.C. 20460; and to the Office of Information and Regu Affairs, Office of Management and Budget, Washington, D.C. 205

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are class packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations ing laws of the State of South Carolina.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economi practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to hu health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management me that is available to me and that I can afford.

Printed/Typed Name: Tom Gibson
Signature: Tom Gibson
Month Day: 08 01

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Wesley Hawkins
Signature: Wesley Hawkins
Month Day: 08 01

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day

19. Discrepancy Indication Space
a lbs. c
b lbs. d

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: CHARLES HARMAN
Signature: Charles Harman
Month Day: 08 01

GENERATOR
TRANSPORTER
FACILITY

South Carolina Department of Health and Environmental Control

Bureau of Solid & Hazardous Waste Mgt.
2600 Bull Street, Columbia, SC 29201
Phone: (803) 734-5200
Emergency & Holidays: (803)253-6488

PLEASE PRINT or TYPE (Form designed for use on elite (12-pitch) typewriter) Form Approved. OMB No. 2050-0039 Expires 9-30

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's U.S. EPA ID No. N C D 0 5 4 2 9 0 7 7 0 Manifest Document No. 0 0 0 4 9
2. Page 1 of 1
Information in the shaded areas is r required by Federal law, but is by State la

3. Generator's Name and Mailing Address
Thomasville Furniture Industries, Inc.
315 Elizabeth Street, NW Lenoir, N.C. 28645
4. Generator's Phone (704) 754-4581

A. State Manifest Document Number
B. State Generator's ID

5. Transporter 1 Company Name
STAT, Inc.
6. U.S. EPA ID Number N C D 9 8 0 7 9 9 1 4 2
C. State Transporter's ID
D. Transporter's Phone (704) 396-2304

7. Transporter 2 Company Name
8. U.S. EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
GSX Services of S.C.
Rt.1, Box 255
Pinewood, S.C. 29125
10. U.S. EPA ID Number S C D 0 7 0 3 7 5 9 8 5
G. State Facility's ID
H. Facility's Phone (803) 452-5003

11. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. Hazardous Waste Solid, N.O.S. ORM-E, NA9189	001	CM	15	T	F032
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. PW-04886-3101
b. -
c. -
d. -

K. Handling Codes for Wastes Listed Above
~~H52~~

15. Special Handling Instructions and Additional Information
See attached Land Disposal Restriction form
Thomasville Furniture Emergency Phone no.: (919) 476-2200
W.O. # 141053

Public reporting burden for this collection of information is estimated to average 37 minutes for generators, 15 minutes for transporters, and 1 minutes for treatment storage and disposal facilities. This includes time for reviewing instructions, gathering data, and completing and reviewing the form. Send comments regarding the burden estimate, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M St., S.W., Washington, D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and the laws of the State of South Carolina.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Tom Gibson
Signature: Tom Gibson
Month Day Year: 08 01 91

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: NED JONES RIGGS
Signature: Ned Jones Riggs
Month Day Year: 08 01 91

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space
a. 30799 lbs. c. lbs.
b. lbs. d. lbs.

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Jan Todd
Signature: Jan Todd
Month Day Year: 08 01 91

GENERATOR
TRANSPORTER
FACILITY

South Carolina Department of Health and Environmental Control

Bureau of Solid & Hazardous Waste Mgt.
2600 Bull Street, Columbia, SC 29201
Phone: (803) 734-5200
Emergency & Holidays: (803)253-6488

PLEASE PRINT or TYPE (Form designed for use on elite (12-pitch) typewriter) Form Approved. OMB No. 2050-0039 Expires 9-30-

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's U.S. EPA ID No. N C D 0 5 4 2 9 0 7 7 0 0 0 0 5 0 — Manifest Document No.
2. Page 1 of 1
Information in the shaded areas is n required by Federal law, but is by State la

3. Generator's Name and Mailing Address
Thomasville Furniture Industries, Inc.
315 Elizabeth Street, NW Lenoir, N.C. 28645
4. Generator's Phone (704) 754-4581

A. State Manifest Document Number
B. State Generator's ID

5. Transporter 1 Company Name: STAT, Inc.
6. U.S. EPA ID Number: N C D 9 8 0 7 9 9 1 4 2
C. State Transporter's ID
D. Transporter's Phone (704) 396-2304

7. Transporter 2 Company Name
8. U.S. EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
GSX Services of S.C.
Rt.1, Box 255
Pinewood, S.C. 29125
10. U.S. EPA ID Number: S C D 0 7 0 3 7 5 9 8 5
G. State Facility's ID
H. Facility's Phone (803) 452-5003

11. U.S. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. Hazardous Waste Solid, N.O.S. ORM-E, NA9189	001	CM	15	T	F032
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. PW - 04886 - 3101
b. - -
c. - -
d. - -

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
See attached Land Disposal Restriction form
Thomasville Furniture Emergency Phone no.: (919) 476-2200
W.O. # 141054

Public reporting burden for this collection of information is estimated averages 37 minutes for generators, 15 minutes for transporters, and minutes for treatment storage and disposal facilities. This includes t for reviewing instructions, gathering data and completing and reviewi the form. Send comments regarding the burden estimate, includ suggestions for reducing this burden, to Chief, Information Po Branch, PM-223, U.S. Environmental Protection Agency, 401 M St, S. Washington, D.C. 20460, and to the Office of Information and Regulat Affairs, Office of Management and Budget, Washington, D.C. 20503

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classifie packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations an the laws of the State of South Carolina.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economical practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to huma health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management metho that is available to me and that I can afford.

Printed/Typed Name: Tom Gibson — Signature: Tom Gibson — Month Day Ye 08 02 9

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: WAYNE HILL — Signature: Wayne Hill — Month Day Ye 08 02 9

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Ye

19. Discrepancy Indication Space
a 44900 lbs. c lbs.
b lbs. d lbs.
Weight Over 10% off

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 18.
Printed/Typed Name: Jan Todd — Signature: Jan Todd — Month Day Ye 08 02

South Carolina Department of Health and Environmental Control

Bureau of Solid & Hazardous Waste Mgt
2600 Bull Street, Columbia, SC 29201
Phone: (803) 734-5200
Emergency & Holidays: (803)253-6488

PLEASE PRINT or TYPE (Form designed for use on elite (12-pitch) typewriter) Form Approved. OMB No. 2050-0039 Expires 9-3

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's U.S. EPA ID No. / Manifest Document No.: NCD054290770005 1
2. Page 1 of 1
Information in the shaded areas is required by Federal law, but is by State

3. Generator's Name and Mailing Address
Thomasville Furniture Industries, Inc.
315 Elizabeth Street, NW Lenoir, N.C. 28645
4. Generator's Phone (704) 754-4581

A. State Manifest Document Number
B. State Generator's ID

5. Transporter 1 Company Name: STAT, Inc.
6. U.S. EPA ID Number: NCD980791442
C. State Transporter's ID
D. Transporter's Phone (704) 396-2304

7. Transporter 2 Company Name
8. U.S. EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
GSX Services of S.C.
Rt.1, Box 255
Pinewood, S.C. 29125
10. U.S. EPA ID Number: SCD073759815
G. State Facility's ID
H. Facility's Phone (803) 452-5003

11. U.S. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. Hazardous Waste Solid, N.O.S. ORM-E, NA9189	001	CM	15	T	F032
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. PW-04886-3101
b.
c.
d.

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
See attached Land Disposal Restriction form
Thomasville Furniture Emergency Phone no.: (919) 476-2200
W.O. # 141055

Public reporting burden for this collection of information is estimated average: 37 minutes for generators, 18 minutes for transporters, and minutes for treatment storage and disposal facilities. This includes ti for reviewing instructions, gathering data, and completing and reviewi the form. Send comments regarding the burden estimate, includi suggestions for reducing this burden, to Chief, Information Poli Branch, PM-223, U.S. Environmental Protection Agency, 401 M St., S.W. Washington, D.C. 20460, and to the Office of Information and Regulato Affairs, Office of Management and Budget, Washington, D.C. 20503.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations an the laws of the State of South Carolina.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economicall practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to huma health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management metho that is available to me and that I can afford.

Printed/Typed Name: Tom Gibson
Signature: Tom Gibson
Month Day Year: 08 05 91

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: WAYNE HALL
Signature: Wayne Hall
Month Day Year: 08 05 91

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space
a. 20830 lbs. c. lbs.
b. lbs. d. lbs.
Weight over 10% off

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Ann Wilson
Signature: Ann Wilson
Month Day Year: 08 05 91

GENERATOR
TRANSPORTER
FACILITY

State of New Jersey
Department of Environmental Protection
Division of Hazardous Waste Management
Manifest Section
CN 028, Trenton, NJ 08625

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NCD053429057 Manifest Document No. 000007
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Thomasville Furniture Ind., Inc.
315 Elizabeth St., N.W.
Lenoir, N.C. 28645
4. Generator's Phone (704) 754 - 4581

A. State Manifest Document Number NJA 1470[illegible]
B. State Generator's ID
C. State Transporter's ID
D. Transporter's Phone
E. State Transporter's ID
F. Transporter's Phone
G. State Facility's ID
H. Facility's Phone

5. Transporter 1 Company Name: SJ Transportation Co.
6. US EPA ID Number: NJD071162997 6
7. Transporter 2 Company Name
8. US EPA ID Number
9. Designated Facility Name and Site Address
Rollins Environmental Services (NJ) Inc.
P.O. Box 337, Routes 322 & 1295
Bridgeport, NJ 08014
10. US EPA ID Number: NJD053288239

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a.	X	Hazardous Waste Solid, N.O.S. ORM-E, NA 9189 K001	003	DM	1200	P	[illegible]
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
a. 1000 Gallon containing Powder Coat Phosphate
b.
K. Handling Codes for Wastes Listed Above
a. T03
b.

15. Special Handling Instructions and Additional Information
Rollins Code L - 33235
Thomasville Furniture 24-Hour Emergency Phone No. (919) 476-2200

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Thomas J. Gibson, Jr. Signature: Thomas J. Gibson, Jr. Month Day Year: 08 12 91

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: MARK A. WRIGHT Signature: Mark A. Wright Month Day Year: 08 09 91

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name Signature Month Day Year

19. Discrepancy Indication Space Item 11 Wt - 05772
Item 11 a, 7

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name Signature Month Day Year

GENERATOR
TRANSPORTER
FACILITY

EPA Form 8700-22 (Rev. 9/88) Previous editions are obsolete. SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES.
TRANSMIT TO GENERATOR

August 31, 1987

TO: File

FROM: D. Mark Durway DMD

RE: Comments from Sherry Stookey re. Thomasville Furniture Industries' (NC D054290770) plant in Lenoir, Caldwell Co., NC

Ms. Stookey, environmental compliance officer with Thomasville Furniture Industries (tel. 919/472-4000), told me the following:

1) According to Dan Little, formaldehyde and poly vinyl acetate based glues, steel wool and scrapings from filler and lacquer booths were buried in on-site trenches between 1975 and 1979. The trenches, which may now be beneath a parking lot, were near the old cotton mill building.

2) According to Jim Siceloff, plant manager at the Lenoir plant, formaldehyde based glue once spilled from a tanker truck into a near-site tributary. The spill was properly contained.

Ref. 18

NC
GW-B-12

GEOLOGY AND GROUND-WATER RESOURCES of the MORGANTON AREA NORTH CAROLINA

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N. C. DEPT. OF NATURAL RESOURCES & COMM. DEV.

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DEPARTMENT OF ADMINISTRATION
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DIVISION OF GROUND WATER

GROUND WATER BULLETIN NUMBER 12

North Carolina
Department of Water Resources

CERCLA CERCLA

RALEIGH
MARCH
1967

GEOLOGY AND GROUND-WATER RESOURCES of the MORGANTON AREA NORTH CAROLINA

By

Carlton T. Sumsion
Geologist, U. S. Geological Survey

Chemical Quality of Water Section
By
R. L. Laney
Chemist, U. S. Geological Survey

GROUND WATER BULLETIN NUMBER 12

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

Division of Ground Water
Harry M. Peek, *Chief*

PREPARED COOPERATIVELY BY THE GEOLOGICAL SURVEY
UNITED STATES DEPARTMENT OF THE INTERIOR
AND THE
NORTH CAROLINA DEPARTMENT OF WATER RESOURCES

MARCH 1967

Physiography

The Morganton area lies within two major physiographic provinces; the inner Piedmont province and the Blue Ridge province. Burke, Caldwell, and McDowell Counties lie within both provinces. By definition the boundary of the provinces is at the foot of the mountains where the altitude is approximately 1,300 to 1,500 feet above mean sea level. The inner Piedmont is of gentle to moderate relief, with hills resembling monadnocks widely separated by peneplaned valleys. The topography of the Piedmont contrasts with the steep gradients and dissected ridges of the eastern Blue Ridge front. In the Blue Ridge part of the area, altitudes range from about 1,300 feet near Lake James to 6,684 feet on the summit of Mt. Mitchell. Greatest topographic relief is along the eastern front of the Blue Ridge province, where high-gradient drainage systems are tributary to the Catawba and Yadkin Rivers. The Blue Ridge topography west of the front consists mainly of subdued hills, and is of more moderate relief. Avery, Mitchell, and Yancey Counties, west of the Blue Ridge front, are drained by generally northwest-flowing streams (pl. 1). Relationships of drainage patterns to geologic features indicate that most of the streams are of subsequent development.

schistose rocks containing feldspar or amphibolite minerals as these are very unstable in the presence of air and moisture. As weathering progresses, soluble products of weathering (and some colloids) are continually removed by ground-water circulation. The residuum of clay minerals, oxides of iron and aluminum, quartz, and other insoluble accessory minerals, with partly weathered rock constituents, compose saprolite. Where the mantle is more deeply developed and least affected by erosion, it may comprise a zone of soils, an intensely weathered zone of saprolite, and a transitional zone between saprolite and unweathered rock. Relict schistosity or foliation and partly weathered laminae of mica are common where the mantle has been undisturbed. The thickness of the mantle in the Morganton area ranges from less than 1 foot to over 100 feet. The saprolite mantle is deepest and best developed over low areas of the inner Piedmont and in areas of subdued relief in parts of the Blue Ridge upland.

Alluvial sediments

Much of the surface material throughout the Morganton area has been transported varied distances by alluvial processes. In the larger stream valleys coarsely stratified sediments of sizes ranging from clay to small boulders form alluvial deposits up to 50 feet thick. Auger-hole transections to test for thickness and character of sediments and for ground-water occurrence in the Catawba and Yadkin River valleys penetrated varied thicknesses of alluvium consisting of high percentages of clay. Rapid weathering processes may be partly responsible for the large amounts of clay in stream-valley sediments. Terrace deposits of coarse gravel and boulders are present along most of the larger perennial streams.

TABLE 1. Range in concentration, arithmetic mean, and median values of constituents reported in analyses of ground water from the Morganton area.

Constituents	Concentrations in parts per million			
	Low	High	Mean	Median
Silica (SiO_2)	3	33	15	14
Iron (Fe)	.00	4.6	.20	.04
Calcium (Ca)	.4	28	6.5	4.3
Magnesium (Mg)	.1	27	2.1	1.6
Sodium (Na)	.5	45	4.9	2.8
Potassium (K)	.1	11	1.5	.9
Bicarbonate (HCO_3)	3	140	31	25
Sulfate (SO_4)	.1	49	3.2	.8
Chloride (Cl)	.1	53	4.0	1.8
Nitrate (NO_3)	.0	65	3.8	.9
Hardness	2	140	25	20
Dissolved solids	13	248	57	49
Hydrogen ion concentration (pH)	5.2	9.1	6.5	6.4
Specific conductance in micromhos	11	450	78	65

understood, but it is thought that silica is not in true ionic solution.

The range in concentration of silica is variable but the percent silica of the total dissolved solids is generally high. For example, in water from granite gneiss, silica usually exceeds 45 percent of the total dissolved solids, while water from other rock types generally contains less than this amount. Percent silica in ground water from igneous and metamorphic rocks can be related to the percent silica in the rock. Granitic rocks contain the highest percentage silica, whereas, ultramafic rocks contain the lowest percentage silica. Percent silica is highest in water from granitic rocks and lowest in water from ultramafic rocks.

Most industrial processes tolerate silica in the concentrations normally found in ground water in the Morganton area. However, in boiler feed and steam turbine water silica is undesirable because it forms a hard scale.

for farms and outlying residences throughout the county. Most of the drilled wells are less than 200 feet deep. Of 59 such wells the average depth is 123 feet and average yield is 9 gallons per minute. Dug and bored wells are common in the inner Piedmont part of the county. Their average depth is 30 feet and average depth to the water table is 22 feet. Drilled wells having the highest yields are located in: low, flat areas; relatively narrow, linear valleys; or draws. Springs are most commonly used in the Blue Ridge part of the area to provide domestic water supplies.

Analyses of ground water from Caldwell County are shown in table 14. Water from wells 20, 36, and 88 had iron concentrations above 0.3 ppm. Dug wells 36 and 85 contained water with high concentrations of nitrate and chloride.

SUMMARY

The area of investigation is underlain by a heterogeneous assemblage of igneous and metamorphic rocks which range in composition from gabbro to quartzite.

A mantle of deeply weathered residual material, saprolite, overlies unweathered bedrock in most places. It ranges in thickness from less than one foot to about 150 feet. Alluvial material, clayey sand and gravel, is present in the wider stream valleys to depths of about 50 feet.

Ground water occurs in saprolite and alluvium, and in fracture openings of the underlying bedrock.

Discharge and recharge of ground water takes place mainly through weathered, clayey earth or saprolite and alluvium. Ground-water circulation also occurs in joint and shear systems.

All perennial streams in the area are effluent, receiving discharge from interfluvial areas, hence streams represent the lowest levels of the water table. Configuration of the water table is generally a subdued reflection of topographic relief, although it may be discontinuous between joint and shear systems where the water table lies in unweathered bedrock.

Direction and rate of ground-water movement depend on hydraulic gradient or degree of inclination of the water table, its slope direction, and permeability of the saturated zone. Dispersal from a contaminated source of ground-water recharge in the saturated zone is dependent on rate of ground-water movement and permeability. Contaminated recharge disperses and is diluted as it spreads in a fanshaped pattern, increasing in width and dilution down gradient from its source.

In unweathered bedrock containing the more soluble minerals, such as calcic plagioclase and dolomite, ground-water circulation enlarges the joint and shear openings by solution, hence increasing permeability. These zones of increased permeability are expressed topographically as linear depressions; long, relatively narrow valleys and draws. They are the best locations for drilled wells of high yield.

The bottom of the ground-water zone is indistinct. It may be defined as the depth at which ground-water storage and circulation in joints and shear zones ceases. As bedrock fractures decrease in size and frequency, there is inappreciable ground-water movement or storage below about 400 feet in most localities.

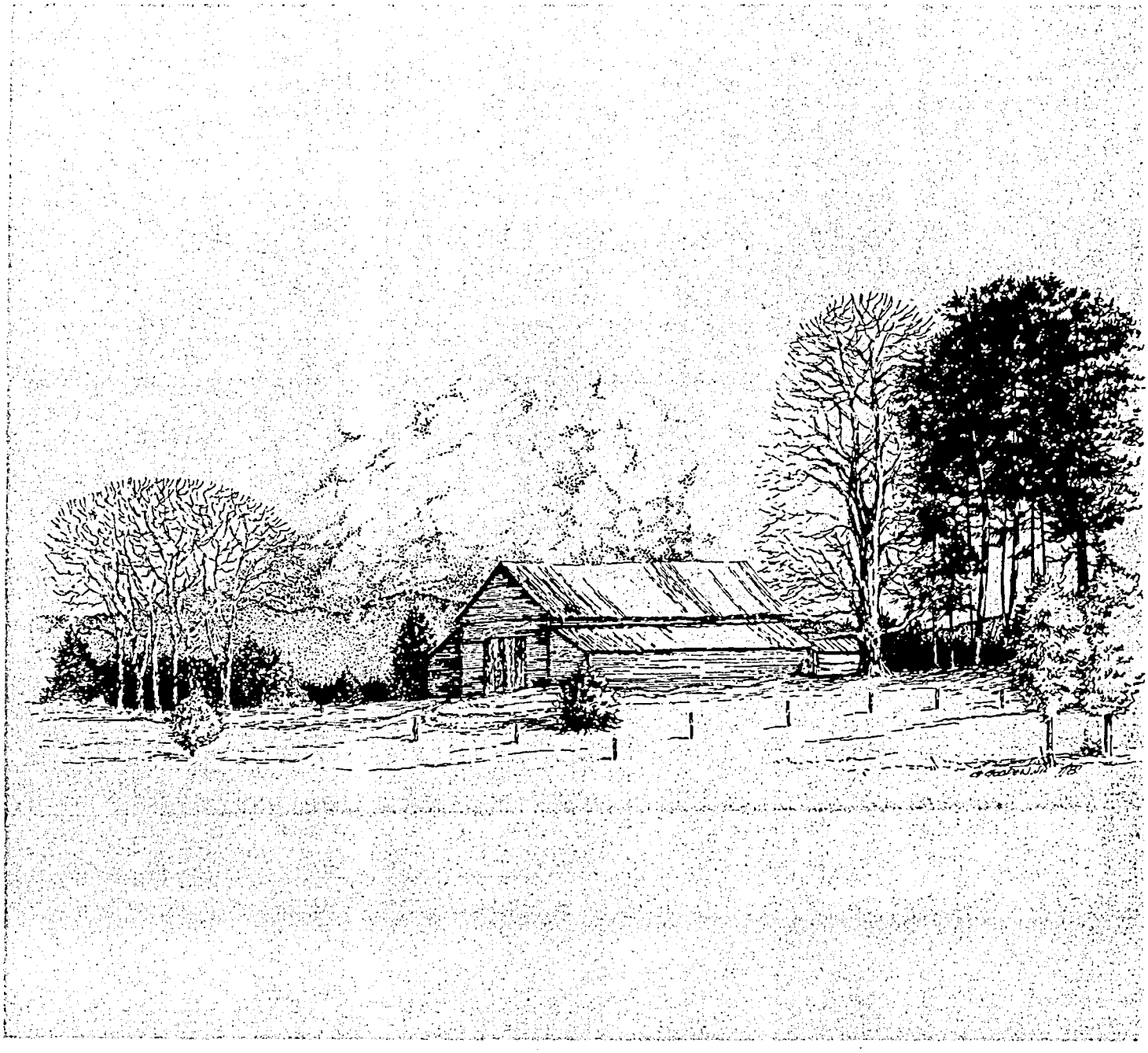
Ref. 19

United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
North Carolina Department of
Natural Resources and
Community Development,
North Carolina Agricultural
Research Service,
North Carolina Agricultural
Extension Service,
United States
Department of Agriculture
Forest Service, and
Caldwell County
Board of Commissioners

Soil Survey of Caldwell County, North Carolina



DFATHER MOUNTAIN WINDOW

METAMORPHIC ROCKS

[illegible] gray, fine grained, massive, locally thin bedded [illegible] of anvilite

[illegible]

[illegible] quartzite, white to light gray; interbedded [illegible] and slate

[illegible] quartzite, white to yellowish gray, [illegible] metasiltstone and metaconglomerate in

[illegible] MOUNTAIN FORMATION

[illegible] Sericitic conglomeratic, locally cross-bedded; interbedded [illegible] siltstone and slate

[illegible] to massive, amygdaloidal, interlayered with [illegible] includes Montezuma Member (metaba[illegible]

[illegible] Late Proterozoic, 820 my; 26) — Phyllite [illegible] subhedral to subhedral phenocrysts of gray [illegible] feldspar. Resembles quartzite and meta-

[illegible] contains thin bedded iron-bearing dolomitic [illegible] phyllite, metagraywacke, and meta-

[illegible] common, local[illegible] with [illegible] and phyllite

[illegible] and metasedimentary rocks (Late Protero[illegible] correlated with Grandfather Moun-

UNCONFORMITY

[illegible] Middle Proterozoic, 1060 my; [illegible]) — Abundant [illegible] megacrysts in finely banded biotite schist, [illegible] with quartz-feldspar schist, calcareous [illegible] calcareous quartzite, sulfidic green-[illegible]

[illegible] Middle Proterozoic, 950-1250 my; [illegible]) — [illegible] quartz monzonitic orthogneiss, [illegible] includes tectonic slices, in[illegible] equivalents of the Grandfather [illegible] Equivalent to the Watson Creek Gneiss

INTRUSIVE ROCKS

[illegible] — Metadiabase, greenstone, and amphibolite [illegible]

[illegible] Late Proterozoic, 680-710 my; 25,27) — [illegible] Equivalent to Brown Mountain

KINGS MOUNTAIN BELT

METAMORPHIC ROCKS

[illegible] foliated, minor layers of [illegible]

[illegible] Sericite schist, locally with graphite, phyl[illegible] banded marble, amphibolite, and minor

[illegible] with metavolca[illegible] quart-[illegible]

INTRUSIVE ROCKS

[illegible]

[illegible] Pennsylvanian to Permian, [illegible] Shoals Gra[illegible]

INNER PIEDMONT, CHAUGA BELT, SMITH RIVER ALLOCHTHON, AND SAURATOWN MOUNTAINS ANTICLINORIUM

METAMORPHIC ROCKS

- [illegible] — ROCKS OF BREVARD FAULT ZONE — "Fish scale" schist and phyllonite, graphitic; interlayered with feldspathic metasandstone, marble lenses
- CZbg — BIOTITE GNEISS AND SCHIST — Inequigranular, locally abundant potassic feldspar and garnet; interlayered and gradational with calc-silicate rock, sillimanite-mica schist, mica schist, and amphibolite. Contains small masses of granitic rock
- CZbf — FINE-GRAINED BIOTITE GNEISS — Strongly foliated; minor layers of amphibolite and muscovite schist
- CZms — MICA SCHIST — Garnet, staurolite, kyanite, or sillimanite occur locally; lenses and layers of quartz schist, micaceous quartzite, calc-silicate rock, biotite gneiss, amphibolite, and phyllite
- CZab — AMPHIBOLITE AND BIOTITE GNEISS — Interlayered; minor layers and lenses of hornblende gneiss, metagabbro, mica schist, and granitic rock
- CZam — AMPHIBOLITE — Metamorphosed mafic extrusive and intrusive rock; includes hornblende gneiss, thin layers of mica schist, calc-silicate rock, and, rarely, marble. Also includes small masses of metadiorite and metagabbro
- CZba — MEGACRYSTIC BIOTITE GNEISS — Poorly layered to massive; megacrysts of microcline and quartz; local mica schist, amphibolite, and biotite gneiss
- CZq — QUARTZITE — Interlayered with quartz-muscovite schist, contains muscovite, andalusite, kyanite, or sillimanite
- CZmg — METAGRAYWACKE AND MUSCOVITE-BIOTITE SCHIST — Metagraywacke (biotite gneiss) interlayered and gradational with muscovite-biotite schist; minor marble and granitic rock
- $CZma_1$ — METAGRAYWACKE, AMPHIBOLITE, AND KYANITE SCHIST — Metagraywacke (biotite gneiss) interlayered and gradational with amphibolite and kyanite schist; minor ultramafic and granitic rock
- $CZma_2$ — METAGRAYWACKE — Contains quartz and microcline porphyroblasts
- CZbb — BANDED GNEISS — Interlayered with calc-silicate rock, metaconglomerate, amphibolite, sillimanite-mica schist, and granitic rock
- CZph — PHYLLITE AND SCHIST — Includes phyllonite and interlayered biotite gneiss
- CZpg — INEQUIGRANULAR BIOTITE GNEISS — Weakly foliated to massive, contains plagioclase megacrysts and, rarely, larger megacrysts of quartz and feldspar
- CZtp — PORPHYROBLASTIC GNEISS — Massive to foliated, granodioritic, migmatitic
- CZgms — GARNET-MICA SCHIST — Interlayered with amphibolite
- Yg — GRANITIC GNEISS (Middle Proterozoic, 1192 my; 27) — Megacrystic, in places contains amphibolite

INTRUSIVE ROCKS

- Jd — DIABASE — Dikes, gray to black
- Mc — CHERRYVILLE GRANITE (Mississippian, 351 my; 20,21) — Massive to weakly foliated; contains pegmatites, lithium-bearing on east side
- DSc — CAESARS HEAD GRANITE GNEISS (Devonian to Silurian, 409 my; 13) — Equigranular to porphyritic, massive to well foliated; contains biotite and muscovite
- SOgg — GRANITE GNEISS (Ordovician to Silurian, 438 my; 17) — Poorly foliated; interlayered with biotite augen gneiss
- OCgm — MIGMATITIC GRANITIC GNEISS — Foliated to massive, granitic to quartz diontic; biotite gneiss and amphibolite common
- OCg — METAMORPHOSED GRANITIC ROCK (Cambrian to Ordovician, 455-540 my; 10) — Equigranular to megacrystic, foliated to massive. Includes Toluca Granite
- Chg — HENDERSON GNEISS (Cambrian, 524 my; 10) — Monzonitic to granodioritic, inequigranular
- PzZg — METAMORPHOSED GABBRO AND DIORITE — Foliated to massive

CHA

- CZbf — FINE-GRAINED [illegible] layers of am[illegible]
- CZfg — FELSIC MICA G[illegible] and schist
- CZbg — BIOTITE GNEIS[illegible] dant potass[illegible] calc-silicate [illegible] Contains sm[illegible]
- CZv — METAVOLCAN[illegible]
- CZmv — MAFIC METAV[illegible] tuffs and fl[illegible] intrusives a[illegible]
- CZfv — FELSIC META[illegible] flows and tu[illegible] ate metavo[illegible]
- CZq — QUARTZITE — [illegible] sillimanite, [illegible]
- CZph — PHYLLITE AN[illegible] minor quar[illegible]
- Jd — DIABASE — [illegible]
- PPg — GRANITIC RO[illegible] Megacryst[illegible] group) - O[illegible]
- DSg — GRANITE OF [illegible] 415 my; 5[illegible] Salisbury, S[illegible]
- DSs — SYENITE OF [illegible] cludes the [illegible]
- DOgb — GABBRO OF [illegible] 479 my; 2[illegible] dington int[illegible]
- DOg — GRANITIC RO[illegible] contains ho[illegible]
- SSg — SHELTON GR[illegible] lineated gra[illegible]
- PzZg — METAMORPH[illegible]
- PzZg — METAMORPH[illegible]
- PzZm — METAMORPH[illegible] mafic pluto[illegible]
- PzZu — META-ULTRA[illegible] serpentinit[illegible] bodies sho[illegible]
- CZg — METAMORPH[illegible] locally cont[illegible]

Ref.

Memorandum

To: File

From: G.Doug Rumford GDR

Date: 1/25/93

Subject: Surface Water Intake Inventory & Telephone Conversations with Mr. David Cook and Mr. Graham Gilley.
Gamewell Drum Site, NCD 986 204 758
Gamewell, Caldwell County, NC

A review of the N.C. Public Water Supply - Surface Source Inventory was conducted on this date. The inventory was checked for surface water intakes located along the site surface water pathway (SSWP). The SSWP includes Lower Creek and the Catawba River as it flows into Lake Rhodiss. The inventory review indicated that there is only one surface water intake located along the SSWP.

Mr. David Cook, water plant superintendent for the City of Valdese, was contacted at 2:25 pm of this day and asked to validate the information in the surface water inventory. Mr. Cook said that the city only operates a single water supply intake at Lake Rhodiss. He also verified that the intake and the filtration plant are at the same location on secondary road 1544 in Burke County. This intake is located approximately 12 miles downstream of the site. He further updated the inventory survey information as follows:

1. 2100 service connections
2. 4.85 million gallons per day average production
3. 3948 people served

Mr. Graham Gilley, City Engineer for the City of Lenoir Water Department was also contacted. Mr. Gilley informed me that the city obtains it's water supply from a single water supply intake at lake Rhodiss. He confirmed the location of the intake as being below the lake dam, outside of the 15-mile SSWP. Mr. Gilley also told me that the city sells water to Caldwell County for distribution in the.outlying areas.

Memorandum

To: File

From: G. Doug Rumford GDR

Date: 3/09/93

Subject: Review of Community and Non-community Well Supplies
Thomasville Furniture Industries Site, NCD 054 290 770
Lenoir, Caldwell County, NC

On this date, a review of the North Carolina Public Water Supply Systems data base was conducted. Geographic coordinates of an area surrounding the 4-mile target distance limit were submitted to Martha Moore of the Division of Environmental Health - Public Water Supply Section. Ms. Moore provided a print out of the community and non-community supply wells located within the target area. Seven community wells and fifteen non-community wells were identified by their coordinates as being within the 4-mile target distance. There are no publicly owned groundwater supply wells located within a 4-mile area radius of the site.

Mr. Reginald Bryant, Director of the Caldwell County Water Department was contacted on this date at (704) 757-1328 and asked to provide information concerning the county's water distribution system. He told me that the county purchases its water from the City of Lenoir. The county does not have or operate any groundwater production wells or any surface water intakes. The N.C. Public Water Supply inventory incorrectly lists supply identification numbers 114047 & 114048 as wells, these are actually tank pump stations according to Mr. Bryant.

A copy of the data base print out is included as an attachment to this memo.

Attachment.

STATE N.C. PUBLIC WATER SUPPLY SYSTEM 03/08/93
ACTIVE SYSTEMS
GRID LATITUDE: 355230 / 355900, LONGITUDE: 0812800 / 0813700

	PWS ID	SYSTEM NAME	TYPE	POPULATION	REQ PERSON WORK PHONE	SOURCE NAME	SOURCE TYPE	SOURCE AVAIL	LATITUDE	LONGITUDE	
	114047	CALDWELL CO. WATER SYS. S.E.	C	4500	7047588451	WELL	P	P	355821	813042	3-4 mile N
	114048	CALDWELL CO. WATER SYS. NORTH	C	120	7047580451	LENOIR, CITY OF	P	P	355600	813500	
2-3	114145	WALSH MOBILE HOME PARK	N	40		WELLS	G	P	355418	813500	3-4 mile SW
		WALSH MOBILE HOME PARK				WELLS	G	P	355418	813500	
2-3	114161	INDIAN GRAVE MHP	C	80		WELL	G	P	355710	813330	2-3 mile N
	114401	B & F MOBILE HOME PARK	C	80	7047585018	WELL SUPPLY	G	P	355650	813145	
		B & F MOBILE HOME PARK			7047585018	WELL SUPPLY	G	P	355650	813145	
		B & F MOBILE HOME PARK			7047585018	WELL SUPPLY	G	P	355650	813145	
2-3	114412	HOWARD'S MHP	C	85	7047588227	WELL SUPPLY	G	P	355725	813210	2-3 mile N
		HOWARD'S MHP			7047588227	WELL SUPPLY	G	P	355725	813210	
2-3	114434	TEETER MHP	C	45	7047543823	WELL SUPPLY	G	P	355659	813015	2-3 mile NE
	114439	IVA'S COUNTRY MUSIC & 321LOUNG	N	200	7047548915	WELL	G	P	355622	813240	2-3 mile NW
	114442	STORIES SUPERETTE	N	50	7047581173	WELL	G	P	355900	813400	3-4 mile NW
	114447	OUTPOST FISH CAMP	N	160	7043961048	WELL	G	P	355322	813002	3-4 mile SW
	114448	SEAFOOD HARBOR	N	70	7047543297	WELL	G	P	355730	813425	2-3 mile SW
		SEAFOOD HARBOR			7047543297	WELL	G	P	355730	813425	
2-3	114459	GREEN MOUNTAIN PARK	C	500	7047587764	WELL #1	G	P	355729	813110	2-3 mile NE
		GREEN MOUNTAIN PARK			7047587764	WELL #2	G	P	355729	813108	
	114462	GREER LABS	P	30	7047580031	WELL	G	P	355601	812901	3-4 E
	~~114475~~	~~MT MORIAH METH CHURCH~~	~~N~~	~~80~~	~~7047585[illegible]~~	~~WELL~~	~~G~~	~~P~~	~~355250~~	~~812900~~	
	~~114481~~	~~MT OLIVET METH CHURCH~~	~~N~~	~~40~~	~~[illegible]~~	~~WELL~~	~~G~~	~~P~~	~~355345~~	~~813145~~	
		~~MT OLIVET METH CHURCH~~				~~WELL~~	~~G~~	~~P~~	~~355345~~	~~813145~~	
	114482	MT VIEW BAPT CHURCH	N	60	7047581572	WELL	G	P	355720	813540	3-4 mile W
	114485	HIBRITEN BAPTIST CHURCH	N	150	7047286580	WELL	G	P	355325	813008	3-4 mile SE
	~~114486~~	~~CLEARVIEW BAPT CHURCH~~	~~N~~	~~110~~	~~7047283540~~	~~WELL~~	~~G~~	~~P~~	~~355330~~	~~812820~~	
	114491	ZACKS FORK BAPT CH	N	60	7047585963	WELL	G	P	355720	813020	2-3 mile NE
	114493	SETZERS CREEK BAPT CHURCH	N	100	7047585819	WELL	G	P	355833	813420	3-4 mile NW
	114495	PISGAH CHURCH	N	80	7047544972	WELL	G	P	355430	813505	2-3 mile W
	114504	CRESTVIEW BAPT CHRUCH	N	200	7047581960	WELL	G	P	355645	813245	1/2-1 mile N
	114510	CEDAR ROCK BAPT CHRUCH	N	45	7047547750	WELL	G	P	355633	812900	3-4 mile E
	~~114523~~	~~BEECHWOOD GOLF COURSE~~	~~N~~	~~40~~	~~7047582275~~	~~WELL~~	~~G~~	~~P~~	~~355233~~	~~813345~~	
	114525	LENOIR MOOSE LODGE #3[illegible]	N	300	7047584817	WELL	G	P	355450	812935	3-4 mile SE
	~~114535~~	~~ANDERSON TRUCK LINES~~	~~P~~	~~45~~	~~7047288249~~	~~WELL~~	~~G~~	~~P~~	~~355300~~	~~812900~~	
	114540	WOODBURY LUMBER CO	N	25	7047543468	WELL	G	P	355730	813420	2-3 mile NW
	~~114545~~	~~ELLIS WOOD TURNING INC~~	~~P~~	~~45~~	~~7047284471~~	~~WELL~~	~~G~~	~~P~~	~~355255~~	~~812850~~	
	~~114548~~	~~CEDAR VALLEY METH CHURCH~~	~~N~~	~~70~~	~~7047545944~~	~~SPRING~~	~~G~~	~~P~~	~~355321~~	~~813540~~	
	114566	NORTHSIDE BAPT CHURCH	N	35	7047283594	WELL	G	P	355800	813150	2-3 mile N
	114567	WORSHIP POINT BAPT CHURCH	N	75	7047286776	WELL	G	P	355445	813540	3-4 mile SW

Memorandum

To: File

From: G. Doug Rumford GDR

Date: April 30, 1993

Subject: Thomasville Furniture Industries NCD 054 290 770
Lenoir, Caldwell County, NC
Population and Groundwater Population witin 4 miles of the site.

The groundwater population living within four miles of the site was determined by combining the data obtained from the NC State Center for Geographic Information and Analysis and a house count of the area within each distance ring using topographical maps. The CGIA data was based on 1990 Census data while the house count was based on a windshield survey and on maps published in 1990. Municipal water supply system boundaries were identified and those houses not included within these boundaries were counted as groundwater users.

Houses

Distance(mi)	CGIA	G.W. Houses*
0 - 1/4	162	31
1/4 - 1/2	339	145
1/2 - 1	1382	122
1 - 2	2682	407
2 - 3	1746	542
3 - 4	2416	709
	8727	1956

* Topographic Map House Count

People (Based on 2.57 persons/household, Caldwell County, NC)

Distance(mi)	CGIA	G.W.Pop.*	Comm. Wells
0 - 1/4	416	104	0
1/4 - 1/2	869	485	0
1/2 - 1	3054	408	0
1 - 2	6509	1360	255
2 - 3	4317	1811	592
3 - 4	5860	2369	0
	21025	6537	847

* From Topographic Map House Count Data Assuming 30% Population Increase From 1960 Census to 1990 Census.

Memorandum

To: File

From: G. Doug Rumford GDR

Date: 4/12/93

Subject: Flow Rates 15-mile Surface Water Pathway
Thomasville Furniture Industries Site, NCD 054 290 770
Lenoir, Caldwell County, NC

Mean annual flow rates were estimated for Blair Fork Creek, Lower Creek and the Catawba River using the methodology outlined in USGS WRI Report 88-4094, based on drainage areas reported in USGS Open-File Report 83-211. Mean annual runoff for watersheds along the streams in question is approximately 18 inches per year.

- Blair Fork Cr. .6 mi. above Spainhour Cr. near Valmead: drainage area of 5.64 square miles multiplied by 18 in/yr divided by conversion factor of 13.58 equals 8 cubic feet per second;

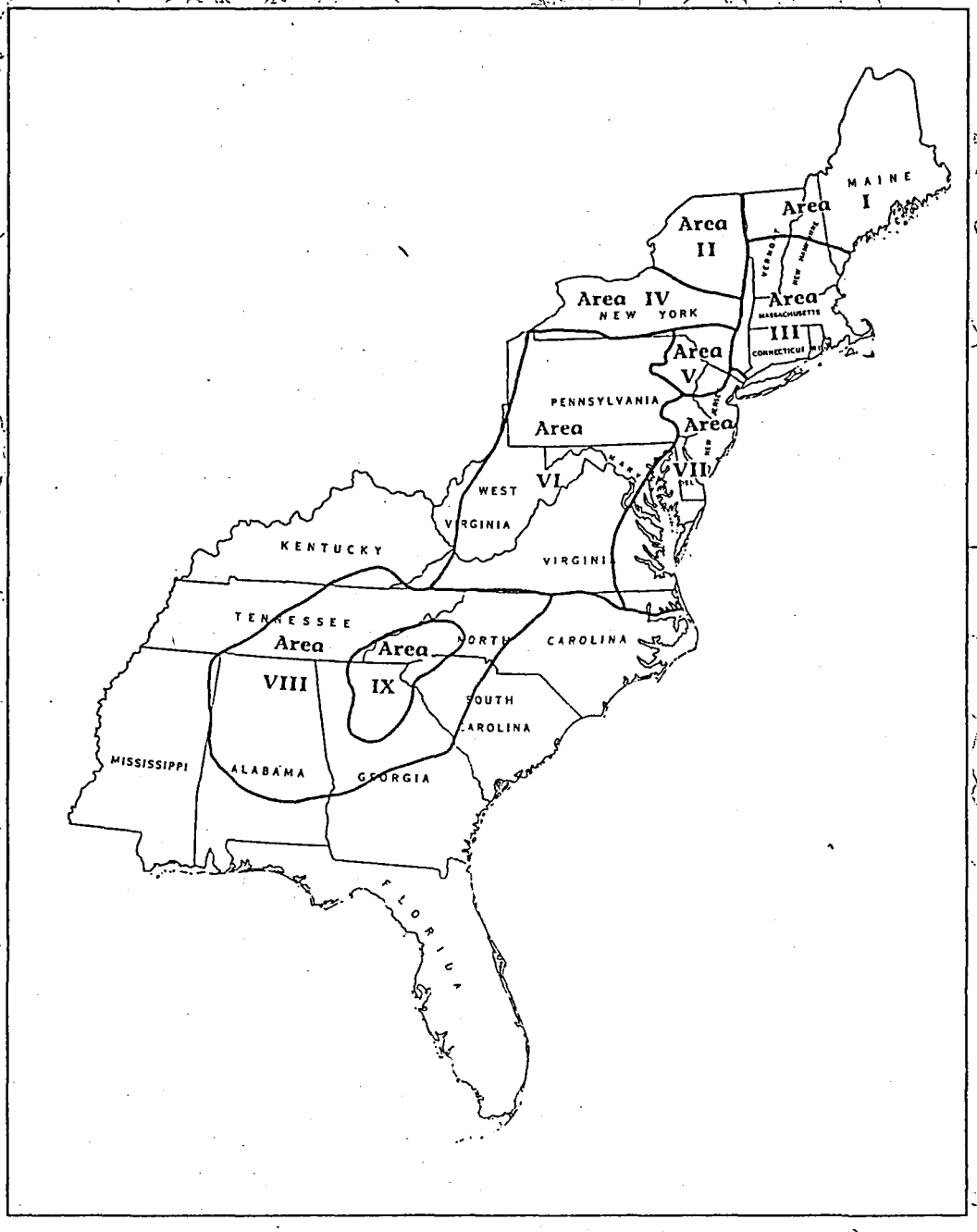
- Spainhour Cr. at NC 18 near Lenoir: dr. area 8.89 sq. mi. x 18 in/yr divided by 13.58 = 12 cfs;

- Lower Creek at Gamewell: dr. area 63.8 sq. miles x 18 in/yr divided by 13.58 = 85 cfs;

- Lower Creek above Bristol Creek near Chesterfield: dr. area 91.5 sq. mi. x 18 in/yr divided by 13.58 = 121 cfs;

- Catawba River above Smokey Cr. Near Drexel: dr. area 1024 sq. mi. x 18 in/yr divided by 13.58 = 1357.

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

sions that the methods that used the area-weighted average of the drainage area or the centroid of the drainage area produced somewhat better correlations—that is, the interecept was closer to zero, the standard errors were small, and the correlation coefficients were larger. These methods have slightly greater power to predict actual runoff

Additional statistical investigation found no significant differences in reliability of the runoff estimates among the areas. No significant differences existed in the errors for stations with drainage areas of differing size.

USE OF MEAN ANNUAL RUNOFF MAP

Mean annual runoff for a site can be estimated from the runoff map by several methods. The simplest method of estimating the runoff is to locate the site on the runoff map and to identify the runoff contour nearest the site. This method, however, is less accurate than other methods. The most accurate method is to draw the drainage basin on the runoff map, and use the runoff contours to divide the basin into bands of differing runoff. The area of each of the bands within the drainage basin is then determined. The areas of the separate bands are then used to compute a weighted average runoff for the basin. For example, if 50 percent of the basin is in an area of 18 in/yr (inches per year) of runoff, 30 percent in an area of 20 in/yr of runoff and 20 percent in an area of 22 in/yr of runoff the mean annual runoff would be calculated as follows:

$$0.5 \times 18 + 0.3 \times 20 + 0.2 \times 22 = 19.4$$

Runoff estimated from the map is in inches per year, averaged over the entire drainage basin. Multiply this value by the drainage area, in square miles, and divide by 13.58 to convert to mean annual discharge, in cubic feet per second. In the above example, assume the drainage area of the site is 100 mi^2. The mean annual discharge, in cubic feet per second, would be:

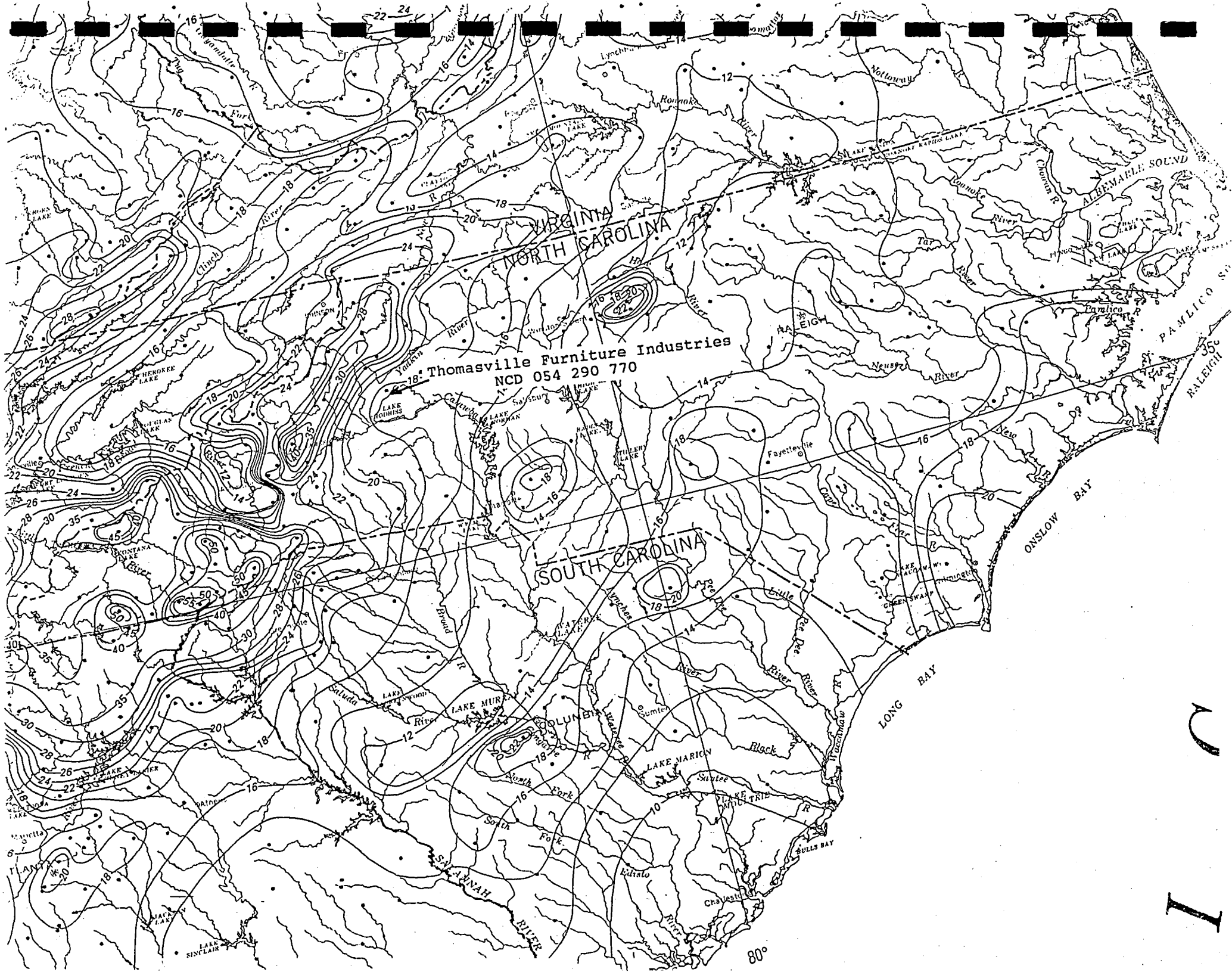
$$19.4 \times 100/13.58 = 143$$

The runoff map was prepared to allow estimation of mean annual runoff at sites where no streamflow data are available. The map represents mean annual runoff for areas with natural land cover. Caution should be used in applying the map to estimate runoff for areas that are not natural land areas. The runoff map should not be used for areas, such as large urban areas, where the land cover has been altered in ways that would change the amount of runoff. The runoff map is not applicable for lakes or bays, for coastal wetlands affected by tides, for streams controlled by reservoirs large enough to influence the total annual streamflow, or for streams with substantial diversions.

Local features could cause the runoff at a particular site to differ substantially from the runoff indicated by the runoff map. The geology of the drainage basin might cause substantial amounts of water to enter or leave the basin as ground water. This could substantially increase or decrease the runoff. For example, a stream with a small drainage area that includes a large spring probably would have higher average streamflow than indicated by the runoff map.

Table 5.—Descriptive statistics of errors in estimated runoff at 93 test stations

Method	Mean absolute value	Mean	Standard error of mean	Standard deviation
		Error, in inches		
Area-weighted	2.0	–0.35	0.30	2.9
Centroid	2.2	–.71	.33	3.1
GIS	2.7	–1.74	.37	3.6
Nearest-inch	2.8	–1.77	.38	3.7
Nearest contour	2.8	–1.79	.39	3.8
		Percent error		
Area-weighted	9.0	–0.54	1.3	12.9
Centroid	9.8	–.71	1.4	13.5
GIS	12.0	–6.42	1.6	15.9
Nearest-inch	12.1	–6.20	1.6	15.6
Nearest-contour	12.2	–6.26	1.6	15.8


Thomasville Furniture Industries
NCD 054 290 770
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
RALEIGH
Fayetteville
COLUMBIA
Sumter
Charleston
ALBEMARLE SOUND
PAMLICO SOUND
ONSLOW BAY
LONG BAY
SULLS BAY
LAKE MURRAY
LAKE MARION
LAKE MOOMAW
LAKE HOLDEN
LAKE NORMAN
LAKE JOCASSEE
LAKE SINCLAIR
Roanoke
Tar
Neuse
Pamlico
Yadkin
Catawba
Saluda
Broad
Lynches
Pee Dee
Little Pee Dee
Lumber
Cape Fear
Black
Santee
Edisto
Savannah
Tuckasegee
Nottoway
Chowan R.
Dan
Clinch
Big Sandy
Cumberland
Kanawha
Gauley
Elk
Tuckahoe
Pamlico
Neuse
Tar
Roanoke
Yadkin
Catawba
Saluda
Broad
Lynches
Pee Dee
Little Pee Dee
Lumber
Cape Fear
Black
Santee
Edisto
Savannah
Tuckasegee
Nottoway
Chowan R.
Dan
Clinch
Big Sandy
Cumberland
Kanawha
Gauley
Elk
Tuckahoe
80°
35°

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
02139[illegible]500	ELIZA ESTES MILL C NR COLLETTSVILLE	1.20	02	355755	814237	COLLETTSVILLE	027
02139[illegible]100	JOHNS R NR COLLETTSVILLE	56.2	20	355732	814242	COLLETTSVILLE	027
02139[illegible]150	REIDS C NR COLLETTSVILLE	3.73	20	355713	814243	COLLETTSVILLE	027
02139[illegible]00	JOHNS R TRIB NR RUFUS	1.25	02	355635	814213	COLLETTSVILLE	027
02139[illegible]200	FRANKLIN B NR RUFUS	0.97	02	355730	814022	COLLETTSVILLE	027
02139[illegible]300	FRANKLIN B TRIB NR COLLETTSVILLE	0.43	02	355731	814026	COLLETTSVILLE	027
02139[illegible]400	BEARD B NR COLLETTSVILLE	0.35	02	355638	814033	COLLETTSVILLE	027
02139[illegible]500	FRANKLIN B AT COLLETTSVILLE	3.33	20	355550	814102	COLLETTSVILLE	027
02139[illegible]700	JOHNS R NR ADAKO	67.9	20	355535	814055	COLLETTSVILLE	027
02140[illegible]000	JOHNS R AT COLLETTSVILLE	68.0	02	355530	814029	COLLETTSVILLE	027
02140[illegible]600	MULBERRY C NR BAILEY CAMP	2.71	02	360339	813807	GLOBE	027
02140[illegible]700	AMOS C NR BAILEY CAMP	2.00	02	360318	813844	GLOBE	027
02140[illegible]800	MULBERRY C NR MULBERRY	5.32	02	360256	813851	GLOBE	027
02140[illegible]900	MILLS C NR MULBERRY	1.98	02	360253	813856	GLOBE	027
02140[illegible]200	CANE B NR MULBERRY	0.59	02	360229	813835	GLOBE	027
02140[illegible]300	BUSH B NR MULBERRY	1.16	02	360220	813751	GLOBE	027
02140[illegible]400	FRANKLIN C NR GLOBE	0.20	02	360257	813951	GLOBE	027
02140[illegible]500	GEORGES C NR MULBERRY	0.71	02	360150	813930	GLOBE	027
02140[illegible]600	FRANKLIN C TRIB NR MULBERRY	0.54	02	360103	813921	GLOBE	027
02140[illegible]100	MULBERRY C NR GLOBE	14.4	20	360100	813915	GLOBE	027
02140[illegible]800	CLARK B AT RUFUS	0.35	02	360004	813903	GLOBE	027
02140[illegible]100	BOONE B HEADWATERS NR PATTERSON	0.92	20	360024	813653	BUFFALO COVE	027
02140[illegible]750	LAUREL B NR HAYS KNOB	1.22	20	360029	813749	GLOBE	027
02140[illegible]700	BOONE B AT RUFUS	4.32	02	355956	813828	COLLETTSVILLE	027
02140[illegible]900	HOOPE B NR RUFUS	0.96	02	355908	813832	COLLETTSVILLE	027
02140[illegible]100	MULBERRY C NR RUFUS	22.8	02	355905	813825	COLLETTSVILLE	027
02140[illegible]150	MULBERRY C NR SAND MOUNTAIN	25.8	20	355755	813745	COLLETTSVILLE	027
02140[illegible]210	L MULBERRY C BL LOVING B NR WARRIOR	2.67	20	355802	813612	LENOIR	027
02140[illegible]250	MULBERRY C AB L MULBERRY C AT OLIVETTE	25.2	20	355718	813728	LENOIR	027
02140[illegible]100	MULBERRY C AT OLIVETTE	32.0	20	355632	813803	COLLETTSVILLE	027
02140[illegible]300	MULBERRY C TRIB AT MTH AT OLIVETTE	3.03	20	355630	813802	COLLETTSVILLE	027
02140[illegible]000	MULBERRY C NR COLLETTSVILLE	38.6	02	355543	813936	COLLETTSVILLE	027
02140[illegible]700	MULBERRY C AT MTH AT COLLETTSVILLE	40.6	20	355517	814019	COLLETTSVILLE	027
02140[illegible]500	JOHNS R AB WILSON C NR PINEY	114.	20	355255	814230	COLLETTSVILLE	027
02140[illegible]400	WILSON C NR GRAGG	0.72	02	360549	814828	GRANDFATHER MOUNTAIN	011
02140[illegible]110	WILSON C BL FLAT LAND B NR GRAGG	9.74	20	360305	814627	GRANDFATHER MOUNTAIN	011
02140[illegible]200	WILSON C NR EDGEMONT	12.8	20	360048	814600	GRANDFATHER MOUNTAIN	027
02140[illegible]250	WILSON C AB LOST COVE C AT EDGEMONT	15.1	20	360006	814628	GRANDFATHER MOUNTAIN	027
02140[illegible]400	L LOST COVE C NR ROSEBOROUGH	0.26	02	360053	815020	GRANDFATHER MOUNTAIN	011
02140[illegible]450	L LOST COVE C NR EDGEMONT	8.28	20	360046	814801	GRANDFATHER MOUNTAIN	011
02140[illegible]090	GRAGG PRONG NR ROSEBOROUGH	2.08	20	360227	814903	GRANDFATHER MOUNTAIN	011
02140[illegible]100	MARKS MOUNTAIN C AT ROSEBOROUGH	0.27	02	360156	814759	GRANDFATHER MOUNTAIN	011
02140[illegible]400	GRAGG PRONG NR EDGEMONT	6.43	20	360046	814737	GRANDFATHER MOUNTAIN	011
02140[illegible]610	POOR HOUSE C NR EDGEMONT	4.28	20	360016	814647	GRANDFATHER MOUNTAIN	027
02140[illegible]300	THORPS C NR MORTIMER	1.16	02	355926	814541	CHESTNUT MOUNTAIN	027
02140[illegible]750	WILSON C BL THORPS C AT MORTIMER	39.4	20	355913	814543	CHESTNUT MOUNTAIN	027
02140[illegible]100	WILSON C AB HARPER C AT MORTIMER	40.7	20	355820	814555	CHESTNUT MOUNTAIN	027
02140[illegible]750	HARPER C NR KAHANA	11.9	20	355913	814727	CHESTNUT MOUNTAIN	027
02140[illegible]200	HARPER C AT MTH AT MORTIMER	14.5	20	355821	814558	CHESTNUT MOUNTAIN	027
02140[illegible]800	PHILLIPS B NR MORTIMER	1.02	02	355814	814559	CHESTNUT MOUNTAIN	027
02140[illegible]800	CRAIG C NR MORTIMER	0.78	02	355708	814657	CHESTNUT MOUNTAIN	027
02140[illegible]500	TRESTLE B NR MORTIMER	0.55	02	355726	814656	CHESTNUT MOUNTAIN	027
02140[illegible]000	WILSON C NR ADAKO	64.9	01	355510	814400	COLLETTSVILLE	027
02140[illegible]000	WILSON C AT ADAKO	68.0	02	355355	814258	COLLETTSVILLE	027
02140[illegible]100	WILSON C AT MTH NR PINEY	69.4	20	355255	814235	COLLETTSVILLE	027
02140[illegible]100	JOHNS R AB PARKS C AT PERKINSVILLE	187.	20	355130	814400	MORGANTON NORTH	023
02140[illegible]000	CARROLL C NR COLLETTSVILLE	2.37	03	355321	814418	COLLETTSVILLE	023
02140[illegible]400	PARKS C NR JOY	1.70	02	355246	814442	COLLETTSVILLE	023
02140[illegible]600	PARKS C AT MTH AT PERKINSVILLE	9.03	20	355135	814400	MORGANTON NORTH	023
02140[illegible]100	JOHNS R AT ARNEY'S STORE	201.	20	355001	814243	MORGANTON NORTH	023
02140[illegible]000	JOHNS R NR MORGANTON	207.	02	354734	814038	MORGANTON NORTH	023
02140[illegible]400	JOHNS R AT MTH NR CHESTERFIELD	209.	20	354645	813910	MORGANTON NORTH	023
02140[illegible]600	CATAWBA R AB LOWER C NR CHESTERFIELD	915.	20	354710	813810	MORGANTON NORTH	023
02140[illegible]510	LOWER C HEADWATERS NR KINGS CREEK	1.69	20	355807	812602	KINGS CREEK	027
02140[illegible]612	LOWER C 0.15 MI BL SR 1705 NR KINGS CREEK	4.68	20	355722	812658	KINGS CREEK	027
02140[illegible]715	LOWER C 0.5 MI BL SR 1706 NR KINGS CREEK	7.71	20	355626	812838	KINGS CREEK	027
02140[illegible]000	LOWER C AT NC 90 AT LENOIR	10.4	20	355527	813014	LENOIR	027
02140[illegible]400	LOWER C AT US 321A AT LENOIR	14.0	02	355426	813145	LENOIR	027
02140[illegible]825	DAVIS B HEADWATERS NR KINGS CREEK	2.55	20	355829	812856	KINGS CREEK	027
02140[illegible]850	DAVIS B C BL TRIB NR VALMEAD	5.98	20	355701	813040	LENOIR	027
02140[illegible]875	DAVIS B C 1.2 MI AB LOWER C NR LENOIR	12.2	20	355526	813110	LENOIR	027
02140[illegible]950	DAVIS B C AT US HWY 321A AT LENOIR	13.4	20	355427	813147	LENOIR	027
02140[illegible]000	LOWER C AT MULBERRY STREET AT LENOIR	28.1	01	355420	813153	LENOIR	027
02140[illegible]950	BLACK B 1.5 MI AB SPAINHOUR C NR VALMEAD	5.64	20	355607	813245	LENOIR	027
02140[illegible]500	BLACK B AT NC 18A NR LENOIR	8.70	03	355415	813333	LENOIR	027
02140[illegible]600	SPAINHOUR C AT NC 18 NR LENOIR	8.39	02	355348	813336	LENOIR	027
02140[illegible]970	FREASY C HEADWATERS NR LENOIR	2.27	20	355502	813420	LENOIR	027
02140[illegible]000	FREASY C AT LENOIR	4.40	03	355421	813400	LENOIR	027
02140[illegible]600	FREASY C AT MTH NR ABINGDON	5.00	20	355322	813410	LENOIR	027
02140[illegible]650	MILLERS C AT MTH NR LENOIR	2.09	20	355304	813430	LENOIR	027
02140[illegible]200	ABINGDON C AT SR 1301 AT ABINGDON	3.42	20	355436	813553	LENOIR	027
02140[illegible]800	ABINGDON C AT MTH NR ABINGDON	6.83	20	355234	813517	LENOIR	027
02140[illegible]950	LOWER C BL ABINGDON C NR ABINGDON	55.5	20	355234	813515	LENOIR	027
02140[illegible]400	LOWER C AT GAMEWELL	63.8	20	355152	813538	DREXEL	027
02140[illegible]550	HUSTAND C NR ABINGDON	4.90	20	355313	813715	LENOIR	027

STATION NUMBER	STATION NAME	DRAINAGE AREA (SQ MI)	SITE TYPE	LAT	LONG	QUAD NAME	COUNTY CODE
0214123000	HUSBAND C AT CAMPBELL	8.23	02	355138	813733	MORGANTON NORTH	027
0214123400	HUSBAND C AT MTH NR HARTLAND	16.2	20	355010	813730	DREXEL	027
0214124500	LOWER C NR MORGANTON	83.5	02	354931	813810	MORGANTON NORTH	023
0214124900	LOWER C AB BRISTOL C NR CHESTERFIELD	91.5	20	354820	813905	MORGANTON NORTH	023
0214125300	WHITE MILL C NR CHESTERFIELD	4.33	20	354946	814037	MORGANTON NORTH	023
0214125900	BRISTOL C NR CHESTERFIELD	9.20	02	354856	813918	MORGANTON NORTH	023
0214125970	BRISTOL C TRIB AT NC 18 AT CHESTERFIELD	0.83	20	354823	813950	MORGANTON NORTH.	023
0214126100	BRISTOL C AT MTH NR CHESTERFIELD	11.6	20	354821	813910	MORGANTON NORTH	023
0214126600	LOWER C AT MTH NR CHESTERFIELD	105.	20	354715	813810	MORGANTON NORTH	023
0214126800	CATAWBA R AB SMOKY C NR DREXEL	1024.	20	354700	813605	DREXEL	027
0214126850	SMOKY C NR BATON	3.87	11	354916	813432	DREXEL	027
0214126900	SMOKY C NR DREXEL	7.60	20	354758	813616	DREXEL	023
0214127100	SMOKY C AT MTH NR DREXEL	8.15	20	354725	813615	DREXEL	023
0214127400	HOWARD C AT DREXEL WS NR DREXEL	1.96	20	354605	813635	DREXEL	023
0214130400	HOWARD C AT DREXEL	2.42	20	354605	813634	DREXEL	023
0214131900	HOWARD C NR DREXEL	3.32	11	354618	813511	DREXEL	023
0214131950	SECRETS C NR DREXEL	1.74	11	354617	813510	DREXEL	023
0214133405	HOWARD C BL SR 1512 NR DREXEL	5.46	20	354639	813453	DREXEL	023
0214134900	CATAWBA R AT VALDESE WS NR VALDESE	1042.	20	354640	813330	DREXEL	023
0214134970	STAFFORD C AT SR 1124 AT BATON	2.31	11	354809	813245	DREXEL	027
0214135000	STAFFORD C AT SR 1140 NR BATON	6.15	20	354715	813305	DREXEL	027
0214135500	MCGALLIARD C AT VALDESE	2.60	11	354452	813508	VALDESE	023
0214137900	DYE B AT US 64 AT VALDESE	0.52	20	354439	813423	VALDESE	023
0214140900	MCGALLIARD C AT VALDESE	6.97	20	354515	813435	DREXEL	023
0214142400	MCGALLIARD C NR VALDESE	7.43	20	354548	813412	DREXEL	023
0214142500	E F MCGALLIARD C AT SR 1538 NR VALDESE	0.91	20	354543	813406	DREXEL	023
0214142600	MCGALLIARD C AT MTH NR VALDESE	9.25	20	354630	813255	DREXEL	023
0214143900	MICOL C AT VALDESE	0.82	20	354419	813253	VALDESE	023
0214145400	HOYLE C NR VALDESE	4.67	20	354520	813246	DREXEL	023
0214145600	HOYLE C AT SR 1546 NR VALDESE	5.66	11	354542	813258	DREXEL	023
0214145700	HOYLE C AT MTH NR VALDESE	6.09	20	354630	813235	DREXEL	023
0214146100	CATAWBA R NR RUTHERFORD COLLEGE	1066.	20	354648	813127	DREXEL	023
0214146300	ISLAND C NR RUTHERFORD COLLEGE	5.49	02	354615	813012	DREXEL	023
0214146325	ISLAND C AT MTH NR RUTHERFORD COLLEGE	5.88	20	354643	813013	DREXEL	027
0214146800	FREEMASON C AT SR 1115 NR BATON	6.72	20	354750	813015	DREXEL	027
0214147210	FREEMASON C NR SAW MILLS	7.31	20	354713	812938	GRANITE FALLS	027
0214147325	NOLDEN C NR RHODHISS	1.94	20	354625	812918	GRANITE FALLS	023
0214147435	HAYES MILL C AT MTH NR GRANITE FALLS	2.23	20	354730	812728	GRANITE FALLS	027
0214148335	JUMPING RUN AT RHODHISS	1.21	20	354632	812712	GRANITE FALLS	023
0214149000	CATAWBA R AT RHODHISS	1095.	20	354623	812629	GRANITE FALLS	027
0214151500	DROWNING C AT US 64 AT ICARD	2.32	20	354343	812845	LONGVIEW	023
0214151510	DROWNING C AT SR 1618 NR ICARD	3.18	20	354413	812817	LONGVIEW	023
0214154490	DROWNING C TRIB 1 NR LONGVIEW	2.04	20	354415	812724	LONGVIEW	023
0214154675	DROWNING C TRIB 2 NR LONGVIEW	4.63	20	354435	812559	LONGVIEW	023
0214154850	DROWNING C TRIB NR LONGVIEW	1.80	20	354419	812521	LONGVIEW	023
0214156000	DROWNING C NR HILDEBRAN	14.1	02	354447	812459	LONGVIEW	023
0214157575	DROWNING C AT MTH NR RHODHISS	16.8	20	354529	812404	GRANITE FALLS	023
0214157625	CATAWBA R AT US 321 NR GRANITE FALLS	1118.	20	354530	812240	GRANITE FALLS	027
0214161800	FRYE C AT HICKORY	1.95	11	354443	812140	HICKORY	035
0214161899	HORSEFORD C AT MTH AT HICKORY	4.95	20	354537	812131	BETHLEHEM	035
0214165400	CONNELLY C AT HUDSON	3.06	20	355148	813026	DREXEL	027
0214165555	ANGLEY C NR HUDSON	1.58	20	355228	812945	GRANITE FALLS	027
0214165575	ANGLEY C BL BRUSHY F NR HUDSON	4.08	20	355153	812943	GRANITE FALLS	027
0214166600	GUNPOWDER C NR HUDSON	10.7	11	355120	812918	GRANITE FALLS	027
0214166990	GUNPOWDER C NR SAW MILLS	14.3	20	355037	812738	GRANITE FALLS	027
0214167000	GUNPOWDER C AT HUDSON	15.0	02	355022	812650	GRANITE FALLS	027
0214167050	GUNPOWDER C TRIB NR SAW MILLS	1.46	20	355052	812647	GRANITE FALLS	027
0214167175	GUNPOWDER C AT SR 1718 NR SAW MILLS	20.2	20	355039	812610	GRANITE FALLS	027
0214169900	L GUNPOWDER C AT SAW MILLS	5.29	02	355012	812851	GRANITE FALLS	027
0214171300	L GUNPOWDER C NR GRANITE FALLS	8.42	02	354912	812620	GRANITE FALLS	027
0214171700	GUNPOWDER C NR GRANITE FALLS	31.7	02	354913	812525	GRANITE FALLS	027
0214173355	BILLY B AT MTH AT GRANITE FALLS	1.03	20	354823	812511	GRANITE FALLS	027
0214178100	GUNPOWDER C AT DPC DAM 2 NR GRANITE FALLS	36.0	20	354734	812425	GRANITE FALLS	027
0214178250	SILVER C AT SR 1107 NR GRANITE FALLS	2.45	20	354845	812333	GRANITE FALLS	027
0214178350	SILVER C AT MTH NR GRANITE FALLS	3.85	20	354748	812238	GRANITE FALLS	027
0214179800	GUNPOWDER C NR RHODHISS	44.8	11	354707	812137	BETHLEHEM	027
0214180373	U LITTLE R HEADWATERS AT CEDAR VALLEY	2.55	20	355448	812654	KINGS CREEK	027
0214180932	MCRARY C AT NC 90 AT CEDAR VALLEY	1.60	20	355441	812606	KINGS CREEK	027
0214181035	MOUNTAIN RUN HEADWATERS AT OAK HILL	2.85	20	355451	812423	KINGS CREEK	027
0214181056	UPPER LITTLE R BL MOUNTAIN RUN AT OAK HILL	(11.1)	20	355405	812521	KINGS CREEK	027
0214181352	UPPER LITTLE R TRIB AT CEDAR VALLEY	(2.76)	20	355327	812633	KINGS CREEK	027
0214181685	UPPER LITTLE R AB PILOT B NR OAK HILL	17.1	20	355248	812406	KINGS CREEK	027
0214182200	MORRIS C NR OAK HILL	1.54	03	355427	812310	KINGS CREEK	027
0214182285	MORRIS C AT MTH NR OAK HILL	4.79	20	355249	812319	KINGS CREEK	027
0214183280	UPPER LITTLE R TRIB AT SR 1734 DUDLEY SHOALS	1.37	20	355229	812213	BETHLEHEM	027
0214183300	UPPER LITTLE R AT DUDLEY SHOALS	(98.2)	02	355148	812222	BETHLEHEM	027
0214183355	ROCKY C AT MTH NR PETRA MILLS	2.81	20	355044	812206	BETHLEHEM	027
0214183365	UPPER LITTLE R AT SR 1744 AT PETRA MILLS	93.9	20	355031	812143	BETHLEHEM	027
0214183385	UPPER LITTLE R TRIB 1 HEADWATER NR DUDLEY SHOALS	1.67	20	355145	812125	BETHLEHEM	027
0214183392	UPPER LITTLE R TRIB 1 AT MTH NR PETRA MILLS	2.46	20	355034	812126	BETHLEHEM	027
0214183396	UPPER LITTLE R TRIB 2 NR PETRA MILLS	1.06	20	355006	812050	BETHLEHEM	027
0214183405	UPPER LITTLE R AT ICARDS DAM NR BETHLEHEM	33.7	20	354857	810022	BETHLEHEM	027
0214183420	ISAAC C HEADWATER NR BETHLEHEM	2.29	20	354940	814942	BETHLEHEM	003
0214183450	ISAAC C AT MTH NR BETHLEHEM	3.75	20	354856	811911	BETHLEHEM	003
0214183510	MILL C AT MTH NR HICKORY	2.24	20	354811	812043	BETHLEHEM	027

Lost R AB Lower C NR Chesterfield

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

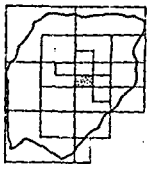
CALDWELL COUNTY, NORTH CAROLINA AND INCORPORATED AREAS

PANEL 78 OF 140

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LENOIR, CITY OF	370040	0078	D
UNINCORPORATED AREAS	370039	0078	D

PANEL LOCATION



MAP NUMBER:
37027C0078 D

EFFECTIVE DATE:
AUGUST 16, 1988

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.

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 Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

•MI.5 — River Mile

*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 areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

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

D ——— D	Cross Section Line
(EL 987)	Base Flood Elevation in Feet Where Uniform Within Zone*
RM7 X	Elevation Reference Mark
•MI.5	River Mile

Referenced to the National Geodetic Vertical Datum of 1929

NOTES

his map is for use in administering the National Flood Insurance rogram; it does not necessarily identify all areas subject to flooding, articularly from local drainage sources of small size, or all lanimetric features outside Special Flood Hazard Areas.

ertain areas not in Special Flood Hazard Areas may be protected y flood control structures

oundaries of the floodways were computed at cross sections and iterpolated between cross sections. The floodways were based on ydraulic considerations with regard to requirements of the Federal mergency Management Agency.

'oodway widths in some areas may be too narrow to show to scale. efer to Floodway Data Table where floodway width is shown at '20 inch.

oastal base flood elevations apply only landward of the shoreline.

levation reference marks are described in the Flood Insurance Study eport.

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

or community panel revision history prior to countywide mapping, e section 6.0 of the Flood Insurance Study Report.

or adjoining panels, see separately printed Map Index

MAP REPOSITORY

Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP:

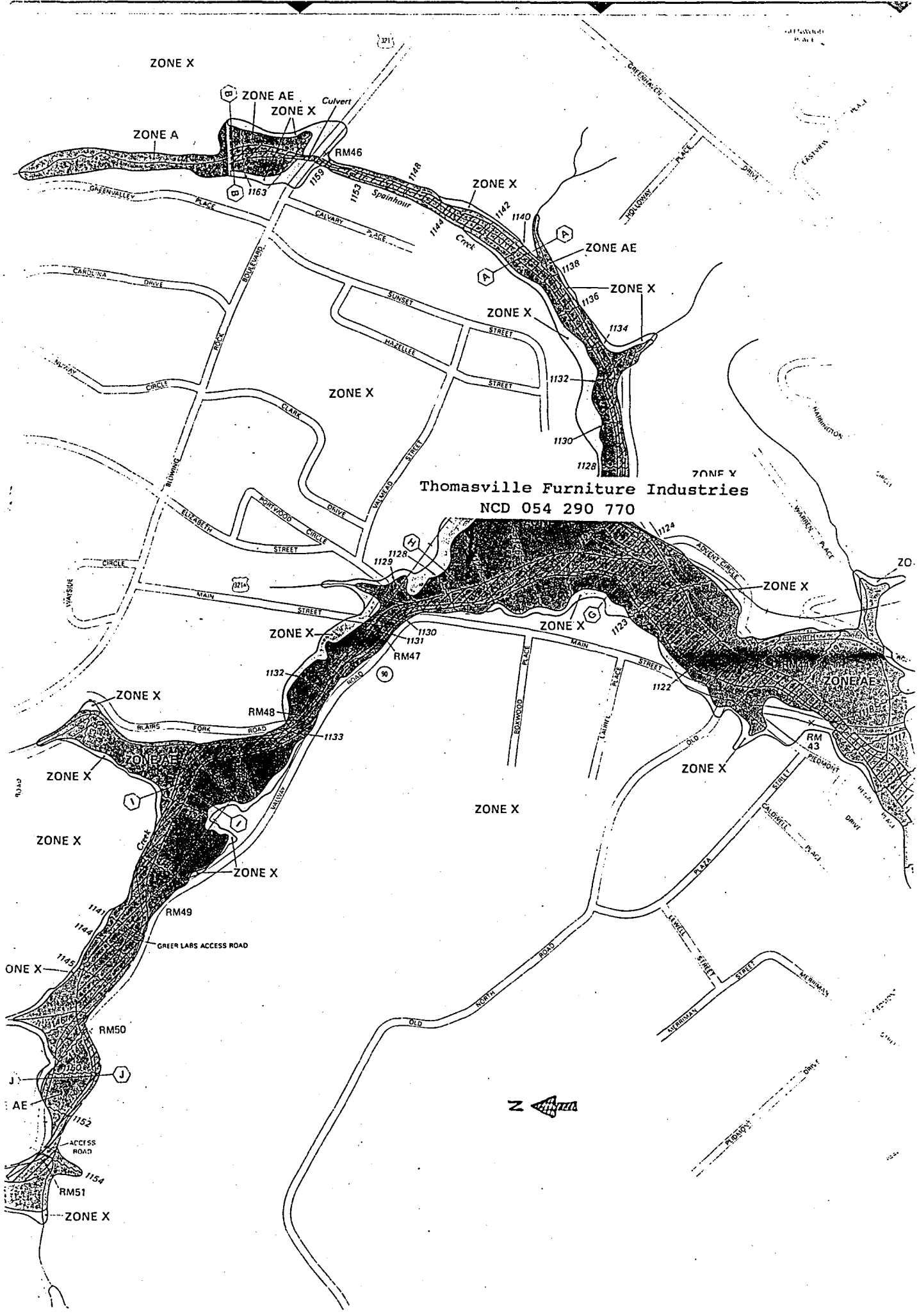
AUGUST 16, 1988

EFFECTIVE DATE(S) OF REVISIONS TO THIS PANEL:

determine if flood insurance is available, contact an insurance ent or call the National Flood Insurance Program at (800) 8-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000


Thomasville Furniture Industries
NCD 054 290 770
ZONE X
ZONE AE
ZONE A
Culvert
RM46
RM47
RM48
RM49
RM50
RM51
RM43
Spainhour Creek
GREENVALLEY PLACE
CALVARY PLACE
CAROLINA DRIVE
SUNSET STREET
HAZELLEE STREET
CLARK DRIVE
VALLEAD STREET
ELIZABETH STREET
PORTWOOD CIRCLE
MAIN STREET
BLAIRS FORK ROAD
BOULEVARD
ROCK
BLOWING
WATSIDE
ADVENT CIRCLE
NORTHWOOD
BOXWOOD PLACE
TARNIT PLACE
OLD NORTH ROAD
PIEDMONT
SIBLEY
CALDWELL PLACE
PLAZA
LEWELL STREET
MERRIMAN STREET
GREER LABS ACCESS ROAD
ACCESS ROAD
N

Memorandum

To: File

From: G. Doug Rumford

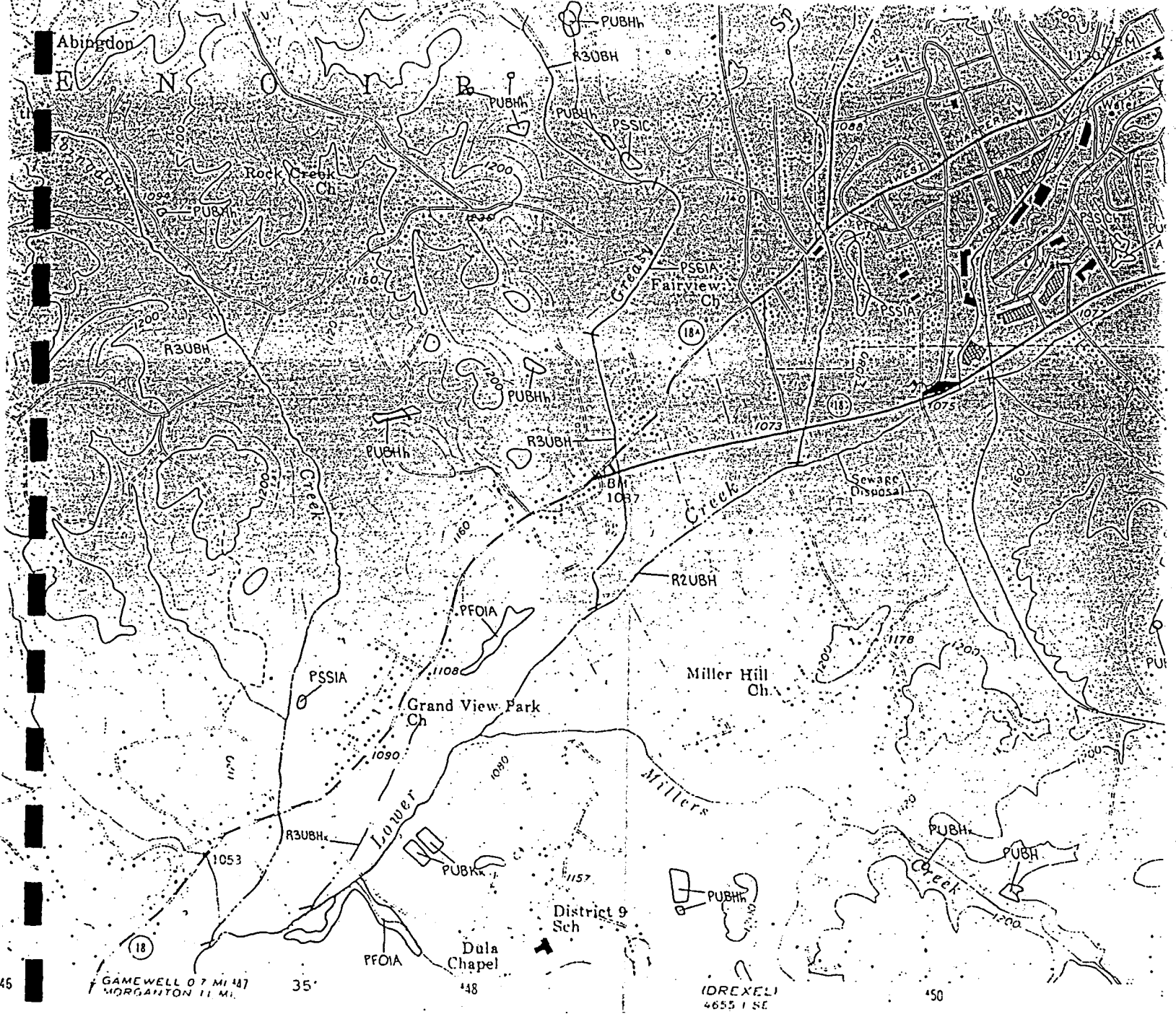
Date: 3/9/93

Subject: Thomasville Furniture Industries (TFI) Site
NCD 054 290 770
Lenoir, Caldwell County, NC
Sensitive Environments

A review of the topographic quadrangle maps maintained by the N.C. Natural Heritage Program (NHP) shows that there are no sensitive environments within the 4-mile radius of the TFI site. However, there is one plant species of special concern, with known occurrences in Caldwell County. The "Sticky Bog Asphodel" (Tofieldia glutinosa) has been found along Lower Creek, approximately 5 downstream miles south of the TFI site and at a location near route 321, approximately 2.5 miles southeast of the site. The sticky bog asphodel has been identified as a candidate for listing as an endangerd or threatened species by the State of North Carolina.

The USDOI Fish and Wildlife Service wetlands maps maintained by the NC Superfund Section were also reviewed. The only quadrangle in the study area that has had a wetlands study was the Lenoir, NC quad. One wetland was identified along the 15-mile surface water pathway. A 12.8 acre wetland with .10 mile of frontage is located on Lower Creek, approx. 4.75 miles downstream of the site.

Attachment.



DRAFT

1 MILE

FEET

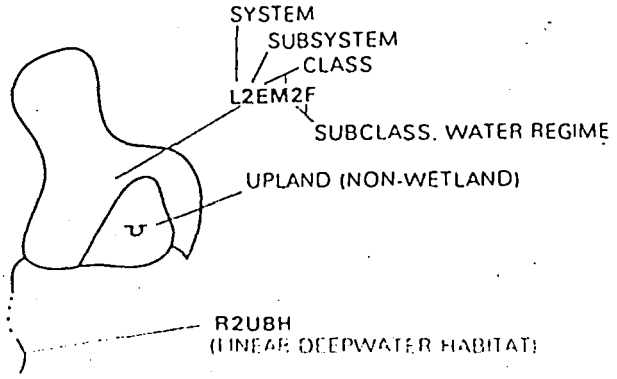
40 acres

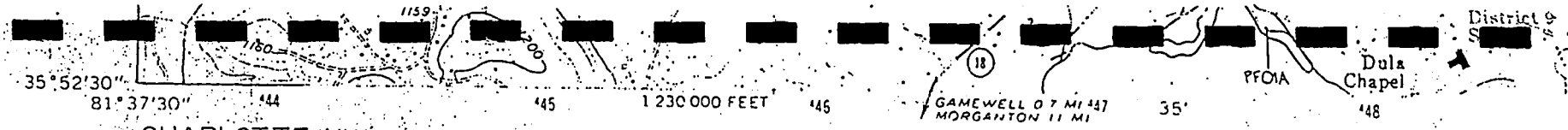
SPECIAL NOTE

This document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with **Classification of Wetlands and Deepwater Habitats of the United States** (FWS/OBS - 79/31 December 1979). The aerial photographs typically reflect conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of the aerial photographs. Thus, a detailed on the ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on this document.

Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is

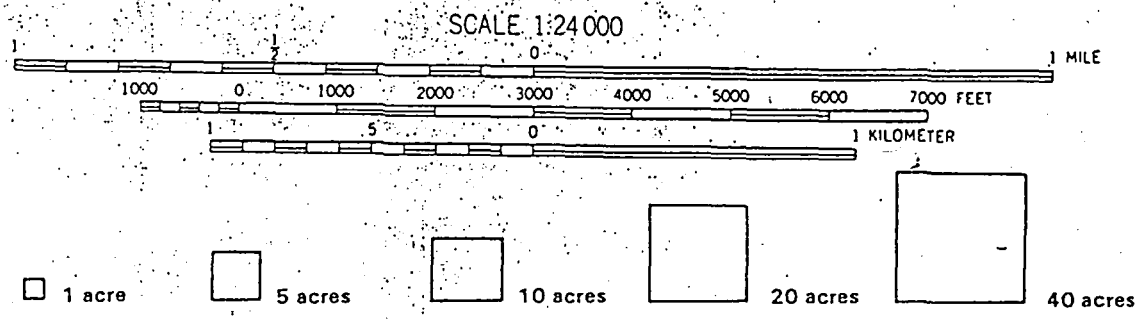
SYMBOLOGY EXAMPLE





CHARLOTTE NW

HICKORY



ACREAGE GUIDE

For information on availability of NWI maps, call 1-800-USA-MAPS.

1:100,000 NAME: CHARLOTTE NW HICKORY	TOPO NAME: LENOIR, N.C.	TECHNICAL RESPONSIBILITY		
		TASK	NAME	DATE
		ZTS Transfer / Lettering	V. Sok	5/13/93
		ZTS QC	G. REEVES	5-28-93
		MAP PI QC	C. [illegible]	6-1-93
		ZTS CORRECTION	V. Sok	6-2-93
		CORRECTION CHECK	C. GLEASON	6-9-93
		F.W.S. ACCEPT	K. Thompson	6-18-93

SPECIAL NOTE

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Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, State or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

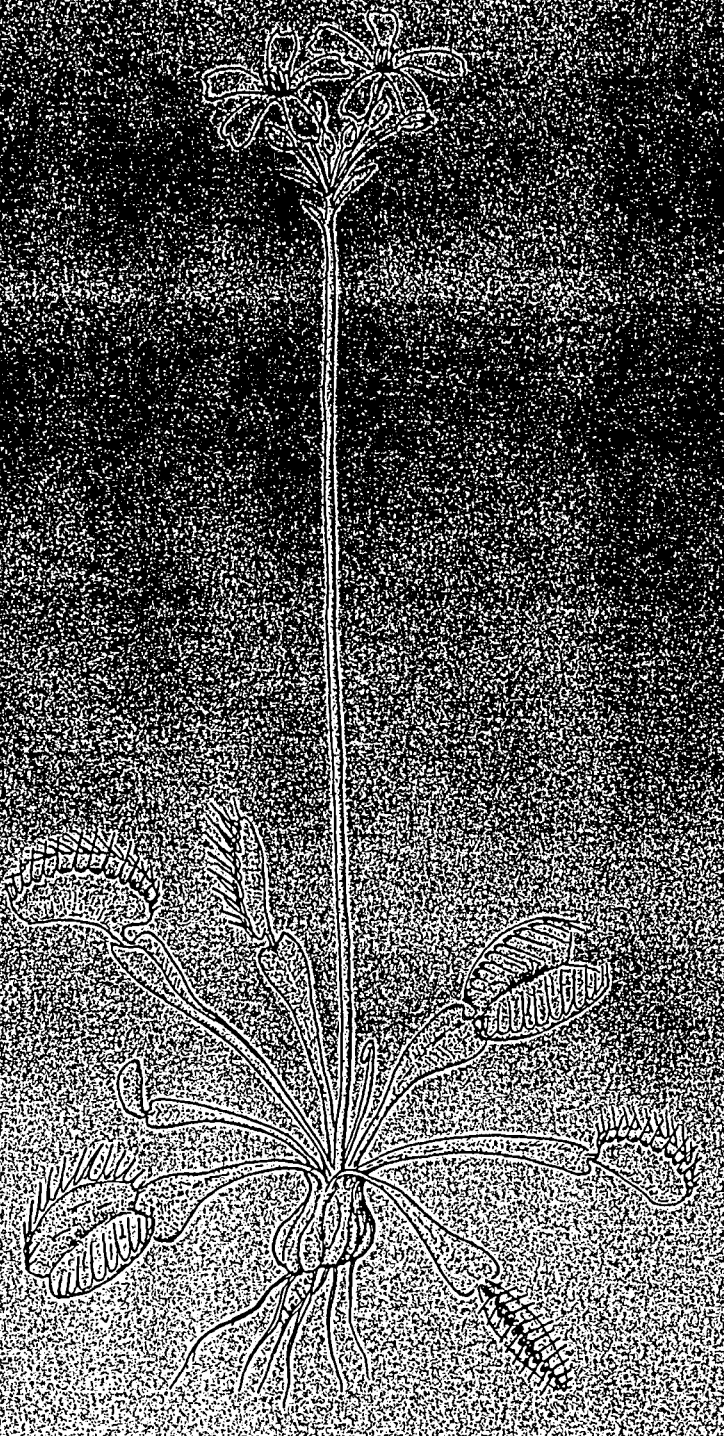
SYSTEM: M — MARINE

SUBSYSTEM: 1 — SUBTIDAL; 2 — INTERTIDAL

CLASS	RB — ROCK BOTTOM	UB — UNCONSOLIDATED BOTTOM	AB — AQUATIC BED	RF — REEF	OW — *OPEN WATER/ Unknown Bottom*	AB — AQUATIC BED	RF — REEF	RS — ROCKY SHORE	US — UNCONSOLIDATED SHORE	RB — ROCK BOTTOM	UB
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 5 *Unknown Submergent*	1 Coral 3 Worm		1 Algal 3 Rooted Vascular 5 *Unknown Submergent*	1 Coral 3 Worm	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 C 2 S 3 M 4 O

SYSTEM: R — RIVERINE

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.

Scientific Name / Province: Habitat (Counties of Occurrence)	Common Name	Status NC	Status US	Rank NC	Rank Global
Stellaria alsine	Longstalk Starwort	SR	-	S1	G5
M: seeps (Madison)					
Stellaria corei (see Watch List)					
Stenanthium robustum (not in RAB)	Bog Featherbells	SR	-	S1	G?
M: bogs and wet meadows (Alleghany*, Ashe*, Avery*, Macon)					
Streptopus amplexifolius	White Mandarin	C	-	S1	G5
M: spruce-fir forests, northern hardwoods forests (Buncombe*, Jackson*, Macon, Mitchell, Swain, Yancey)					
Stylisma aquatica (= *Bonamia aquatica*)	Water Dawnflower	SR	-	S1	G3G4
C: clay-based Carolina bays, moist sandy pinelands (Brunswick, Scotland*)					
Stylisma pickeringii var. *pickeringii* (= *Bonamia p.*)	Pickering's Dawnflower	E	C2	S2	G4?T2
SC: sandhills (Cumberland*, Harnett*, Hoke*, Moore*, New Hanover, Richmond*, Scotland*)					
Swertia (see *Frasera*)					
Synandra hispidula	Synandra	C	3C	SH	G3
M: rich cove forests (Swain)					
Syngonanthus flavidulus (see Watch List)					
Synosma suaveolens (= *Cacalia suaveolens*)	Sweet Indian-plantain	C	PC2	SH	G3?
M: bottomlands (Buncombe, Henderson, Transylvania)					
Taxus canadensis (not in RAB)	Canada Yew	SR	-	S1	G5
M: bogs, swamp forests under spruce (Ashe*, Watauga*)					
Thalictrum cooleyi	Cooley's Meadowrue	E	E	S1	G1
C: wet savannas (Brunswick*, Columbus*, New Hanover, Onslow*, Pender*)					
Thaspium pinnatifidum	Mountain Thaspium	C	-	S1	G3G4
M: calcareous slopes (Haywood*, Jackson, Madison*, Swain)					
Thelypteris simulata (not in RAB)	Bog Fern	T	-	S1	G5
M: bogs (Alleghany*, Avery*)					
Thelypteris (also see *Phegopteris*)					
Thermopsis fraxinifolia	Ash-leaved Golden-banner	C	-	S2?	G3?
MP: dry ridges (Buncombe, Burke*, Caldwell, Henderson, Jackson, McDowell, Polk, Stokes, Surry, Transylvania*, Yancey)					
Thermopsis mollis	Appalachian Golden-banner	SR	-	S2?	G3G4
PM: dry ridges and open woodlands (Buncombe, Burke*, Catawba*, Chatham, Cleveland*, Durham, Forsyth, Franklin, Gaston, Granville*, Guilford, Henderson, Iredell, Lincoln, Rutherford*, Stokes, Surry, Transylvania, Wake, Warren*)					
Tofieldia glabra	Carolina Asphodel	C	C2	S3	G3
CS: savannas, sandhill seeps, moist sandhill/pocosin ecotones (Beaufort, Bladen, Brunswick*, Carteret*, Columbus*, Craven, Cumberland*, Duplin, Harnett*, Hoke*, Johnston, Martin, Moore, New Hanover*, Onslow*, Pamlico, Pender*, Richmond*, Robeson, Sampson, Scotland*, Wilson)					
Tofieldia glutinosa (= *T. racemosa* var. *glutinosa*)	Sticky Bog Asphodel	C	-	S1	G5
MP: bogs, seepages (especially over mafic rocks) (Ashe*, Caldwell, Haywood*, Henderson, Jackson*, Transylvania*)					
Torreyochloa pallida (= *Glyceria pallida*)	Pale Mannagrass	SR	-	S1	G5?
CM: blackwater pools, old millponds, and small stream swamps (Avery, Columbus, Currituck*, Duplin, Gates)					
Tradescantia virginiana	Virginia Spiderwort	SR	-	S1	G5
P: rich woods on circumneutral soils (Caswell, Harnett*, Montgomery*, Moore*, Orange, Rockingham, Stanly)					
Trichomanes boschianum	Appalachian Filmy-fern	T	-	S1	G4
M: spray zone of waterfalls, seeps over rock (Jackson*, Macon*, Polk)					

Memorandum

To: File

From: Doug Rumford

Date: 3/9/93

Subject: Thomasville Furniture Ind., NCD 054 290 770
Lenoir, Caldwell County, NC
Fisheries Identification

The following memoranda were reviewed for information regarding possible fisheries along the 15-mile surface water pathway for the Thomasville Furniture site. Copies of the 2 memoranda are attached.

G. Doug Rumford
1/27/93
Fisheries at Lower Creek and Lake Rhodiss
Gamewell Drum Site, NCD 986 204 758

John P. McConney
9/24/90
Fishing on Spainhour Creek and Lower Creek

Memorandum

To: File

From: G. Doug Rumford GDR

Date: 1/27/93

Subject: Fisheries at Lower Creek and Lake Rhodiss
Gamewell Drum Site, NCD 986 204 758
Gamewell, Caldwell County, NC

Mr. Chris Goodrow, Biologist with the N.C. Division of Boating and Inland Fisheries (704-652-4040) was contacted on this date at 2:15 pm regarding fishing pressure on Lower Creek and Lake Rhodiss. Mr. Goodrow was unable to provide exact information in terms of pounds of fish caught yearly and specific types of fish. However, he did inform me that Lake Rhodiss receives heavy recreational fishing pressure for sunfish, stripped bass, crappie, and catfish. Lower Creek is lightly fished from Gamewell downstream to Lake Rhodiss. Mr. Goodrow also told me that there are no commercial fisheries on Lower Creek or Lake Rhodiss.

Memorandum

Date: September 24, 1990

To: File

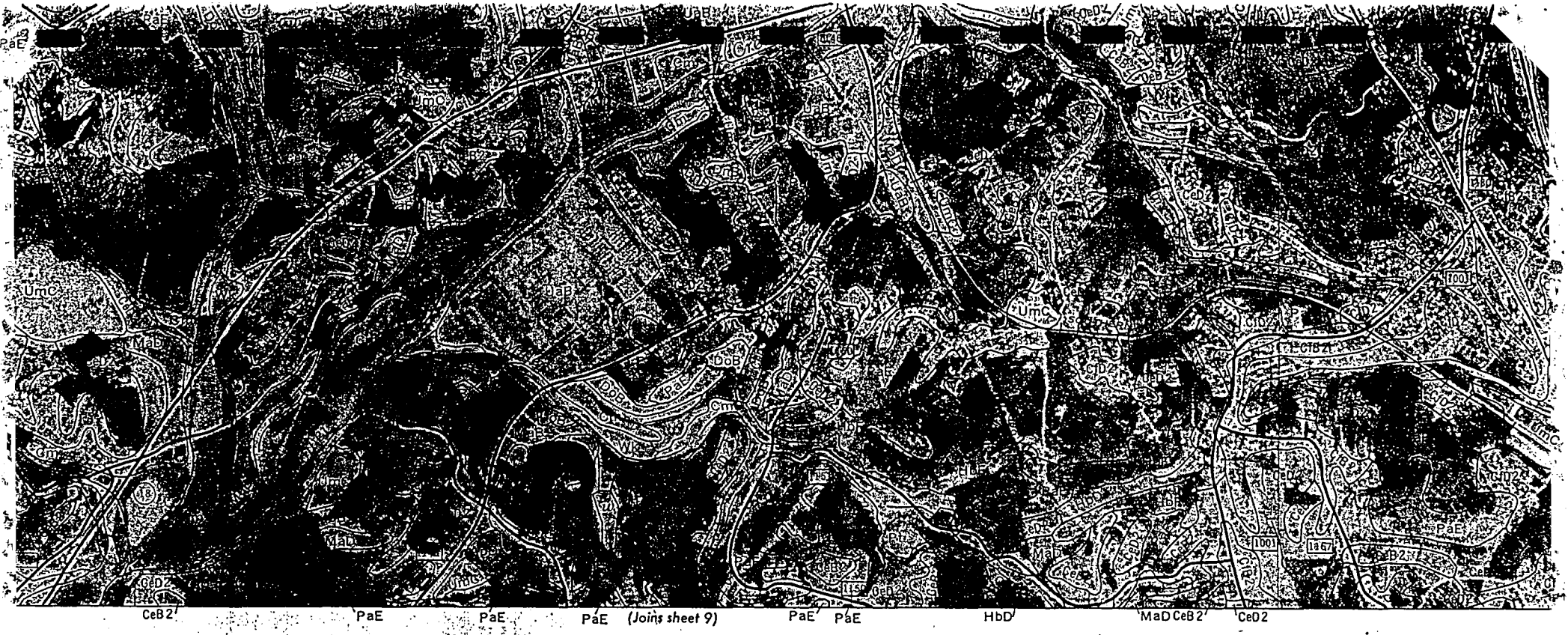
From: John P. McConney JPM

Subject: Fishing on Spainhour Creek and Lower Creek

On this date Mr. Chris Goudre of the Wildlife Commission was contacted at (704) 652-4040. He reported that both Spainhour Creek and Lower Creek are used only for local recreational fishing for bass, sunfish, etc., and there is not a significant amount of fishing. There is no commercial fishing on these creeks.

JM/mmbw.cg1

Thomasville Furniture Industries
NCD 054 290 770



1 3/4 1/2 1/4 0 1 2 MILES

1 0.5 0 1 2 KILOMETERS

SCALE 1:24 000

CALDWELL COUNTY, NORTH CAROLINA NO. 6

SHEET

moderately well drained. The included soils, generally in areas of less than 5 acres, make up about 20 percent of this map unit.

In most areas, this soil is used for many types of row crops, or as hayland or pasture. It has no major limitations.

In a few areas, this soil is used as woodland. The dominant native trees are loblolly pine, Virginia pine, yellow poplar, southern red oak, and black walnut. The understory plants include flowering dogwood, sourwood, American holly, and blueberry. This soil has no major limitations for use as woodland.

This soil is used occasionally for building site development and recreational facilities. Wetness is the main limitation.

This State soil is in capability subclass IIe. The woodland ordination symbol is 9A.

TaB—Tate fine sandy loam, 2 to 8 percent slopes. This soil is well drained. It is in small draws and coves and on benches and foot slopes of mountains. Areas of this soil are irregular in shape and they range from 4 to about 15 acres.

Typically, the surface layer is brown fine sandy loam about 12 inches thick. The subsoil to a depth of about 48 inches is strong brown loam in the upper part, strong brown clay loam in the middle part, and brown fine sandy loam in the lower part. The substratum to a depth of 60 inches is dark yellowish brown fine sandy loam.

Surface runoff is medium, and the hazard of erosion is moderate in unvegetated areas. The permeability and the available water capacity are moderate. The shrink-swell potential is low. This soil ranges from very strongly acid to medium acid throughout except where lime has been added. Depth to bedrock is more than 60 inches.

Included with this Tate soil in mapping are a few small areas of Wehadkee and Chewacla soils adjacent to streams and a few small areas of a soil that has a dark brown surface layer. Also included are areas of soils that have a gravelly or stony surface layer. The included soils, generally in areas of less than 5 acres, make up about 15 percent of the map unit.

In most areas, this soil is used as woodland. The dominant trees are eastern white pine, yellow poplar, eastern hemlock, red maple, black locust, and black walnut (fig. 4). The understory plants are mainly flowering dogwood, sourwood, mountain laurel, rhododendron, blueberry, greenbrier, and poison ivy. This soil has no significant limitation for use as woodland.

In a few areas, this soil is used for pasture, homesites, or for growing ornamentals. Steepness of slope and erosion are the main limitations for the use of this soil for crops, building sites, or recreational facilities. A few areas may have seepage from upper slopes during wet periods.

This Tate soil is in capability subclass IIe. The woodland ordination symbol is 12A.

TaE—Tate fine sandy loam, 8 to 25 percent slopes This soil is well drained. It is in small draws and coves and on benches and foot slopes of mountains. Areas of this soil are irregular in shape and they range from 5 to about 40 acres.

Typically, the surface layer is brown fine sandy loam 4 inches thick. The subsurface layer is brown loam to a depth of 12 inches. The subsoil to a depth of 48 inches is strong brown loam in the upper part, strong brown clay loam in the middle part, and brown fine sandy loam in the lower part. The substratum to a depth of 60 inche is dark yellowish brown fine sandy loam.

Surface runoff is rapid, and the hazard of erosion is moderate in unvegetated areas. The permeability and the available water capacity are moderate. The shrink-swell potential is low. This soil ranges from very strongly acid to medium acid throughout except where lime has been added. Depth to bedrock is more than 60 inches.

Included with this Tate soil in mapping are a few small areas of a soil that has a dark brown surface layer. Also included are a few areas of soils that have a gravelly or stony surface layer. The included soils, generally in areas of less than 5 acres, make up about 15 percent of this map unit.

In most areas, this soil is used as woodland. The dominant trees are eastern white pine, yellow poplar, eastern hemlock, red maple, black locust, and black walnut. The understory plants are mainly flowering dogwood, sourwood, mountain laurel, rhododendron, blueberry, greenbrier, and poison ivy. Steepness of slope is the main limitation for use as woodland.

In a few areas, this soil is used as pasture, homesites, or for growing ornamentals. Steepness of slope and erosion are the main concerns in the use of this soil for crops, building sites, and recreational facilities. A few areas may have seepage from upper slopes during wet periods.

This Tate soil is in capability subclass VIe. The woodland ordination symbol is 12R.

UaB—Urban land-Arents complex, occasionally flooded. This map unit consists of nearly level soils on flood plains and low terraces of Lower Creek and its tributaries near Lenoir. In areas of these soils, industrial and urban development has altered or covered the soil to such an extent that identification is not practical. This map unit is 60 percent Urban land and 25 percent Arents. These soils are too intricately mixed to map separately. The areas of this complex range from 5 to 200 acres.

Urban land consists of areas that have been filled with several feet of loamy or clayey soil material, leveled and covered with asphalt, concrete, buildings, or other impervious cover.

Arents are areas that have been altered by the addition of fill material over the original soil surface, and are 20 inches to several feet thick. The fill consists

Figure 4.—Yellow-poplar is a common tree on Tate fine sandy loam, 2 to 8 percent slopes.

mostly of loamy or clayey soil material transported ainly from cut or graded areas of soils on uplands and rraces. Materials, such as stones, logs, stumps, and solid waste, are in the fill material in some places.

Included in mapping are small, intermingled areas of ongaree, Chewacla, Wehadkee, and Masada soils. Also cluded are cut areas where all, or almost all, of the soil material has been removed.

The main limitations for permanent structures or other evelopment are the high water table, the settling of filled areas, and the sediment damage to streams from erosion of the fill material. Also, flooding is a hazard. When natural flood plains are filled, the normal flow of oodwater is constricted and often raises the flood level in the area immediately upstream.

This map unit has not been assigned a capability ubclass nor a woodland ordination symbol. Onsite investigation would be required to determine suitability for any proposed use.

UmC—Urban land-Masada complex, 2 to 15 percent slopes. This map unit consists of Urban land and Masada soil on terraces. The areas range from 5 to about 500 acres.

The Urban land is covered by impervious material and makes up about 60 percent of this map unit. Most of the soil has been disturbed by cutting, filling, grading, and shaping during the process of urbanization. The original landscape topography has been changed to fit the intended use.

The Masada soil makes up about 25 percent of this map unit. Typically, this soil has a brown loam surface layer 10 inches thick. The subsoil to a depth of 58 inches is yellowish red clay loam in the upper part,

strong brown clay loam in the middle part, and yellowish red sandy clay loam in the lower part. The substratum to a depth of 72 inches is mottled strong brown and light gray gravelly sandy loam.

Surface runoff is medium, and the hazard of erosion is severe in unvegetated areas. The permeability and the available water capacity are moderate. The shrink-swell potential is moderate. This soil is very strongly acid or strongly acid throughout except where lime has been added. Depth to bedrock is more than 60 inches.

Included in mapping are small areas that have been cut, filled, or altered, and not covered with impervious material. Also intermingled within this map unit are small areas of Cecil or Pacolet soils.

The main limitation of these soils is the very rapid surface runoff caused by the impervious surfaces. The runoff increases the potential for flooding downstream. Steep cut and filled banks are subject to erosion and caving, which can cause sedimentation downstream. Sediment and erosion control practices are very important in areas of this map unit.

Onsite investigation is required to determine suitability for any proposed use.

This map unit has not been assigned a capability subclass nor a woodland ordination symbol.

Wk—Wehadkee loam, frequently flooded. This soil is nearly level and is poorly drained. It is on flood plains along streams. Areas of this soil are generally long and narrow and they range from 5 to about 100 acres.

Typically, the surface layer is dark grayish brown loam 10 inches thick. The underlying material to a depth of 37 inches is dark grayish brown clay loam in the upper part; mottled strong brown, grayish brown, and reddish brown clay loam in the middle part; and dark gray clay loam in the lower part. The next layer to a depth of 80 inches is gray stratified sandy loam and sand.

Surface runoff is very slow or ponded. The permeability is moderate, and the shrink-swell potential is low. This soil ranges from strongly acid to slightly acid throughout except where lime has been added. Depth to bedrock is more than 60 inches. The seasonal high water table is at or near the surface. This soil is subject to frequent, brief flooding.

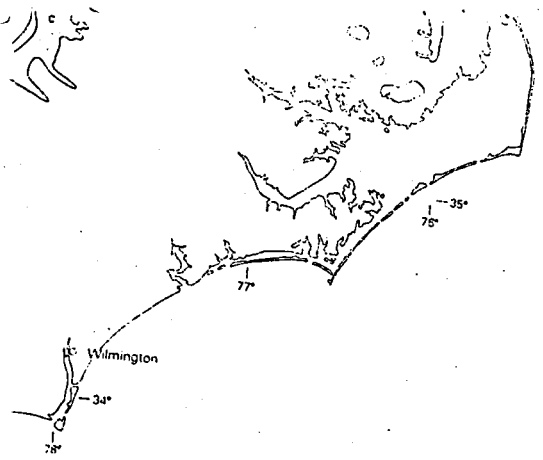
Included with this Wehadkee soil in mapping are small, intermingled areas of Chewacla and Roanoke soils and some soils that have a thin loamy sand surface layer as a result of deposition from flooding. The included soils, generally in areas of less than 5 acres, make up about 15 percent of this map unit.

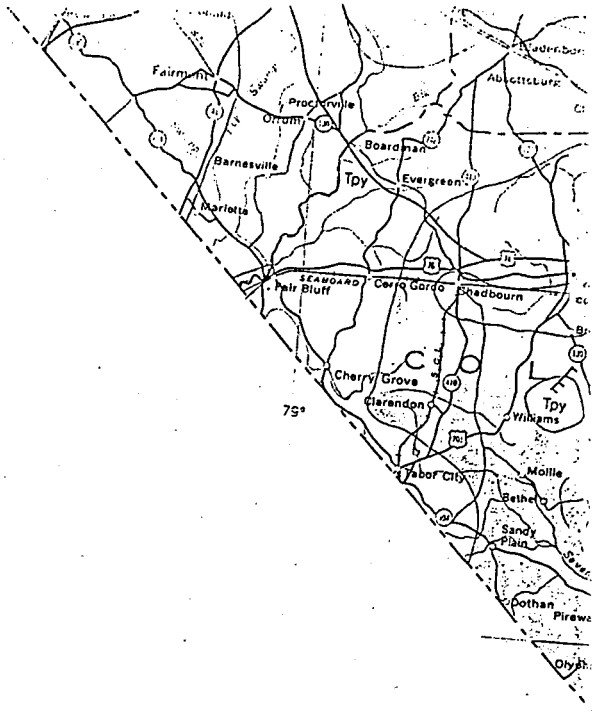
In most areas, this soil is cleared and is used as pasture or hayland. It is occasionally used for row crops in areas that have been artificially drained. Seasonal wetness is the main limitation, and frequent flooding is a hazard.

In some areas, this soil is used as woodland. The dominant trees are willow oak, water oak, red maple, yellow poplar, and river birch. The understory plants include hazel alder (tag alder), black willow, switchcane, greenbrier, honeysuckle, poison ivy, boxelder, American hornbeam, and grape. Seasonal wetness and frequent flooding are the main concerns for woodland use and management.

This soil is not used for building site development or recreational facilities because of seasonal wetness and frequent flooding.

This Wehadkee soil is in capability subclass VIw. The woodland ordination symbol is 7W.





GEOLOGIC MAP OF NORTH CAROLINA

1985

Scale 1:500,000
1 inch equals approximately 8 miles

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 Kilometres

Ref. 20

Thomasville Furniture Industries
NCD 054 290 770
Boone
Blowing Rock
Banner Elk
Linville
Newland
Roan High Knob
Bakersville
Spruce Pine
Burnsville
Mitchell
Black Mts
MT MITCHELL
Morganton
Valdese
Marion
Old Fort
Black Mtn
Asheville
Swannanoa
Hendersonville
Brevard
Rutherfordton
Spindale
Forest City
Lake Lure
Chimney Rock
Saluda
Tryon
Columbus
Mill Spring
Lenoir
Hickory
Granite Falls
Morganton
Valdese
Henry River
Enola
Corinth
Connelly Sprs
Rutherford College
Drexel
Glen Alpine
Bridgewater
Pleasant Gardens
Greenlee
Brindletown
Hildebran
Oak Hill
Whitnee
Hudson
Gamewell
Collettsville
Valmead
Draco
Lenoir
Hawksbill Mtn
Zgmw
Zabg
Zatm
Zatw
Zg
Ybgg
Ygg
Ymg
Zml
Ccl
Ccu
Zs
Zss
ZWC
CZms
CZbg
CZba
Ocgm
Chg
Jd
PzZu
Ruth
Mill Spring
Green
Sunny View
Lake Adger
Tuxedo
Saluda
Valhalla
Lynn
Tryon
Columbus
Mill Spring
Green
Sunny View
Lake Adger
Ruth
Rutherfordton
Spindale
Forest City
Ellenboro
Alexander Mills
Cliffside
Henrietta
Avondale
Caroleen
Harris
Sandy Plains
Earl
Grover
Patterson Springs
Stubbs
Mooresboro
Shelby
Lawndale
Polkville
Metcalf
Washburn
Hollis
Palistan
Belwood
Cleveland
Casar
Toucy
Henry
Mills
Chimney Rock
Lake Lure
Uree
Shingle Hollow
Whitehouse
Thermal City
Sugar Hill
Crooked
Moffitt Hill
Grovestone
Riceville
Woodlin
Emma
Oteen
Azalea
Swannanoa
Biltmore
Fairview
Skyland
Royal Pines
Arden
Gerton
Fletcher
Hoopers Cr
Naples
Mountain Home
Flat Rock
Blue Ridge
Dana
Etowah
Laurel Park
Henderson
Balsam
Little River
Cedar Mtn
Gaston
Brevard
Pisgah Forest
Rosman
Lake Toxaway
Cashiers
Sylva
Dillsboro
Cullowhee
Tuckasegee
Whittier
Bryson City
Cherokee
Ferguson
Elkville
Mt Zion
Maple Springs
Parsonville
Triplett
Deep Gap
Vilas
Valle Crucis
Sugar Grove
Sherwood
Sherrill
Beech Cr
Reece
Mabel
Sherrill
Ashland
Green Valley
Sutherland
Crestwood
Sethlow
Wilfred
Zalm
Herson
Weaver
Glendale Springs
Idlewild
Fleetwood
Summit
Grassy Creek
Helton
Sturgills
Tuckerdale
Crumpen
Lansing
Bina
Roten
Elg
Apple Grove
Grayson
Zml
Ccl
Zg
Ygg
Ybgg
Zs
Ccu
Poplar
Pigeonroost
Honeycutt
Relief
Sleux
Huntdale
Forbes
Bakersville
Ramseytown
Day Boe
Bee Log
Higgins
Big Bald
Allensland
Big Laurel
Faust
Swiss
Bald Creek
Burnsville
Weaver
Bowman
Buckner
Pensacola
Waverly
Murchison
Mars Hill
Petersburg
Marshall
Worley
Democrat
Barnardsville
Dillingham
Paint Fork
Stocksville
Weaverville
Beech
Alexander
Sandymush
Woodlin
Emma
Oteen
Swannanoa
Azalea
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Elg
Apple Grove
Grayson
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Ybgg
Zs
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Pigeonroost
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Higgins
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Allensland
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Faust
Swiss
Bald Creek
Burnsville
Weaver
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Buckner
Pensacola
Waverly
Murchison
Mars Hill
Petersburg
Marshall
Worley
Democrat
Barnardsville
Dillingham
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Big Bald
Allensland
Big Laurel
Faust
Swiss
Bald Creek
Burnsville
Weaver
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Buckner
Pensacola
Waverly
Murchison
Mars Hill
Petersburg
Marshall
Worley
Democrat
Barnardsville
Dillingham
Paint Fork
Stocksville
Weaverville
Beech
Alexander
Sandymush
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Rosman
Lake Toxaway
Cashiers
Sylva
Dillsboro
Cullowhee
Tuckasegee
Whittier
Bryson City
Cherokee
82°
82°
N

overpacked and remains onsite.

- Drum D6: A 55-gallon steel open-head drum. When it was retrieved, the drum was crushed and its top was missing. It contained a small amount of solid material. Due to the condition of the drum, a sample of this material could not be acquired for field analysis. The drum was placed in an overpack drum and remains onsite.
- Drum D7: A 55-gallon open-head steel container. When it was retrieved, the drum's top was crushed, and large holes and rust were observed. It was approximately 50% full of a white to gray solid material (see Hazcat sheet 4). The drum was overpacked and remains onsite.
- Drum D8: A 55-gallon open-head steel container. When it was encountered, the drum had a very large tear down its side. It was approximately full of a tan to brown solid material (see Hazcat sheet 6). The drum was overpacked and remains onsite.

Exploratory Excavation T2

Date: 9/25/92

Location: linear trench, approximately 75 feet in length; total depth approximately 10 feet below grade. Located on grid line 1+90 (see Figure 3).

Fill materials encountered:

Two distinct zones of fill were encountered in a 20-foot section of this excavation, as illustrated in Figure 3. The first zone of fill was encountered between 25 and 36 feet from the western end of the trench, while the second zone of fill was observed between 40 and 45 feet from the western end of the trench. Drums D9 and D10 where retrieved from the first zone of fill, and drum D11 was retrieved from the second zone. Both zones of fill material were encountered at a depth of 2 feet and extended to an average depth of approximately 8 feet. Disturbed soil, small amounts of glue, and assorted debris were encountered in the fill. Disturbed soil exhibited PID headspace readings between 50 and 900 parts per million.

The locations of buried drums retrieved from this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D9: The remnants of a 55-gallon steel drum which was severely crushed. Minor amounts of contents remained in the drum, but samples could not be collected due to its condition.
- Drum D10: A 55-gallon steel drum. The drum was rusted and severely crushed. It contained minor amounts of soil and possessed a strong petroleum odor. It is

suspected that the original contents of the drum escaped through the numerous large holes in the drum and that disturbed soil subsequently migrated into the drum. Headspace analysis of the soil contained indicated a reading of 276 ppm. The drum was overpacked and remains onsite.

- Drum D11: A 55-gallon open-head steel drum. The drum was encountered somewhat crushed, with no lid. It contained a black solid material, which appeared to have been burnt. This material exhibited a strong solvent odor. A chemical classification of this solid is presented in HazCat sheet 5. The drum was placed in an overpack drum and remains onsite.

Exploratory Excavation T3

Date: 9/25/92

Location: linear trench, approximately 80 feet in length; total depth approximately 10 feet below grade. Located on grid line 2+40 (see Figure 3).

Fill materials encountered:

Two distinct zones of fill were encountered in a 22-foot section of this excavation, as illustrated in Figure 3. These zones of fill materials were observed to exhibited a concave shape and overlapped one another. The first zone of fill was encountered between approximately 10 and 20 feet from the western end of the trench. The second zone of fill was observed to overlay the first. This zone was encountered between 15 and 30 feet from the western end of the trench. The first zone of fill contained primarily glue, with minor amounts of plastic and general debris. Drums D12, D13 and D14 where retrieved from the second zone of fill. Fill and disturbed soil were encountered at a depth of 1 to 2 feet and extended to an average depth of approximately 8 feet.

The locations of buried drums retrieved from this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D12: The steel 55-gallon drum was discovered empty, severely crushed and rusted. It was placed in a roll-off box for disposal.
- Drum D13: A steel 55-gallon closed-head drum, D13 was discovered slightly crushed and severely rusted. Removal procedures caused approximately 10 gallons of the liquid contents to be released in the excavation. The drum was removed containing approximately 30 gallons of a liquid which possessed a distinct solvent odor (see Hazcat sheet 6). This drum was placed in an overpack drum. Absorbent pads were used to remove released liquids from the excavation. These pads, along with some transferred liquids, were placed in a new 55-gallon steel drum. Approximately one cubic yard of soil which was grossly contaminated

as a result of this release was excavated and placed in a rolloff box which remains onsite.

- Drum D14: This 55-gallon steel drum was discovered to contain a brown flammable solid material (see HazCat sheet 2). The container was found to be rusted and several large holes were observed in its side. The drum was overpacked and remains onsite.

Exploratory Excavation T4

Date: 9/25/92

Location: linear trench, approximately 30 feet in length, total depth approximately 8 feet below grade. Located on grid line 2+85 (see Figure 3).

Fill materials encountered:

This excavation did not encounter any fill materials. Stratified alluvial deposits of soil were encountered to a depth of approximately 8 feet, at which time excavation procedures were terminated.

Exploratory Excavation T5

Date: 9/25/92

Location: linear trench, approximately 125 feet in length; total depth was approximately 10 feet. Located on grid line 3+40 (see Figure 3).

Fill materials encountered:

Two distinct zones of fill were encountered in a 25-foot section of this excavation (see Figure 3). The first zone of fill was encountered between 7 and 15 feet from the western end of the trench, while the second zone of fill was observed between 17 and 25 feet from the western end of the trench. Drums D15 and D16 where retrieved from the first zone of fill, while drums D17, D18 and D22 were retrieved from the second zone. These zones of fill materials were encountered at a depth of 2 feet and extended to an average depth of approximately 8 feet. Disturbed soils, 55-gallon drums, glue, and fairly large amounts of assorted trash were encountered in these zones of fill.

The locations of buried drums retrieved in this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D15: This 55-gallon steel drum was discovered to be crushed. A small amount of material, suspected to be solid, could not be sampled due to the drum

condition. The drum was overpacked and remains onsite.

- Drum D16: This 55-gallon steel closed-head container was discovered in excellent condition. No leaks or rust damage were present. The drum contained a brown liquid which possessed a strong solvent odor (see HazCat sheet 6). The drum was placed in an overpack drum and remains onsite.
- Drum D17: A steel 55-gallon closed-head drum, D17 was discovered slightly crushed and severely rusted. Removal procedures caused approximately 20 gallons of the liquid contents to be released in the excavation. The remaining contents of the drum was transferred to a open-head steel drum. The brown liquid contents possessed a distinct solvent odor (see Hazcat sheet 6). This discovered drum was placed in an overpack drum. Absorbent pads were used to remove released liquids from the excavation. These pads were placed in a 55-gallon steel drum.

Exploratory Excavation T6

Date: 9/25-26/92

Location: Linear trench, approximately 80 feet in length, total depth approximately 10 feet. Located on grid line 3+90 (see Figure 3).

Fill materials encountered:

Three distinct zones of fill were encountered in a 30-foot section of this excavation, as illustrated in Figure 3. The first zone of fill was encountered between 5 and 15 feet from the western end of the trench, while the second zone of fill was observed between 20 and 30 feet from the western end of the trench. The third zone of fill was encountered between 33 and 38 feet from the western end of the trench. The first zone of fill contained mostly trash; drum D21 was retrieved from this zone. Drums D19 and D20 where retrieved from the second zone of fill. The third zone of fill contained only trash. These zones of fill materials were encountered at a depth of 2 feet and extended to an average depth of approximately 8 feet. Disturbed soils, 55-gallon drums, glue, and fairly large amounts of assorted trash (plastic, bottles, glue, paper) were encountered in these zones of fill.

The locations of buried drums retrieved in this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D19: This 55-gallon closed head steel drum was discovered crushed and thought to be empty. A sample of the small amount of its suspected solid contents could not be sampled. The drum was overpacked and remains onsite.
- Drum D20: This 55-gallon steel open-head container was discovered in fair condition. The drum was found to contain glue (see HazCat sheet 3). The

container was placed in an overpack drum and remains onsite.

- Drum D21: A steel 55-gallon open-head drum was discovered slightly crushed, without its lid. Subsequent to removal, the drum was determined to contain trash (paper, plastic, 1-gallon metal containers).

Exploratory Excavation T7

Date: 9/27/92

Location: Linear trench, approximately 65 feet in length, total depth approximately 8 feet. Located on grid line 4+00 (see Figure 3).

Materials encountered:

This excavation did not encounter any fill materials. Stratified alluvial deposits of soil were encountered to a depth of approximately 8 feet, at which time excavation procedures were terminated. Soil which was encountered did not exhibit odors or elevated PID readings which were common in excavations in which fill material were discovered.

Exploratory Excavation S1

Date: 9/25/92

Location: Square excavation approximately 10 feet square, total depth approximately 8 feet. Located on grid line 1+90 (see Figure 3).

Materials encountered:

This excavation did not encounter any fill materials. Stratified alluvial deposits of soil were encountered to a depth of approximately 8 feet at which time excavation procedures were terminated.

Exploratory Excavation TP1

Date: 9/27/92

Location: Linear trench, approximately 22 feet in length, total depth approximately 5 feet. Located on grid line 3+20 (see Figure 3). This area was excavated in order to acquire soil samples for laboratory analysis.

Fill materials encountered:

Two drums (D23 and D24) were recovered from this excavation. Ten 1-gallon containers which had apparently held paint or stains were discovered empty. A sample of disturbed soil encountered near these containers was recovered for field analysis (soil sample TP-1, See HazCat sheet 2).

The locations of buried drums retrieved in this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D23: A 55-gallon open-head steel drum was discovered in poor condition without its lid. The drum contained solid material suspected to be glue. The container was placed in an overpack drum and remains onsite.
- Drum D24: An open-head 55-gallon steel container which was discovered to contain 1-gallon containers full of paint or stain. It is suspected that a great deal of the material contained in these 1-gallon containers has leaked into the surrounding soils. Soil underlying this drum was collected for laboratory analysis. The drum was placed in an overpack drum and remains onsite

Exploratory Excavation TP2

Date: 9/27/92

Location: Rectangular excavation approximately 10 x 5 feet, total depth approximately 5 feet. Located on grid line 1+90 (see Figure 3). This excavation was conducted in order to obtain soil samples for laboratory analysis.

Fill materials encountered:

Three drums (D25, D26 and D27) were recovered from the excavation. Large amounts of trash (bricks, paper, bottles and one-gallon containers) were also discovered.

The locations of buried drums retrieved from this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D25: A 55-gallon open-head steel container which was discovered to contain glues and assorted trash (bricks and plastic). The drum was overpacked and remains onsite. A soil sample (TP-2A) was acquired for laboratory analysis from beneath this drum.
- Drum D26: A 55-gallon open-head steel drum, D26 was discovered to contain bricks and trash. The drum was placed in an overpack container and remains onsite.
- Drum D27: This 55-gallon steel closed-head container was discovered in fair condition, with minor leaks and rust damage. The drum contained a brown liquid

which possessed a strong solvent odor (see HazCat sheet 6). A soil sample (TP-2B) was collected for laboratory analysis from beneath the drum. The drum was placed in an overpack drum and remains onsite.

HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Location: TFI Lenoir Sample #: D11, D4 Container Size/Type: 55DM

Date: Aug. 27, 1992 Conclusion: Organic & Inorganic trash, saturated w/ xylene mixed dry sta

Certainty: (100%) 75% 50% 25% Haz Class only: Flamm solid By: K.Cranford

Reactivity: Air N Water N Acid N Other ____ 1) Physical State: Color Black Odor Strong solven

a) Liquid: ____ Viscosity: 1 2 3 4 5 6 Estimated Carbon Chain: C ____

b) Solid: ✓ Metallic Crystal Pellet Chunk Granule (Particulate) Powder Fiber

2) pH Test: 0 1 2 3 (4 5 6 7) 8 9 10 11 12 13 14 3) Oxidizer Test: Yes No Rate ____ Peroxide: N

4) Chlorine Hot Wire Test: Tested Y Chloride N Nitrate N Amine N Ammonia Gas Test N

5) Ignition Test:

a) Liquid: Extremely Flammable (Flammable) Combustible Not Combustible

b) (Solid:) Explosive Extremely Flammable Flammable Gas Flammable Combustible Not Combustible

c) Flame color Yellow Possibilities Org, Solv. 6) Water Solubility Test: Floats Sinks

Dissolves: Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: ____

7) Iodine Crystal Test: Brown (Mixture of xylen es & ke tones)

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: Black tar with white smoke

Ignition of Head Space Gas: (YES) NO pH: 6 Oxidizer: Yes (No) Slow Fast

Smoke: Organic: Yes Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: ____ Flame Color: Yellow Residue: Black tar

9) Other Tests:

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

Ship: ____ Manifest No. ____ TSDF: ____ DOT Hazard Class/Packaging Group ____

Don't Ship: ____ Re-Do Haz Cat: ____ Send for Lab Analysis: ____

Tests Required: ____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Location: TFI Lenoir Sample #: D 20, D8, D22, D5 Container Size/Type: _____

Date: Aug. 26, 1992 Conclusion: Glue, silica & urea based glue saturated w/ solvent

Certainty: 100% 75% 50% 25% Haz Class only: NONE By: K. Cranford

Reactivity: Air N Water N Acid N Other _____ 1) Physical State: Color Brw/Yel Odor Solvent/Urea

a) Liquid: ____ Viscosity: 1 2 3 4 5 6 Estimated Carbon Chain: C _____

b) Solid: ✓ Metallic Crystal Pellet (Chunk) Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 (5 6 7) 8 9 10 11 12 13 14 3) Oxidizer Test: Yes (No) Rate ____ Peroxide: ____

4) Chlorine Hot Wire Test: Tested YES Chloride N Nitrate N Amine N Ammonia Gas Test N

5) Ignition Test:

a) Liquid: Extremely Flammable Flammable Combustible Not Combustible

b) (Solid:) Explosive Extremely Flammable Flammable Gas Flammable Combustible (Not Combustible)

c) Flame color Yel/Orng Possibilities Organic/Urea 6) Water Solubility Test: Floats (Sinks)

Dissolves: Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: INCONCLUSIVE

7) Iodine Crystal Test: Ureas & Ketones & Xylen es

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: Urea & Slovent

Ignition of Head Space Gas: YES (NO) pH: ____ Oxidizer: Yes No Slow Fast

Smoke: Organic: Yes Sat'd Unsat'd Benzene Ring Water (Mixture)

Inorganic: _____ Flame Color: Yellow Residue: Black Tar

9) Other Tests:

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

_____

Ship: _____ Manifest No. _____ TSDF: _____ DOT Hazard Class/Packaging Group _____

Don't Ship: _____ Re-Do Haz Cat: _____ Send for Lab Analysis: _____

Tests Required: _____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Location: TFI Lenoir Sample #: Glue from ground & D7 Container Size/Type: 55 DM

Date: Aug. 25, 1992 Conclusion: Water based wood glue (Saturated with solvent)

Certainty: 100% 75% (50%) 25% Haz Class only: NONE By: K. Cranford

Reactivity: Air N Water N Acid N Other N 1) Physical State: Color White Odor Solvent

a) Liquid: ____ Viscosity: 1 2 3 4 5 6 Estimated Carbon Chain: C ____

b) Solid: ✓ Metallic Crystal Pellet (Chunk) Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 (4 5 6 7) 8 9 10 11 12 13 14 3) Oxidizer Test: Yes (No) Rate ____ Peroxide: ____

4) Chlorine Hot Wire Test: Tested Y Chloride N Nitrate N Amine N Ammonia Gas Test ____

5) Ignition Test:

a) Liquid: Extremely Flammable Flammable Combustible Not Combustible

b) (Solid:) Explosive Extremely Flammable Flammable Gas Flammable Combustible (Not Combustible)

c) Flame color NONE Possibilities ____ 6) Water-Solubility Test: Floats Sinks

(Dissolves:) Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: ____

7) Iodine Crystal Test: NONE (Slight solvent)

Aromatic(R) Aliphatic(P) Polar(O) (Mixes(Brown)) Reacts Disappears No Reaction > Cl2

8) Char Test: Inconclusive

Ignition of Head Space Gas: YES (NO) pH: ____ Oxidizer: Yes (No) Slow Fast

Smoke: Organic: YES Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: ____ Flame Color: NO Residue: Organic

9) Other Tests:

Salts: SO4 PO4 F1 Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

Ship: ____ Manifest No. ____ TSDF: ____ DOT Hazard Class/Packaging Group ____

Don't Ship: ____ Re-Do Haz Cat: ____ Send for Lab Analysis: ____

Tests Required: ____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

D8, D13, D17,

Location: TFI Lenoir Sample #: D16, D27 Container Size/Type: 55 DM

Date: Aug. 28, 1992 Conclusion: Stain & thinner containing M.E.K. & xylene 1% water

Certainty: (100%) 75% 50% 25% Haz Class only: Flammable liquid By: K.CRANFORD

Reactivity: Air N Water N Acid N Other – 1) Physical State: Color Brown Odor Solvent

a) Liquid: Y Viscosity: (1) 2 3 4 5 6 Estimated Carbon Chain: C

b) Solid: N Metallic Crystal Pellet Chunk Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 (4 5 6) 7 8 9 10 11 12 13 14 3) Oxidizer Test: Yes (No) Rate ____ Peroxide: No

4) Chlorine Hot Wire Test: Tested Y Chloride No Nitrate No Amine No Ammonia Gas Test No

5) Ignition Test:

a) (Liquid:) Extremely Flammable (Flammable) Combustible Not Combustible

b) Solid: Explosive Extremely Flammable Flammable Gas Flammable Combustible Not Combustible

c) Flame color Yellow Possibilities Organic solvent Water Solubility Test: (Floats) Sinks

Dissolves: Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: INCONCLUSIVE

7) Iodine Crystal Test: Yellow/ Orange (M.E.K. or Xylenes)

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: White smoke

Ignition of Head Space Gas: (YES) NO pH: 6 Oxidizer: Yes (No) Slow Fast

Smoke: Organic: ✓ Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: ____ Flame Color: Yellow Residue: Black Tar

9) Other Tests: N/A

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

Ship: ____ Manifest No. ____ TSDF: ____ DOT Hazard Class/Packaging Group ____

Don't Ship: ____ Re-Do Haz Cat: ____ Send for Lab Analysis: ____

Tests Required: ____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Samples 1&2

Location: TFI - Lenoir Sample #: TP1, D14 Container Size/Type: _____

Date: 27 Aug 92 Conclusion: Overspray (lacquer) w/xylenes and ketones

Certainty: 100% 75% 50% 25% Haz Class only: Flammable solid By: K. Cranford

Reactivity: Air N Water N Acid N Other --- 1) Physical State: Color Dk & Lt Brown Odor Solvent

a) Liquid: ____ Viscosity: 1 2 3 4 5 6 Estimated Carbon Chain: C _____

b) Solid: ____ Metallic Crystal Pellet Chunk Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 3) Oxidizer Test: Yes No Rate ____ Peroxide: ____

4) Chlorine Hot Wire Test: Tested Y Chloride N Nitrate N Amine N Ammonia Gas Test N

5) Ignition Test:

a) Liquid: Extremely Flammable Flammable Combustible Not Combustible

b) Solid: Explosive Extremely Flammable Flammable Gas Flammable Combustible Not Combustible

c) Flame color Yellow Possibilities _____ 6) Water Solubility Test: Floats Sinks

Dissolves: Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: _____

7) Iodine Crystal Test: Orange (xylenes)

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: Black Tar

Ignition of Head Space Gas: YES NO pH: 7 Oxidizer: Yes No Slow Fast

Smoke: Organic: YES Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: _____ Flame Color: Yellow Residue: Black, Tan

9) Other Tests:

Salts: SO4 PO4 F1 Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

_____

Ship: _____ Manifest No. _____ TSDF: _____ DOT Hazard Class/Packaging Group _____

Don't Ship: _____ Re-Do Haz Cat: _____ Send for Lab Analysis: _____

Tests Required: _____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Location: TFI - Lenoir Sample #: 1 & 2 Container Size/Type: 55 gal drum

Date: 26-28, 1992 Conclusion: Non-combustible, Non-chlorinated material (water w/ solvent)

Certainty: 100% 75% 50% 25% Haz Class only: Non-hazardous (F listed) By: K. Cranford

Reactivity: Air N Water N Acid N Other _____ 1) Physical State: Color beige/ ~~brown~~ Odor solvent

a) Liquid: X Viscosity: (1) 2 3 4 5 6 Estimated Carbon Chain: C _____

b) Solid: ____ Metallic Crystal Pellet Chunk Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 3) Oxidizer Test: Yes No Rate ____ Peroxide: N

4) Chlorine Hot Wire Test: Tested YES Chloride N Nitrate N Amine N Ammonia Gas Test N

5) Ignition Test:

a) Liquid: Extremely Flammable Flammable Combustible (Not Combustible)

b) Solid: Explosive Extremely Flammable Flammable Gas Flammable Combustible Not Combustible

c) Flame color N/A Possibilities Water 6) Water-Solubility Test: Floats Sinks

(Dissolves:) (Completely) Partially Slowly Fast Alcohol & Hexane Solubility Tests: Inconclusive

7) Iodine Crystal Test: Light yellow (miniscule amounts of ketones or xylenes)

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: Disappears

Ignition of Head Space Gas: YES (NO) pH: ____ Oxidizer: Yes (No) Slow Fast

Smoke: Organic: N/A Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: N/A Flame Color: _____ Residue: _____

9) Other Tests:

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

Water test shows greater than 10% water.

Ship: _____ Manifest No. _____ TSDF: _____ DOT Hazard Class/Packaging Group _____

Don't Ship: _____ Re-Do Haz Cat: _____ Send for Lab Analysis: _____

Tests Required: _____

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Phase IV Assessment Report

Thomasville Furniture Industries, Inc. Facility
Lenoir, North Carolina

Prepared for

Thomasville Furniture Industries, Inc.

February 11, 1993

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The drum burial trenches which were encountered consisted of debris material which extended from a depth of 2 feet below grade to a depth of 9 feet below grade. The width and number of the areas of fill varied in each exploratory excavation. All drum burial trenches which were encountered were present within a zone approximately 25 feet wide. The exploratory trenches intersected two to three parallel trenches containing debris and buried drums.

3.2 Removal Procedures

Competent (intact) drums were remotely placed in a steel blast berm. In order to prepare for the possibility that the drums contained shock-sensitive materials, each competent drum was remotely opened using a brass spike which was mounted on the drum grappler. Some drums which contained liquids were in poor condition and required their contents to be transferred into another drum before their removal. All drums determined to contain characteristic hazardous materials were placed in overpack drums and remain onsite. Additional drum removal procedures and safety procedures are presented in Appendix A.

Upon completion of each excavation, disturbed soil removed from the excavations was used as backfill to a depth of approximately 8 inches below grade. Crusher run gravel was used to complete backfilling the excavations to grade. Remaining excavated material was placed in four roll-off boxes. A composite soil sample was collected from each roll-off box and subsequently analyzed for disposal purposes.

4. Sampling of Materials in Buried Drums

Of the 27 55-gallon drums which were retrieved during this investigation, 7 drums contained liquids, 18 drums (including 2 of those which contained liquids) contained solid material, and 4 drums were empty. All of the drums were found on the west side of the subject area, as illustrated in Figure 3.

If possible, upon removal of each drum, a sample was retrieved for field analysis. A Sensidyne Hazcat Kit was utilized to obtain an onsite field chemical classification of the unknown materials. The HazCat Kit can identify and/or categorize virtually any unknown liquid or solid to provide information necessary to make decisions concerning the selection of proper protective clothing, containment activities, and decontamination procedures. The user of a HazCat Kit can also classify the unknown into a Department of Transportation (DOT) and/or Environmental Protection Agency (EPA) hazard classification.

Following is a summary of the findings of the HazCat field analysis of materials encountered in excavations:

- Drums D1 and D2 contained a brown to beige non-chlorinated, noncombustible liquid exhibiting a distinct solvent odor. This liquid is suspected to consist of large amounts of water mixed with solvent.
- Drums D8, D13, D16, D17, and D27 contained brown flammable liquids exhibiting a distinct solvent odor. These liquids tested positive for the presence of methyl ethyl ketone (MEK) and xylene compounds. The liquids in these drums are suspected to be a combination of stains and thinners.
- Drums D1, D2, D14, and disturbed soil in excavation TP1 contained a dark to light brown flammable solid material. This material tested positive for the presence of xylene and ketone compounds.
- Drums D5, D8, D21, and D22 contained non-combustible, brown to yellow solid material exhibiting a solvent and/or urea odor. These materials tested positive for the presence of urea, ketone and xylene compounds. The identity of this material is thought to be a silica- and urea-based glue saturated with solvent.
- Drum D7 and many of the trenches contained a white, non-combustible solid exhibiting a solvent odor. This material is thought to be a water-based wood glue saturated with solvent.
- Drums D11 and D4 contained flammable black organic and inorganic materials exhibiting a strong solvent odor. These materials tested positive for the presence of xylene compounds.

A more detailed description of each drum and its corresponding HazCat results is presented in Appendix B.

5. Soil Sample Collection and Analysis

Disturbed soil (backfill) which was encountered in ENSCI's exploratory excavations exhibited strong solvent odors. When screened with a photoionization detector (PID), this soil exhibited readings between 300 and 500 parts per million.

In addition to disturbed soil, a variety of fill materials were encountered in the drum burial trenches, including glue, 1-gallon metal containers (some of which contained stains

Table 1: Results of Test Method 8240
Volatile Organic Compounds
(samples collected 8/27/92)

Sample I.D.	Toluene (ppm)	Ethylbenzene (ppm)	m,p-Xylene (ppm)	o-Xylene (ppm)
TP-1	10,000	920	2,700	590
TP-2	36	96	96	230
TP-2B	35	14	14	16

In order to identify any volatile organic compounds which were not detected during initial analysis using Method 8240, a non-targeted library search of the gas chromatography/mass spectrometry scans was performed (see laboratory report, Appendix C). Following is a summary of the library search analysis:

- TP-1: Detection of 7 unknown alkane compounds ranging in concentration from 310 ppm to 1,200 ppm; 3 unknown volatile organic compounds at concentrations ranging from 450 ppm to 550 ppm; and an alkylated cyclohexane isomer at a concentration of 940 ppm.
- TP-2A: Detection of 7 unknown alkane compounds ranging in concentration from 2 ppm to 27 ppm; 3 unknown volatile organic compounds at concentrations ranging from 7 ppm to 27 ppm; and an alkylated cyclohexane isomer at a concentration of 28 ppm.
- TP-2B: Detection of 6 unknown alkane compounds ranging in concentration from 31 ppm to 100 ppm; 3 unknown volatile organic compounds at concentrations ranging from 24 ppm to 66 ppm; an alkylated cyclohexane isomer at a concentration of 110 ppm; methyl cyclohexane at a concentration of 43 ppm; and decahydro naphthalene at a concentration of 26 ppm.

5.2 Semivolatile Compounds

The results of testing for semivolatile organics (EPA Method 8270) are presented in Table 2 and Appendix C. As indicated in the laboratory report, many of the targeted semivolatile organic compounds were reported at elevated detection limits. The elevated

limits may indicate matrix interference as a result of large concentrations of organic materials in the soil samples.

Table 2: Semivolatile Organics
EPA Test Method 8270 in Parts Per Million

(Phase IV Analytical Results - Soil Samples Collected 8-27-92)

Compound	TP-1	TP-2A	TP-2B
2-Methylnaphthalene	26J	ND	70J
Dimethyl Phthalate	480	ND	ND
Dioctyl Phthalate	36J	1.1J	3J
Dibutyl Phthalate	29J	3J	14J
Bis (2-ethylhexyl) Phthalate	400	150	1000

J - Compound detected below quantitative level
ND - Not Detected

As illustrated in the table, analytical results indicated detection of five semivolatile compounds. Only two of these compounds (dimethyl phthalate and bis (2-ethylhexyl) phthalate) were detected above quantitative detection limits. The compound bis (2-ethylhexyl) phthalate is used as a plasticizer in the latex gloves worn during sampling activities. Based on the levels which were detected, however, its presence is not attributable to the gloves. The compound dimethyl phthalate is used as a plasticizer in the production of nitrocellulose acetate, which is a component commonly utilized in furniture finishing materials.

Dibutyl phthalate and dioctyl phthalate were detected at concentrations below quantitative detection limits. These compounds are commonly used as plasticizers in the production of furniture finishing materials. The compound 2-methylnaphthalene was also detected below quantitative detection limits. It is commonly used for organic synthesis and is a constituent in some insecticides.

In order to identify any semivolatile compounds which were not detected during initial testing using EPA Method 8270, a non-targeted library search of the gas

chromatography/mass spectrometry analysis was performed for each sample (see Appendix C). The following is a brief summary of the tests results for each soil sample:

- TP-1: Detection of 14 unknown semivolatile compounds with estimated concentrations ranging from 160 ppm to 2,100 ppm; 3 unknown alkane compounds with estimated concentrations ranging from 160 ppm to 170 ppm; an alkylated benzene compound at an estimated concentration of 200 ppm; hexanedoic acid at an estimated concentration of 130 ppm; methyl ester at an estimated concentration of 360 ppm; and an unknown phenanthrene carboxylic acid at an estimated concentration of 220 ppm.
- TP-2A: Detection of 11 unknown semivolatile compounds with estimated concentrations ranging from 4.1 ppm to 530 ppm; 8 unknown alkane compounds with estimated concentrations ranging from 4.1 ppm to 15 ppm; and an unknown benzene compound at an estimated concentration of 14 ppm.
- TP-2B: Detection of 5 unknown semivolatile compounds with estimated concentrations ranging from 110 ppm to 640 ppm; 16 unknown alkane compounds with estimated concentrations ranging from 100 ppm to 430 ppm; and an unknown isomer with a estimated concentration of 160 ppm.

5.3 Alcohols

The soil samples acquired from exploratory excavations TP-1 and TP-2 were tested using a General Chromatography analysis for the presence of 5 specific alcohol compounds. The results of this testing are illustrated in Table 3.

Table 3: General Chromatography for Alcohols (In Parts Per Million)

(Phase IV Analytical Results - Soil Samples Collected 8-27-92)

Compound	TP-1	TP-2A	TP-2B
N Butanol	170	35*	25
Iso Butanol	250	6.9	25
Methanol	320	27*	670*
Isopropanol	290	15*	54

Compound	TP-1	TP-2A	TP-2B
Ethanol	230	6.3	66

* Results obtained from diluted sample rerun due to saturation in original run.

As illustrated in the table, all soil samples which were tested indicated the presence of each targeted alcohol compound. Soil samples TP-2A and TP-2B exhibited concentrations of some alcohol compounds which exceeded the scale of the gas chromatograph. These samples were diluted and rerun due to the saturation encountered in the original run. The alcohol compounds which are listed in Table 3 are common constituents of furniture finishing materials.

6. Summary

The following items summarize the results of ENSCI's Phase IV investigation:

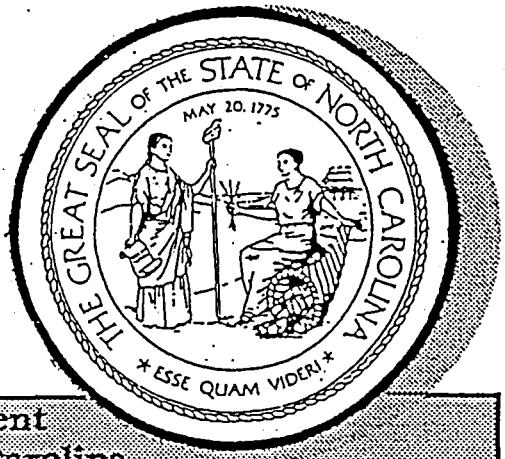
- The locations of buried drums and fill materials indicate that multiple trenches containing buried drums may be located underlying the west side of the parking lot of the TFI facility. These burial trenches generally run parallel to one another in a north-south orientation. The trenches which were encountered occupy a zone approximately 25 feet wide.
- A total 27 buried drums were retrieved during this investigation. The drums contained constituents of furniture manufacturing and finishing materials. Field analysis conducted with the HazCat chemical identification system indicates that some of these compounds are characteristic hazardous materials.
- Analysis of three soil samples retrieved from areas immediately adjacent to buried drums indicates that some soil underlying the trench locations has been impacted by compounds commonly found in furniture finishing materials. The full extent of soil contamination is unknown at this time.

Appendix B

Exploratory Excavation and Drum Contents Descriptions

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

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



Division of Environmental Management
Raleigh, North Carolina

Reprint from North Carolina Administrative Code: 15A NCAC 2B .0308
Current through: February 1, 1993

SECTION .0300 - ASSIGNMENT OF STREAM CLASSIFICATIONS

.0301 CLASSIFICATIONS: GENERAL

(a) Schedule of Classifications. The classifications assigned to the waters of the State of North Carolina are set forth in the schedules of classifications and water quality standards assigned to the waters of the river basins of North Carolina, 15A NCAC 2B .0302 to .0317. These classifications are based upon the existing or contemplated best usage of the various streams and segments of streams in the basin, as determined through studies and evaluations and the holding of public hearings for consideration of the classifications proposed.

(b) Stream Names. The names of the streams listed in the schedules of assigned classifications were taken as far as possible from United States Geological Survey topographic maps. Where topographic maps were unavailable, U.S. Corps of Engineers maps, U.S. Department of Agriculture soil maps, and North Carolina highway maps were used for the selection of stream names.

(c) Classifications. The classifications assigned to the waters of North Carolina are denoted by the letters WS-I, WS-II, WS-III, WS-IV, WS-V, B, C, SA, SB, and SC in the column headed "class." A brief explanation of the "best usage" for which the waters in each class must be protected is given as follows:

Fresh Waters

Class WS-I:	waters protected as water supplies which are in natural and undeveloped watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-II:	waters protected as water supplies which are generally in predominantly undeveloped watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-III:	waters protected as water supplies which are generally in low to moderately developed watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-IV:	waters protected as water supplies which are generally in moderately to highly developed watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-V:	waters protected as water supplies which are generally upstream and draining to Class WS-IV waters; no categorical restrictions on watershed development or treated wastewater discharges are required, however, the Commission or its designee may apply appropriate management requirements as deemed necessary for the protection of downstream receiving waters (15A NCAC 2B .0203); suitable for all Class C uses;
Class B:	primary recreation and any other usage specified by the "C" classification;
Class C:	aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture.

Tidal Salt Waters

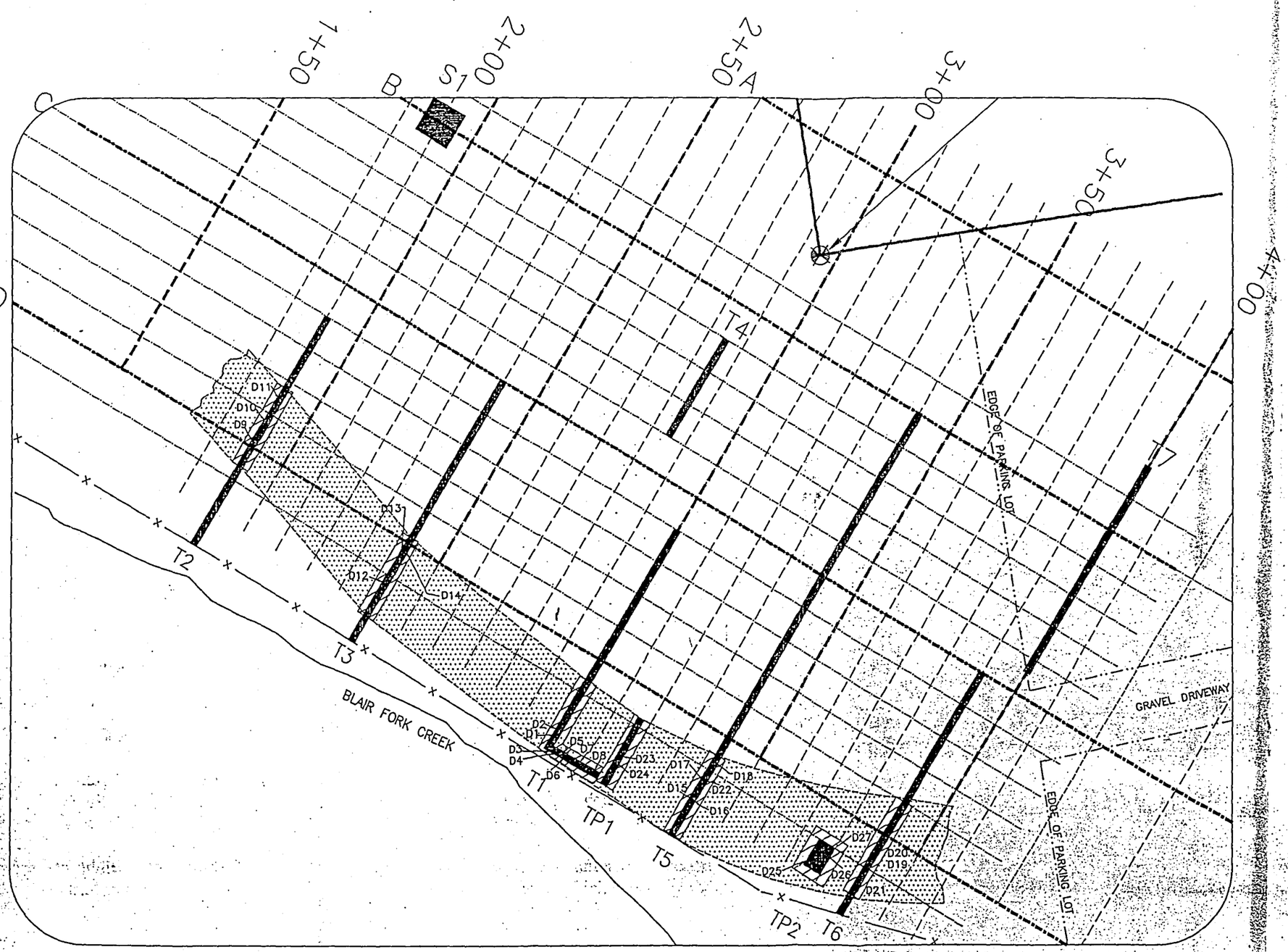
Class SA:	shellfishing for market purposes and any other usage specified by the "SB" and "SC" classification;
Class SB:	primary recreation and any other usage specified by the "SC" classification;
Class SC:	aquatic life propagation and survival, fishing, wildlife, and secondary recreation.

.0308 CATAWBA RIVER BASIN

Name of Stream	Description	Class	Classification Date	Classification Index No.
	Catawba River			
CATAWBA RIVER (Rhodhiss Lake below elevation 995)	From Johns River to Rhodhiss Dam	WS-IV&B CA	8/3/92	11-(37)
Johns River	From source to Gragg Prong (previously called Anthony Creek)	C Tr	3/1/62	11-38-(1)
Honey Branch	From source to Johns River	C	3/1/62	11-38-2
Wildcat Branch	From source to Johns River	C	3/1/62	11-38-3
Anthony Bolick Branch (Anthony Creek)	From source to Johns River	C Tr	7/1/73	11-38-4
Thunderhole Branch	From source to Johns River	C	3/1/62	11-38-5
China Creek	From source to Thunderhole Branch	C Tr	7/1/73	11-38-5-1
Long Branch	From source to China Creek	C	3/1/62	11-38-5-1-1
New Years Creek	From source to Thunderhole Creek	C Tr	7/1/73	11-38-5-2
Phillips Creek	From source to Thunderhole Creek	C	3/1/62	11-38-5-3
Curtis Creek	From source to Thunderhole Creek	C Tr	7/1/73	11-38-5-4
Persimmon Branch	From source to Curtis Creek	C	3/1/62	11-38-5-4-1
Gibbert Branch	From source to Johns River	C Tr	7/1/73	11-38-6
Stein Branch	From source to Johns River	C Tr	7/1/73	11-38-7
Crooked Branch	From source to Johns River	C	3/1/62	11-38-8
Orchard Branch (Long Branch)	From source to Crooked Creek	C	3/1/62	11-38-8-1
Johns River	From Gragg Prong to Reids Creek	B	7/1/73	11-38-(9)
Gragg Prong	From source to Johns River	C Tr	3/1/62	11-38-10
Racket Creek	From source to Gragg Prong	C Tr	3/1/62	11-38-10-1
Dixon Creek	From source to Racket Creek	C	3/1/62	11-38-10-1-1
Green Mountain Creek	From source to Dixon Creek	C	3/1/62	11-38-10-1-1-1
White Spring Branch	From source to Racket Creek	C	3/1/62	11-38-10-1-2
Ballew Creek (Bellows Creek)	From source to Racket Creek	C	3/1/62	11-38-10-1-3
Dare Coffee Branch	From source to Racket Creek	C	3/1/62	11-38-10-1-4
Tough Hill Branch	From source to Gragg Prong	C	3/1/62	11-38-10-2
Anthony Creek	From source to Gragg Prong	C Tr	3/1/62	11-38-10-3
Big Branch	From source to Anthony Creek	C Tr	3/1/62	11-38-10-3-1
Woodruff Branch	From source to Anthony Creek	C Tr	3/1/62	11-38-10-3-2
Cooper Branch	From source to Johns River	B	3/1/62	11-38-11
Walnut Bottom Creek	From source to Johns River	B	3/1/62	11-38-12
Dyson Creek	From source to Johns River	B	3/1/62	11-38-13
Shop Branch	From source to Johns River	B	3/1/62	11-38-14
Globe Mountain Branch	From source to Johns River	B	3/1/62	11-38-15
Burntfield Branch	From source to Johns River	B	3/1/62	11-38-16
Coldwater Creek (Cold A. Creek)	From source to Johns River	B Tr	7/1/73	11-38-17
Pinchgut Creek	From source to Johns River	B	3/1/62	11-38-18
Cline Creek	From source to Johns River	B	3/1/62	11-38-19
McLean Branch	From source to Johns River	B	3/1/62	11-38-20
Lick Branch	From source to Johns River	B	3/1/62	11-38-21
House Branch	From source to Johns River	B	7/1/73	11-38-23
Hopewell Branch	From source to Johns River	B	7/1/73	11-38-24

.0308 CATAWBA RIVER BASIN

Name of Stream	Description	Class	Classification Date	Classification Index No.
Johns River	From a point 0.5 mile upstream of Sims Branch to a point 0.7 mile downstream of N.C. Hwy. 18	WS-IV HQW	8/3/92	11-38-(35.5)
Sims Branch	From source to a point 0.4 mile upstream of mouth	C	3/1/62	11-38-36-(1)
Sims Branch	From a point 0.4 mile upstream of mouth to Johns River	WS-IV	8/3/92	11-38-36-(2)
Johns River	From a point 0.7 mile downstream of N.C. Hwy. 18 to Rhodhiss Lake, Catawba River	WS-IV HQW CA	8/3/92	11-38-(36.5)
Lower Creek	From source to to Caldwell County SR 1143	C	9/1/74	11-39-(0.5)
Zacks Fork Creek	From source to Lower Creek	C	8/3/92	11-39-1
Town Creek	From source to Lower Creek	C	9/1/74	11-39-2
Spainhour Creek	From source to Lower Creek	C	4/1/82	11-39-3
Blair Fork	From source to Spainhour Creek	C	9/1/74	11-39-3-1
Greasy Creek	From source to Lower Creek	C	9/1/74	11-39-4
Millers Creek	From source to Lower Creek	C	9/1/74	11-39-5
Abingdon Creek	From source to Lower Creek	C	9/1/74	11-39-6
Lower Creek	From Caldwell County SR 1143 to a point 0.7 mile downstream of Bristol Creek	WS-IV	8/3/92	11-39-(6.5)
Husband Creek	From source to a point 0.5 mile upstream of Celia Creek	C	9/1/74	11-39-7-(1)
Husband Creek	From a point 0.5 mile upstream of Celia Creek to Lower Creek	WS-IV	8/3/92	11-39-7-(2)
Celia Creek	From source to a point 0.5 mile upstream of Caldwell County SR 1325	C	9/1/74	11-39-7-1-(1)
Celia Creek	From a point 0.5 mile upstream of Caldwell County SR 1325 to Husband Cr.	WS-IV	8/3/92	11-39-7-1-(2)
Bristol Creek	From source to Lower Creek	WS-IV	8/3/92	11-39-8
White Mill Creek	From source to Bristol Creek	WS-IV	8/3/92	11-39-8-1
Lower Creek	From a point 0.7 mile downstream of Bristol Creek to Rhodhiss Lake, Catawba River	WS-IV CA	8/3/92	11-39-(9)
Jumping Branch	From source to a point 0.6 mile upstream of mouth	WS-IV	8/3/92	11-40-(1)
Jumping Branch	From a point 0.6 mile upstream of mouth to Lake Rhodhiss Lake, Catawba River	WS-IV CA	8/3/92	11-40-(2)
Smoky Creek	From source to a point 0.6 mile upstream of mouth	WS-IV	8/3/92	11-41-(1)
Smoky Creek	From a point 0.6 mile upstream of mouth Lake Rhodhiss Lake, Catawba River	WS-IV CA	8/3/92	11-41-(2)
Howard Creek (Propst Creek)	From source to Secrets Creek	WS-IV	8/3/92	11-42-(1)



LEGEND

- AREAS OF ENCOUNTERED FILL MATERIALS
- BOUNDARY OF AREA SUSPECTED TO CONTAIN DEBRIS
- TEST EXCAVATION AREA
- D1 — LOCATION OF RECOVERED, BURIED DRUM

0 5 10 15 20 25 30 45 60

GRAPHIC SCALE IN FEET
1"=30'

ENSCI® CORPORATION
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED	CITY: LENOIR	STATE: NORTH CARO
TITLE: RETRIEVED DRUM LOCATION MA		
SCALE: 1"=30'	DWN BY: DJ	FIGURE: 3
	DWG NAME: TFI-GRD2	
DATE: 9/21/92	CK BY: TL	JOB #: H92061

Exploratory Excavation T1

Date: 8-24-29

Location: L-shaped trench, approximately 85 feet in length, total depth ranged from 5 to 10 feet below grade. Located on grid line 3+00 (see Figure 3).

Fill materials encountered:

Fill materials encountered in this excavation were limited to the western side of the excavation. The fill materials extended approximately 25 feet to the east from the western end of the trench, at a fence located on the western border of the subject area. No distinct burial pattern could be delineated based on the observations of the placement of fill materials in this excavation. Disturbed soil encountered in the zone of fill exhibited a strong solvent odor. Headspace analysis of these soils using the PID indicated readings ranging from 300 to 700 parts per million. Large amounts of glue have been incorporated into the far western end of the trench.

A total of eight drums were retrieved from excavation T1. The location of each recovered drum is presented in Figure 3. Following is a brief description of each drum which was retrieved in this excavation.

- Drum D1: A 55-gallon steel closed head drum. The drum was found to be fairly competent condition, although some rust and pinhole leaks were observed. The drum primarily contained a brown to beige liquid (see HazCat sheet 1). The bottom one-third of the drum contained a brown solid material (see HazCat sheet 2). The drum remains onsite in an overpack drum.
- Drum D2: A 55-gallon open head steel drum. The drum was in poor condition: rusted, leaking and slightly crushed. It primarily contained a brown solid material (see HazCat sheet 2), as well as some brown liquid (see HazCat sheet 1), which was transferred to a competent 55-gallon drum. The crushed drum containing the remaining solids was placed in a rolloff box.
- Drum D3: A 55-gallon steel closed head drum. The drum was retrieved in poor condition, crushed and rusted. It contained a small amount of solid material. Due to the condition of the drum, a sample of this material could not be acquired for field analysis. The drum was placed in an overpack drum and remains onsite.
- Drum D4: A 55-gallon open-head steel container. The drum was found slightly crushed and rusted without its top. It was approximately 80% full of stratified light gray and red solids (see HazCat sheet 5). The drum was overpacked and remains onsite.
- Drum D5: A 55-gallon open-head steel container. When the drum was retrieved, its top was crushed, and large holes and rust were observed. It was approximately 60% full of a brown to yellow solid material (see Hazcat sheet 3). The drum was

(7)

TRIGON
ENGINEERING CONSULTANTS, INC.

Geotechnical, Environmental,
Construction Materials, & Roofing Engineers

P.O. Box 18846•Zip 27419-8846•313 Gallimore Dairy Rd. Greensboro, N.C. 27409•(919) 668-0093

July 01, 1991

Thomasville Industries, Inc.
Post Office Box 339
Thomasville, North Carolina 27360

Attention: Ms. Sherry Stookey

Reference: Preliminary Closure Investigation for Woodtreatment Vat
Lenoir, North Carolina
Trigon Job No. 015-91-058

Dear Ms. Stookey:

This report is issued as a summary to our recently completed field investigation at the reference site. The report describes field activities, laboratory results, and our recommendations associated with the referenced site. The work performed was authorized by Thomasville Furniture Industries, Inc. and performed in accordance with Trigon Proposal No. 015-91-076-P.

It is our understanding that the Lenoir Facility, previously operated a woodtreatment vat for lumber. The treatment vat reportedly contained 4500 gallons of a wood preservative and a fungicide solution. Additionally, it is our understanding that the treatment vat had not been used for the last fifteen (15) years.

In order to perform our investigation, Trigon constructed one groundwater monitoring well and performed two soil test borings. A groundwater sample and soil samples were retrieved for laboratory analysis of purgeable halocarbons, phenols and leachable metals.

FIELD ACTIVITIES

On May 22, 1991, Trigon mobilized a Mobile B-61 truck mounted drill rig to the site. Preceding drilling activities at the site, the drill rig and tools were decontaminated with a high pressure steam cleaner to prevent the possible introduction of contamination to the site. Additionally, during the boring activities, the drill rig and tools were decontaminated using a high pressure steam cleaner between each hole to prevent the possibility of cross-contamination of bore holes. Soil samples were retrieved by means of a split-spoon sampling device during drilling. The split-spoon was decontaminated in a solution of AlcoNox detergent and distilled water between samples and steam cleaned between each boring.

Trigon constructed one (1) groundwater monitoring well (MW-1) and completed two (2) soil test borings (B-1, B-2) at the site (Figure 1). The groundwater monitoring well was constructed using 6 1/4" inside diameter hollow stem augers (HSA), and the two soil test borings were advanced with 3 1/4" inside diameter HSA's. Soil samples were retrieved from both the groundwater monitoring well boring and the two soil test borings by means of driving a split-spoon sampler. Groundwater monitoring well construction record and soil test boring logs were kept for the monitoring well (MW-1) and for the two soil test borings B-1 and B-2 (Appendix A). The groundwater monitoring well was terminated at a depth of approximately 19.6 feet below the surface of the ground and the two soil test borings were terminated at depths of approximately 20.0 feet below the surface of the ground.

The soil samples which were retrieved from the groundwater monitoring well and the soil test borings were screened in the field with an organic vapor analyzer (OVA) for volatile organics. (Table 1). The OVA operates by flame ionization detection (FID). OVA screening for the soil samples revealed values of 0 to 220 parts per million (ppm). Soil samples selected for laboratory analysis after field screening with the OVA were analyzed for phenols by EPA method 604, purgeable halocarbons by EPA method SW-846 No. 8010, and by toxic characteristic leachate procedure (TCLP) for RCRA metals. Soil samples for laboratory analysis were collected from MW-1 at 3.5 feet - 5.0 feet, 8.5 feet -10.0 feet, 11.0 feet - 12.0 feet; from soil test boring B-1 at 11.0 feet - 12.5 feet, 13.5 feet - 15.0 feet; and from soil test boring B-2 at 3.5 feet - 5.0 feet, 8.5 feet - 10.0 feet, and 11.0 feet - 12.5 feet. Chain of custody records were kept throughout the sampling procedure, transportation to the laboratory, and laboratory analysis (Appendix B).

The groundwater monitoring well (MW-1) was constructed of two-inch diameter schedule 40 PVC Pipe and had a screen with a slot size of 0.010 inches. Once the boring for MW-1 was terminated, the well screen (15 feet) was inserted into the soil boring. A solid piece of 2-inch PVC Pipe was then screwed into the screen section and extended approximately 3.1 feet above the ground surface. A fine filter sand pack was placed around the screen and extended two feet above the top of the screen. A two foot sealing layer of bentonite pellets were placed above the sand pack to prevent overlying material from entering the screen area. Next, a grout pack was constructed using portland cement. Finally, a protective stick-up cover with a lock was installed to prevent unauthorized tampering of the groundwater monitoring well.

The groundwater monitoring well (MW-1) was developed with a oil-less pneumatic blatter pump. Approximately 32 gallons of water was removed from the well which is equivalent to approximately 5.4 well volumes. The well volume on May 23, 1991 for well MW-1 was approximately 5.9 gallons. Field measurements were taken from the well prior to sampling and during sampling. The field measurements included static water level (11.8 feet) below the top of casing, temperature (20.0°C initially, 21.7°C final, ph (6.5 initial, 6.5 final), well volume (5.9 gallons), and OVA screening (0 ppm).

Prior to sampling the well, an equipment blank was performed on the laboratory prepared bailer. The purpose of the equipment blank is to verify field sampling practices and laboratory analytical procedures. After performing the equipment blank, three well volumes were purged from the well with the dedicated laboratory prepared bailer. The water sample

from well MW-1 and the equipment blank were placed in laboratory prepared containers. The water samples which were collected were analyzed for purgeable halocarbons by EPA method 601 and total RCRA metals. The water sample which was collected for metals was filtered in the field with a 0.45 micron filter. The purpose of filtering the water sample was to remove suspended particles that could interfere with the metals analysis. The samples, once placed in laboratory containers, were packaged in coolers with ice packs (4°C) and transported to Industrial and Environmental Analyst, Inc. (IEA) for analysis. A chain of custody record was kept throughout the sampling, transportation to the laboratory, and laboratory analysis. (Appendix B)

LABORATORY ANALYSIS

The soil samples retrieved from the groundwater monitoring well (MW-1) and the two soil test borings (B-1, B-2) revealed results below quantitation limits for the phenols and the purgeable halocarbons. The results from the soil samples analyzed for leachable metals by the TCLP extraction procedure did reveal barium and lead. Barium was present in MW-1 soils at 3.5 feet - 5.0 feet, at a concentration of 1.2 milligrams per liter (mg/l); B-1 at 13.5 feet - 15.0 feet, at a concentration of 1.1 mg/l; B-2 at 3.5 feet -5.0 feet at a concentration of 1.6 mg/l. Lead was present in MW-1 at 3.5 feet - 5.0 feet at a concentration of 0.038 mg/l; B-2 at 3.5 feet - 5.0 feet at a concentration of 0.054 mg/l (Appendix C).

The water samples from the monitoring well (MW-1) and the equipment blank were analyzed for purgeable halocarbons and total RCRA metals. The laboratory results as reported by IEA revealed results from the water sample taken in well MW-1 below quantitation limits for total metals and purgeable halocarbons. The equipment blank which was analyzed for purgeable halocarbons revealed 1, 1, 1-tricloroethane at 3 micrograms per liter (Appendix C).

CONCLUSIONS AND RECOMMENDATIONS

Trigon constructed one groundwater monitoring well and performed two soil test borings at the subject site adjacent to the former woodtreatment vat. The soil samples which were retrieved from the soil test borings were analyzed by IEA and did not reveal any significant concentrations of compounds tested. Additionally, one equipment blank was performed on the laboratory bailer used for sampling and purging of groundwater monitoring well MW-1. The equipment blank revealed 1, 1, 1-tricloroethane at 3 micrograms per liter. However, the analysis of the groundwater from monitoring well MW-1 did not reveal any concentrations above the quantitation limits for purgeable halocarbons. This would indicate that the equipment blank had picked up traces of contamination (1-1-1-trichloroethane) during shipment and/or during laboratory analysis. The water sample which was analyzed for total RCRA metals did not reveal any concentrations above quantitation limits.

The analysis of the soil samples by toxic characteristic leachate procedure (TCLP) for RCRA metals did reveal barium in the ground-water monitoring well (MW-1) soil sample and in the two soil test boring (B-1, B-2) soil samples. However, the concentration detected is far below the

regulatory level for the two metals detected. The highest concentration of barium was detected in the soil sample from boring B-2 at a concentration of 1.6 mg/l. The regulatory level for barium is 100 mg/l. Similarly, the highest concentration of lead detected was from soil test boring B-2 at a concentration of 0.054 mg/l. The regulatory level for lead is 5.0 mg/l. The amounts detected are far below regulatory levels.

Trigon recommends that no additional work be performed with the soil at the points tested and with the groundwater location tested. Due to field and laboratory analysis, the subject site appears to be well below regulatory levels for action.

Trigon Engineering Consultants, Inc. appreciates this opportunity to be of continued service to Thomasville Furniture Industries, Inc. Should there be any questions concerning this report, please contact us at your convenience.

Very truly yours,
TRIGON ENGINEERING CONSULTANTS, INC.

J. Scott Pearce

J. Scott Pearce
Project Geologist

Kirk L. Rife
Director Environmental Affairs

Eric N. Johnson

Eric N. Johnson, P.E.
Senior Project Engineer

JSP:KLR:ENJ/pmt
Enclosures

TRIGON

TRIGON ENGINEERING CONSULTANTS, INC.
SUMMARY OF OVA MONITORING
TABLE 1

Job Name: Wood Treatment Vat
Job Location: Lenoir, North Carolina
Job No: 015-91-058
Date: June 28, 1991

Boring	Sample Number	Depth (feet)	OVA[1] (Field) (ppm)[2]	Comments
B-1	1	1.0 - 2.5	0	
	2	3.5 - 5.0	0	
	3	6.0 - 7.5	0	
	4	8.5 - 10.0	19	
	5	11.0 - 12.5	220	S.T. 11:15 a.m.
	6	13.5 - 15.0	90	S.T. 11:28 a.m.
	7	16.0 - 17.5	12	
	8	18.5 - 20.0	2.2	
MW-1	1	1.0 - 2.5	0	
	2	3.5 - 5.0	0.4	S.T. 2:30 p.m.
	3	6.0 - 7.5		No Recovery
	4	8.5 - 10.0	100	S.T. 2:45 p.m.
	5	11.0 - 12.5	45	S.T. 3:00 p.m.
	6	13.5 - 15.0	38	
	7	16.0 - 17.5	38	
	8	18.5 - 20.0	3	

Notes: [1]Organic Vapor Analyzer (OVA) measures the concentration of organic vapors in the air.
[2]ppm = parts per million
S.T. = Sample Time
W.S. = Workspace
B.Z. = Breathing Zone

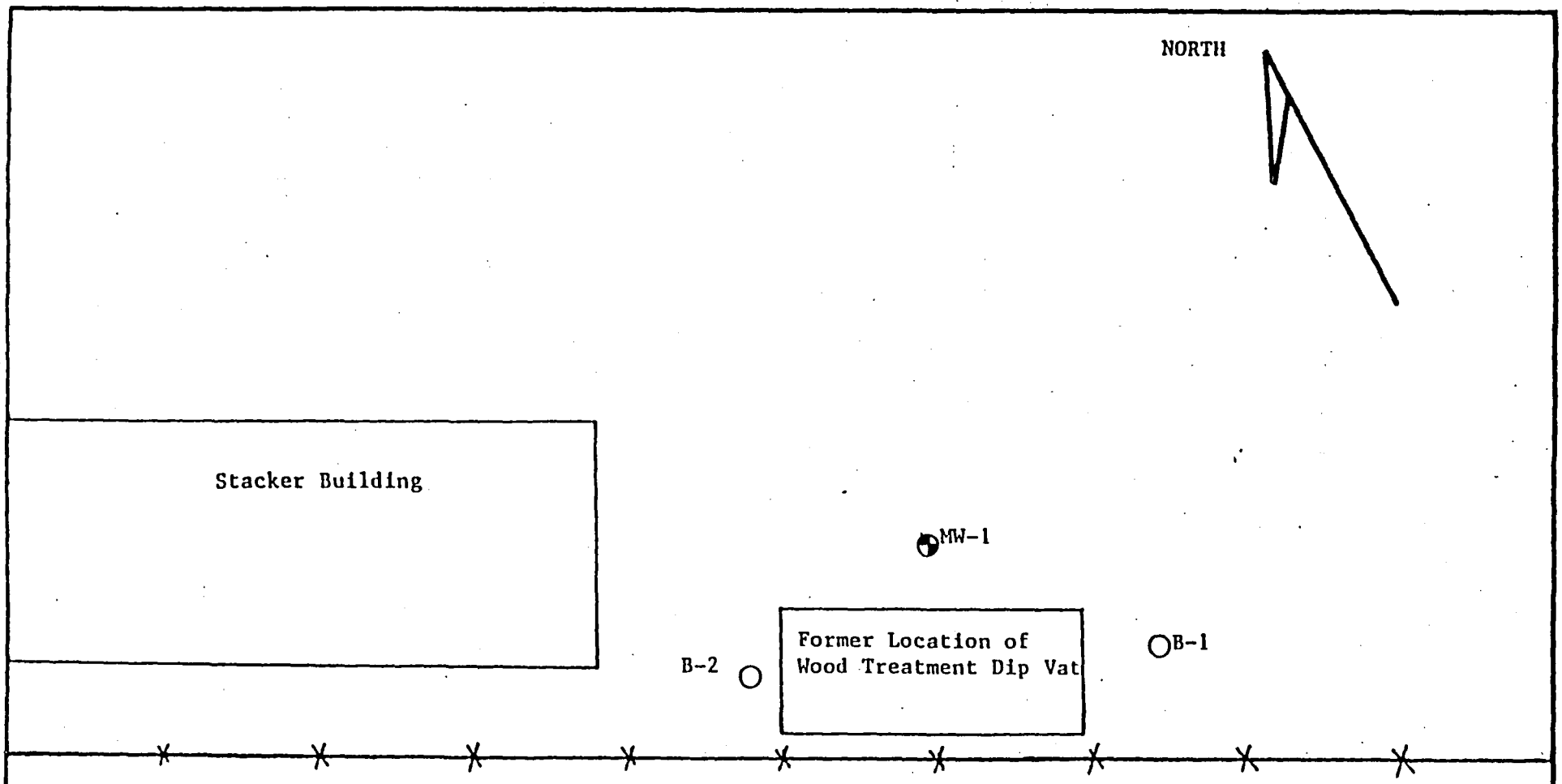
TRIGON ENGINEERING CONSULTANTS, INC.
SUMMARY OF OVA MONITORING
TABLE 1

Job Name: Wood Treatment Vat
Job Location: Lenoir, North Carolina
Job No: 015-91-058
Date: June 28, 1991

Boring	Sample Number	Depth (feet)	OVA[1] (Field) (ppm)[2]	Comments
B-2	1	1.0 - 2.5	0	
	2	3.5 - 5.0	3	S.T. 8:10 a.m.
	3	6.0 - 7.5	2	
	4	8.5 - 10.0	10	S.T. 8:30 a.m.
	5	11.0 - 12.5	100	S.T. 8:40 a.m.
	6	13.5 - 15.0	40	
	7	16.0 - 17.5	20	
	8	18.5 - 20.0	7	

Notes: [1]Organic Vapor Analyzer (OVA) measures the concentration of organic vapors in the air.
[2]ppm = parts per million
S.T. = Sample Time
W.S. = Workspace
B.Z. = Breathing Zone

APPENDIX A



LEGEND

- Groundwater Monitoring Well
- Soil Test Boring
- Hurricane Fence

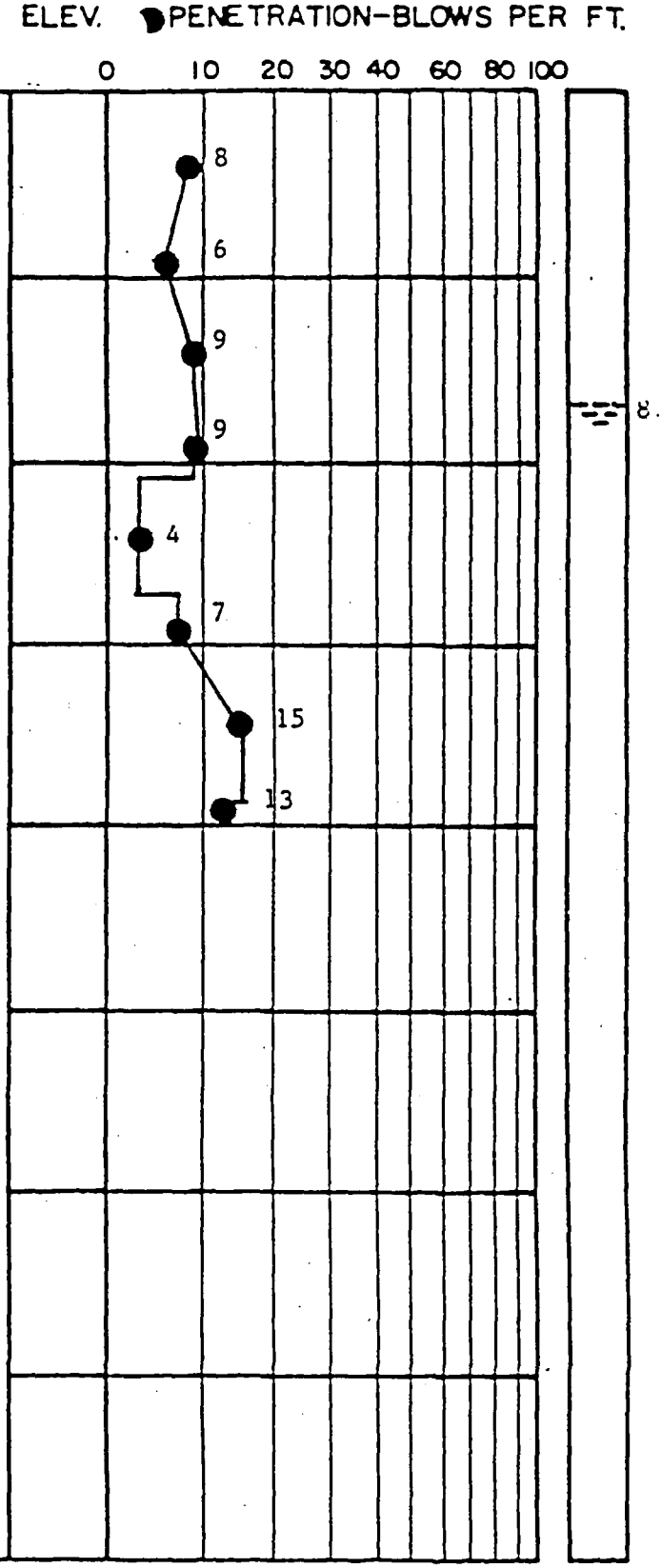
TRIGON ENGINEERING CONSULTANTS, INC.
GREENSBORO, NORTH CAROLINA

SCALE: None	APPROVED BY	DRAWN BY JSP
DATE: 06/27/91		

Thomasville Furniture Industries, Inc.
Lenoir, North Carolina

Location of Soil Test Boring and Groundwater Monitoring Well	DRAWING NUMBER Figure 1

DEPTH FT.	DESCRIPTION	ELEV.
0.0		
0.8	Concrete	
	Firm to Stiff Orange Brown Micaceous Clayey Medium to Fine Sandy SILT-Fill	
8.4		
	Loose Grey Black Micaceous Silty Medium to Fine SAND-Alluvial	
10.5		
	Soft Black Grey Micaceous Fine Sandy Clayey SILT-Organics-Alluvial	
13.8		
	Very Loose Black Grey Micaceous Silty Medium to Fine SAND-Organics-Alluvial	
15.5		
	Firm Grey Black and White Micaceous Silty Coarse to Fine SAND-Organics-Alluvial	
19.6		
20.0	Firm Tan Grey and Brown Micaceous Silty Coarse to Fine SAND-Cobbles-Alluvial	
	Boring Terminated	



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

TEST BORING RECORD

BORING NO. MW-1
DATE DRILLED 05/22/91
JOB NO. 015-91-058

TRIGON

DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 11. PHONE (919) 733-3083

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

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR Trigon Engineering Consultants, Inc.

DRILLER REGISTRATION NUMBER 813

STATE WELL CONSTRUCTION PERMIT NUMBER: 13-0221-WM-0051

WELL LOCATION: (Show sketch of the location below)

Nearest Town: Lenoir, North Carolina

County: Caldwell

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

OWNER Thomasville Furniture Industries, Inc.

ADDRESS 315 Elizabeth Street, N.W. (Street or Route No.)

Lenior, NC (City or Town / State / Zip Code)

DATE DRILLED 05/22/91 USE OF WELL Monitoring

TOTAL DEPTH 20.0 CUTTINGS COLLECTED ☒ Yes ☐ No

DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No

STATIC WATER LEVEL: 11.8 FT. ☐ above ☒ below TOP OF CASING.

TOP OF CASING IS 3.1 FT. ABOVE LAND SURFACE

YIELD (gpm): N/A METHOD OF TEST N/A

WATER ZONES (depth): 8.6'

CHLORINATION: Type N/A Amount N/A

CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0.0	5.0	2"	SCH40	PVC

GROUT:

	Depth From	Depth To	Material	Method
	0.0	2.0	Cement	Slue

SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	5.0	20.0	.2 in.	.010 in.	PVC

GRAVEL PACK:

	Depth From	Depth To	Size	Material
	4.0	20.0	C-33	Fine Sand

REMARKS: Bentonite Seal From 2.0 to 4.0

DRILLING LOG

Depth From	Depth To	Formation Description
0.0	0.8	Concrete
0.8	8.4	Firm to Stiff Orange-Brown Micaceous Clayey Medium to F Sandy SILT-Fill
8.4	10.5	Loose Grey Black Micaceous Silty Medium to Fine SAND- Alluvial
10.5	13.8	Soft Black Grey Micaceous Fi Sandy Clayey SILT-Organics- Alluvial
13.8	15.5	Very Loose Black Grey Micace Silty Medium to Fine SAND- Organics-Alluvial
15.5	19.6	Continued On Back -

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.

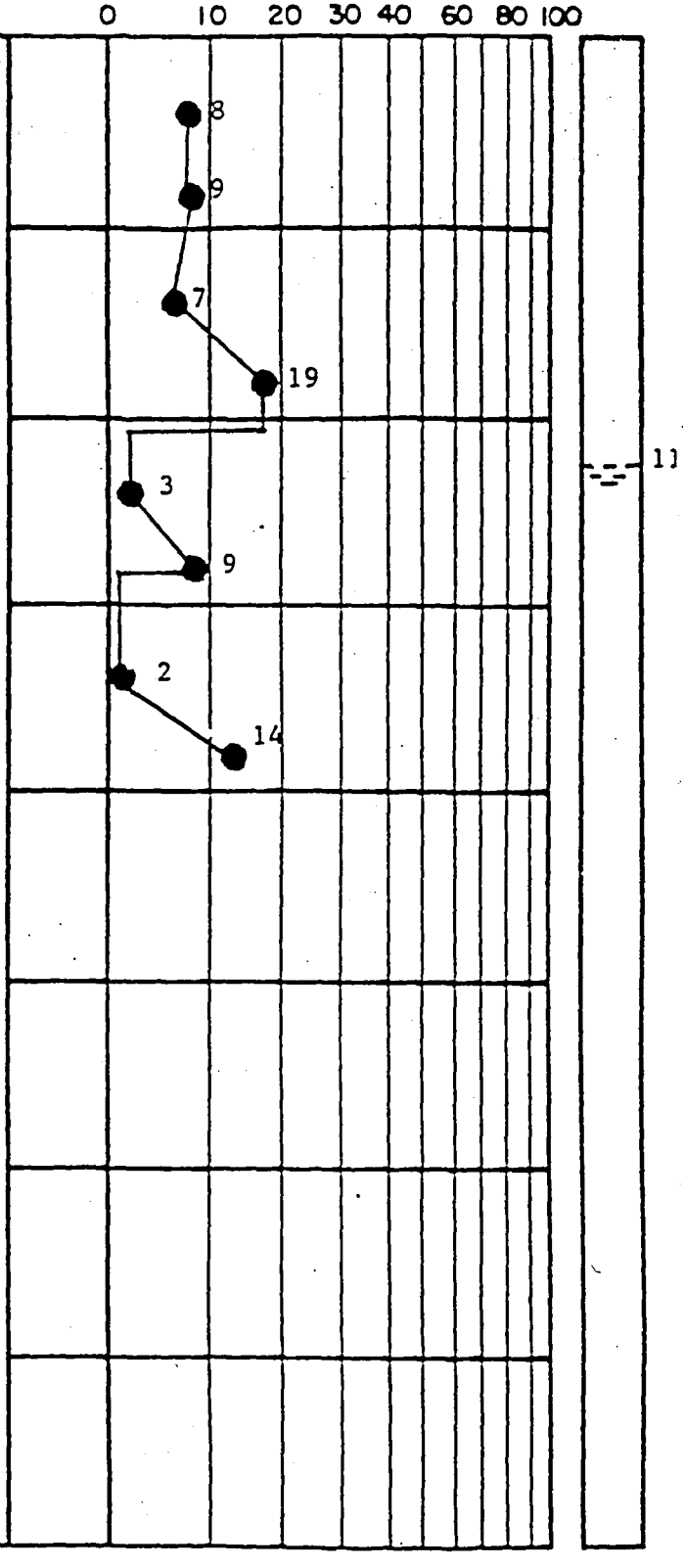
J. Scott Pearce - Trigon 05/22/91

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.	DE RIPTION	ELEV.
0.0	Firm and Stiff Orange Brown and Yellow Micaceous Clayey Coarse to Fine Sandy SILT-Fill	
9.5	Firm Black Grey Micaceous Silty Clayey Medium to Fine SAND-Cobbles-Alluvial	
10.5	Soft Black Grey Micaceous Silty Medium to Fine Sandy CLAY-Organics-Alluvial	
14.6	Loose Black Grey Micaceous Silty Coarse to Fine SAND-Organics-Alluvial	
16.9	Soft Black Grey Micaceous Fine Sandy Clayey SILT-Alluvial	
19.7	Firm Tan Grey Micaceous Silty Coarse to Fine SAND-Trace Organics	
20.0	Boring Terminated	



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.

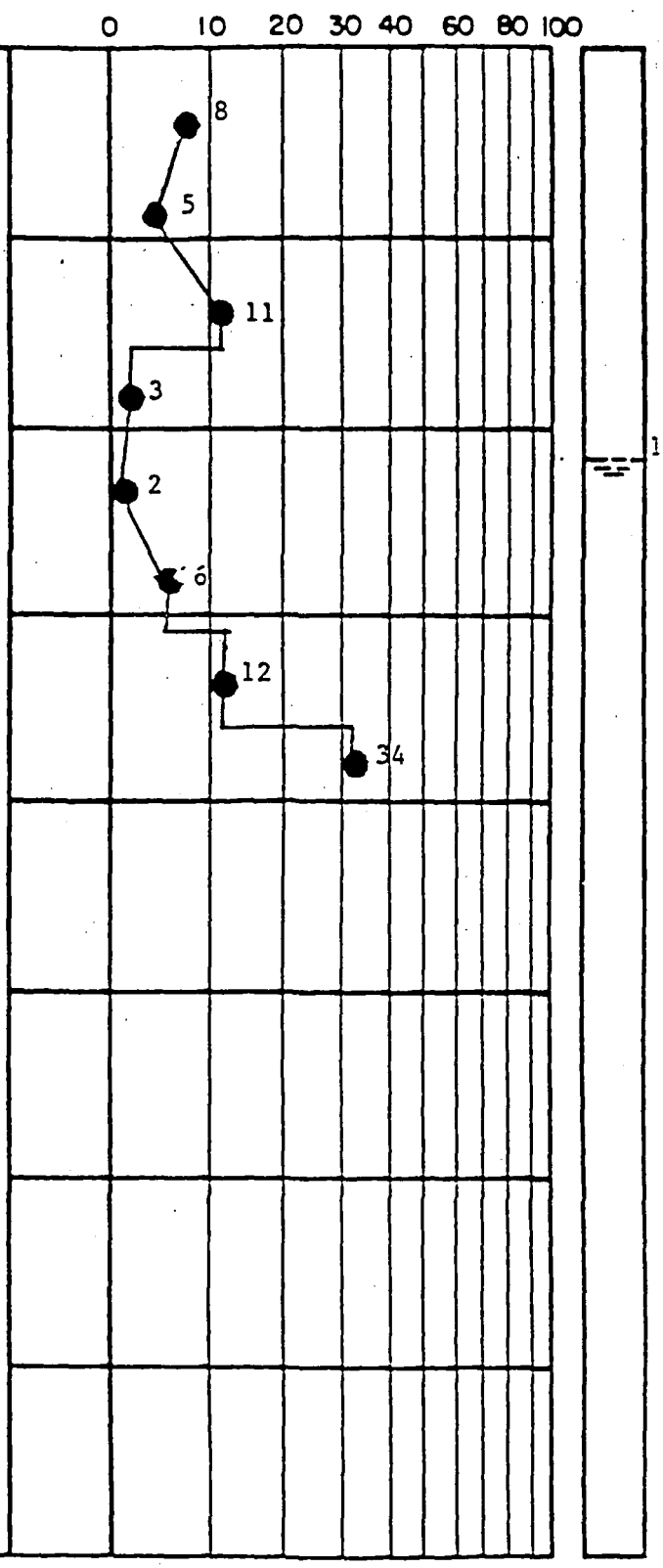
UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE-24 HR.
WATER TABLE-1 HR.
CAVE-IN DEPTH

TEST BORING RECORD

BORING NO. B-1
DATE DRILLED 05/22/91
JOB NO. 015-91-058

TRIGON

DEPTH FT.	DESCRIPTION	ELEV
0.0		
0.7	Asphalt and Gravel	
	Firm to Stiff Orange Brown Micaceous Clayey Coarse to Fine Sandy SILT-Fill	
8.0	Soft Black Grey Micaceous Fine Sandy CLAY-Organics-Alluvial	
14.0	Loose Black Grey Micaceous Silty Medium to Fine SAND-Organics-Alluvial	
15.5	Firm Black Grey Micaceous Silty Coarse to Fine SAND-Organics-Alluvial	
18.0	Dense Tan Brown Micaceous Silty Coarse to Fine SAND-Alluvial	
20.0	Boring Terminated	



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

TEST BORING RECORD

BORING NO. B-2
DATE DRILLED 05/23/91
JOB NO. 015-91-058

TRIGON

APPENDIX B

iea testing company
3000 WESTON PKWY.
CARY, N.C. 27513

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER _____

NO: 21142

PROJECT # 015-91-058

PROJECT NAME

SAMPLERS: (SIGNATURE) J. Scott Pearce

SAMPLE I.D.	DATE	TIME	COMP	GRAB	STATION LOCATION	# OF CONTAINERS	MATRIX SOIL	MATRIX WATER	8010	604	TCLP RCRA Metals Screen	601	Total RCRA Metals
B-1	5-22-91	11:15 AM		X	B-1(11.0-12.5)	3	X		X	X			
B-1	5-22-91	11:28 AM		X	B-1(13.5-15.0)	1	X				X		
MW-1	5-22-91	2:39 PM		X	MW-1(3.5-5.0)	1	X				X		
MW-1	5-22-91	2:45 PM		X	MW-1 (8-5-10.0)	2	X		X				
MW-1	5-22-91	3:00 PM		X	MW-1 (11.0-12.5)	1	X			X			
B-2	5-23-91	8:10 AM		X	B-2(3.5-5.0)	1	X				X		
B-2	5-23-91	8:30 AM		X	B-2(8.5-10.0)	1	X			X			
B-2	5-23-91	8:40 AM		X	B-2(11.0-12.5)	2	X		X				
MW-1	5-23-91	11:40 AM		X	MW-1 Eq. BLK	3		X				X	
MW-1	5-23-91	11:58 AM		X	MW-1	4		X				X	

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
J. Scott Pearce	5-24-91	7:58 AM	[illegible]		
RELINQUISHED BY (SIGNATURE)	**DATE**	**TIME**	**RECEIVED FOR LAB BY**	**DATE**	**TIME**
			Christine [illegible]	5/24/91	1230

IEA QUOTE NO.	IEA RUSH NO.
PROJECT MANAGER (PLEASE PRINT)	**P.O. NO.**
J. Scott Pearce	

IEA REMARKS

IEA # 471-165

FIELD REMARKS

1. 601 Blank ~~not~~ has no preservative. (MW-
2. MW-1 total RCRA metals has no preservative.

an environmental testing company
P.O. Box 12846
Research Triangle Park, North Carolina 27709
(919) 677-0090
FAX (919) 677-0427

June 25, 1991

J. Scott Pearce
Trigon Engineering, Inc.
313 Gallimore Dairy Rd.
Greensboro, NC 27419

Reference IEA Report No.: 471165
Project ID: 015-91-058

Dear Mr. Pearce,

Transmitted herewith are the results of analyses on ten samples submitted to our laboratory.

Please see the enclosed reports for your results.

Very truly yours,

IEA, Inc.

Linda F. Mitchell
Director, Technical Support Services

State Certification:

Alabama - #40210	New Jersey - #67719	South Carolina - #99021
Georgia - #816	Tennessee - #00296	North Carolina - #37720
Kansas - #E-158	Virginia - #00179	#84

IEA LABORATORY RESULTS

IEA Project #: 471-165
Client Name: Trigon Engineering, Inc.

Sample #	Client ID	Parameter	Results		Date Analyzed
		TOTAL METALS:			
10	MW-1	Arsenic	<0.005	mg/L	06/01/91
10	MW-1	Barium	<0.10	mg/L	06/04/91
10	MW-1	Cadmium	<0.01	mg/L	06/04/91
10	MW-1	Chromium	<0.03	mg/L	06/04/91
10	MW-1	Lead	<0.005	mg/L	05/31/91
10	MW-1	Mercury	<0.0005	mg/L	06/04/91
10	MW-1	Selenium	<0.005	mg/L	06/01/91
10	MW-1	Silver	<0.05	mg/L	06/04/91

PHENOLS
EPA 604 COMPOUND LIST

IEA Sample Number: 471-165-8
Sample Identification: B-2 (8.5-10.0)
Date Extracted: 06/06/91
Date Analyzed: 06/22/91 By: Joaquin

Number	Compound	Quantitation Limit (ug/kg)	Results Concentration (ug/kg)
1	Phenol	350	BQL
2	2-Chlorophenol	350	BQL
3	2-Nitrophenol	350	BQL
4	2,4-Dimethylphenol	350	BQL
5	2,4-Dichlorophenol	350	BQL
6	4-Chloro-3-methylphenol	350	BQL
7	2,4,6-Trichlorophenol	350	BQL
8	2,4-Dinitrophenol	350	BQL
9	4-Nitrophenol	350	BQL
10	2-Methyl-4,6-dinitrophenol	350	BQL
11	Pentachlorophenol	350	BQL

Comments:

BQL = Below Quantitation Limit

PHENOLS
EPA 604 COMPOUND LIST

IEA Sample Number: 471-165-1
Sample Identification: B-1 (11.0-12.5)
Date Extracted: 06/06/91
Date Analyzed: 06/22/91 By: Joaquin

Number	Compound	Quantitation Limit (ug/kg)	Results Concentration (ug/kg)
1	Phenol	350	BQL
2	2-Chlorophenol	350	BQL
3	2-Nitrophenol	350	BQL
4	2,4-Dimethylphenol	350	BQL
5	2,4-Dichlorophenol	350	BQL
6	4-Chloro-3-methylphenol	350	BQL
7	2,4,6-Trichlorophenol	350	BQL
8	2,4-Dinitrophenol	350	BQL
9	4-Nitrophenol	350	BQL
10	2-Methyl-4,6-dinitrophenol	350	BQL
11	Pentachlorophenol	350	BQL

Comments:

BQL = Below Quantitation Limit

PHENOLS
EPA 604 COMPOUND LIST

IEA Sample Number: 471-165-7
Sample Identification: MW-1 (11.0-12.5)
Date Extracted: 06/06/91
Date Analyzed: 06/22/91 By: Joaquin

Number	Compound	Quantitation Limit (ug/kg)	Results Concentration (ug/kg)
1	Phenol	350	BQL
2	2-Chlorophenol	350	BQL
3	2-Nitrophenol	350	BQL
4	2,4-Dimethylphenol	350	BQL
5	2,4-Dichlorophenol	350	BQL
6	4-Chloro-3-methylphenol	350	BQL
7	2,4,6-Trichlorophenol	350	BQL
8	2,4-Dinitrophenol	350	BQL
9	4-Nitrophenol	350	BQL
10	2-Methyl-4,6-dinitrophenol	350	BQL
11	Pentachlorophenol	350	BQL

Comments:

BQL = Below Quantitation Limit

PURGEABLE HALOCARBONS
SW-846 METHOD 8010 COMPOUNDS

IEA Sample Number: 471-165-1
Sample Identification: B-1 (11.0-12.5)
Date Analyzed: 06/05/91 By: Averill

Number	Compound	Quantitation Limit (ug/kg)	Results Concentration (ug/kg)
1	Bromodichloromethane	1.0	BQL
2	Bromoform	1.0	BQL
3	Bromomethane	1.0	BQL
4	Carbon tetrachloride	1.0	BQL
5	Chlorobenzene	1.0	BQL
6	Chloroethane	1.0	BQL
7	2-Chloroethylvinyl ether	1.0	BQL
8	Chloroform	1.0	BQL
9	Chloromethane	1.0	BQL
10	Dibromochloromethane	1.0	BQL
11	1,2-Dichlorobenzene	1.0	BQL
12	1,3-Dichlorobenzene	1.0	BQL
13	1,4-Dichlorobenzene	1.0	BQL
14	1,1-Dichloroethane	1.0	BQL
15	1,2-Dichloroethane	1.0	BQL
16	1,1-Dichloroethene	1.0	BQL
17	total 1,2-Dichloroethene	1.0	BQL
18	1,2-Dichloropropane	1.0	BQL
19	cis-1,3-Dichloropropene	1.0	BQL
20	trans-1,3-Dichloropropene	1.0	BQL
21	Methylene chloride	1.0	BQL
22	1,1,2,2-Tetrachloroethane	1.0	BQL
23	Tetrachloroethene	1.0	BQL
24	1,1,1-Trichloroethane	1.0	BQL
25	1,1,2-Trichloroethane	1.0	BQL
26	Trichloroethene	1.0	BQL
27	Trichlorofluoromethane	1.0	BQL
28	Vinyl Chloride	1.0	BQL

Comments:

BQL = Below Quantitation Limit

PURGEABLE HALOCARBONS
SW-846 METHOD 8010 COMPOUNDS

IEA Sample Number: 471-165-5
Sample Identification: MW-1 (8.5-10.0)
Date Analyzed: 06/05/91 By: Averill

Number	Compound	Quantitation Limit (ug/kg)	Results Concentration (ug/kg)
1	Bromodichloromethane	1.0	BQL
2	Bromoform	1.0	BQL
3	Bromomethane	1.0	BQL
4	Carbon tetrachloride	1.0	BQL
5	Chlorobenzene	1.0	BQL
6	Chloroethane	1.0	BQL
7	2-Chloroethylvinyl ether	1.0	BQL
8	Chloroform	1.0	BQL
9	Chloromethane	1.0	BQL
10	Dibromochloromethane	1.0	BQL
11	1,2-Dichlorobenzene	1.0	BQL
12	1,3-Dichlorobenzene	1.0	BQL
13	1,4-Dichlorobenzene	1.0	BQL
14	1,1-Dichloroethane	1.0	BQL
15	1,2-Dichloroethane	1.0	BQL
16	1,1-Dichloroethene	1.0	BQL
17	total 1,2-Dichloroethene	1.0	BQL
18	1,2-Dichloropropane	1.0	BQL
19	cis-1,3-Dichloropropene	1.0	BQL
20	trans-1,3-Dichloropropene	1.0	BQL
21	Methylene chloride	1.0	BQL
22	1,1,2,2-Tetrachloroethane	1.0	BQL
23	Tetrachloroethene	1.0	BQL
24	1,1,1-Trichloroethane	1.0	BQL
25	1,1,2-Trichloroethane	1.0	BQL
26	Trichloroethene	1.0	BQL
27	Trichlorofluoromethane	1.0	BQL
28	Vinyl Chloride	1.0	BQL

Comments:

BQL = Below Quantitation Limit

PURGEABLE HALOCARBONS
SW-846 METHOD 8010 COMPOUNDS

IEA Sample Number: 471-165-6
Sample Identification: B-2 (11.0-12.5)
Date Analyzed: 06/05/91 By: Smith

Number	Compound	Quantitation Limit (ug/kg)	Results Concentration (ug/kg)
1	Bromodichloromethane	1.0	BQL
2	Bromoform	1.0	BQL
3	Bromomethane	1.0	BQL
4	Carbon tetrachloride	1.0	BQL
5	Chlorobenzene	1.0	BQL
6	Chloroethane	1.0	BQL
7	2-Chloroethylvinyl ether	1.0	BQL
8	Chloroform	1.0	BQL
9	Chloromethane	1.0	BQL
10	Dibromochloromethane	1.0	BQL
11	1,2-Dichlorobenzene	1.0	BQL
12	1,3-Dichlorobenzene	1.0	BQL
13	1,4-Dichlorobenzene	1.0	BQL
14	1,1-Dichloroethane	1.0	BQL
15	1,2-Dichloroethane	1.0	BQL
16	1,1-Dichloroethene	1.0	BQL
17	total 1,2-Dichloroethene	1.0	BQL
18	1,2-Dichloropropane	1.0	BQL
19	cis-1,3-Dichloropropene	1.0	BQL
20	trans-1,3-Dichloropropene	1.0	BQL
21	Methylene chloride	1.0	BQL
22	1,1,2,2-Tetrachloroethane	1.0	BQL
23	Tetrachloroethene	1.0	BQL
24	1,1,1-Trichloroethane	1.0	BQL
25	1,1,2-Trichloroethane	1.0	BQL
26	Trichloroethene	1.0	BQL
27	Trichlorofluoromethane	1.0	BQL
28	Vinyl Chloride	1.0	BQL

Comments:

BQL = Below Quantitation Limit

PURGEABLE HALOCARBONS
EPA 601 COMPOUND LIST

IEA Sample Number: 471-165-9
Sample Identification: MW-1 Eq. Blk
Date Analyzed: 06/04/91 By: Averill

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Chloromethane	1.0	BQL
2	Bromomethane	1.0	BQL
3	Vinyl Chloride	1.0	BQL
4	Dichlorodifluoromethane	1.0	BQL
5	Chloroethane	1.0	BQL
6	Methylene chloride	1.0	BQL
7	Trichlorofluoromethane	1.0	BQL
8	1,1-Dichloroethene	1.0	BQL
9	1,1-Dichloroethane	1.0	BQL
10	1,2-Dichloroethene (total)	1.0	BQL
11	Chloroform	1.0	BQL
12	1,2-Dichloroethane	1.0	BQL
13	1,1,1-Trichloroethane	1.0	3
14	Carbon tetrachloride	1.0	BQL
15	Bromodichloromethane	1.0	BQL
16	1,2-Dichloropropane	1.0	BQL
17	cis-1,3-Dichloropropene	1.0	BQL
18	Trichloroethene	1.0	BQL
19	trans-1,3-Dichloropropene	1.0	BQL
20	1,1,2-Trichloroethane	1.0	BQL
21	Dibromochloromethane	1.0	BQL
22	2-Chloroethylvinyl ether	1.0	BQL
23	Bromoform	1.0	BQL
24	Tetrachloroethene	1.0	BQL
25	1,1,2,2-Tetrachloroethane	1.0	BQL
26	Chlorobenzene	1.0	BQL
27	1,3-Dichlorobenzene	1.0	BQL
28	1,2-Dichlorobenzene	1.0	BQL
29	1,4-Dichlorobenzene	1.0	BQL

Comments:

BQL = Below Quantitation Limit

PURGEABLE HALOCARBONS
EPA 601 COMPOUND LIST

IEA Sample Number: 471-165-10
Sample Identification: MW-1
Date Analyzed: 06/04/91 By: Averill

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Chloromethane	1.0	BQL
2	Bromomethane	1.0	BQL
3	Vinyl Chloride	1.0	BQL
4	Dichlorodifluoromethane	1.0	BQL
5	Chloroethane	1.0	BQL
6	Methylene chloride	1.0	BQL
7	Trichlorofluoromethane	1.0	BQL
8	1,1-Dichloroethene	1.0	BQL
9	1,1-Dichloroethane	1.0	BQL
10	1,2-Dichloroethene (total)	1.0	BQL
11	Chloroform	1.0	BQL
12	1,2-Dichloroethane	1.0	BQL
13	1,1,1-Trichloroethane	1.0	BQL
14	Carbon tetrachloride	1.0	BQL
15	Bromodichloromethane	1.0	BQL
16	1,2-Dichloropropane	1.0	BQL
17	cis-1,3-Dichloropropene	1.0	BQL
18	Trichloroethene	1.0	BQL
19	trans-1,3-Dichloropropene	1.0	BQL
20	1,1,2-Trichloroethane	1.0	BQL
21	Dibromochloromethane	1.0	BQL
22	2-Chloroethylvinyl ether	1.0	BQL
23	Bromoform	1.0	BQL
24	Tetrachloroethene	1.0	BQL
25	1,1,2,2-Tetrachloroethane	1.0	BQL
26	Chlorobenzene	1.0	BQL
27	1,3-Dichlorobenzene	1.0	BQL
28	1,2-Dichlorobenzene	1.0	BQL
29	1,4-Dichlorobenzene	1.0	BQL

Comments:

BQL = Below Quantitation Limit

IEA LABORATORY RESULTS
TCLP SCREEN

IEA Project #: 471-165
Client Name: Trigon Engineering, Inc.

Sample #	Client ID	Parameter	Regulatory Level		Results		Date Analyzed
		TCLP METALS:					
2	B-1 (13.5-15.0)	Arsenic	5.0	mg/L	<0.025	mg/L	06/12/91
3	MW-1 (3.5-5.0)	Arsenic	5.0	mg/L	<0.025	mg/L	06/12/91
4	B-2 (3.5-5.0)	Arsenic	5.0	mg/L	<0.025	mg/L	06/12/91
2	B-1 (13.5-15.0)	Barium	100	mg/L	1.1	mg/L	06/05/91
3	MW-1 (3.5-5.0)	Barium	100	mg/L	1.2	mg/L	06/05/91
4	B-2 (3.5-5.0)	Barium	100	mg/L	1.6	mg/L	06/05/91
2	B-1 (13.5-15.0)	Cadmium	1.0	mg/L	<0.05	mg/L	06/05/91
3	MW-1 (3.5-5.0)	Cadmium	1.0	mg/L	<0.05	mg/L	06/05/91
4	B-2 (3.5-5.0)	Cadmium	1.0	mg/L	<0.05	mg/L	06/05/91
2	B-1 (13.5-15.0)	Chromium	5.0	mg/L	<0.15	mg/L	06/05/91
3	MW-1 (3.5-5.0)	Chromium	5.0	mg/L	<0.15	mg/L	06/05/91
4	B-2 (3.5-5.0)	Chromium	5.0	mg/L	<0.15	mg/L	06/05/91
2	B-1 (13.5-15.0)	Mercury	0.2	mg/L	<0.0025	mg/L	06/06/91
3	MW-1 (3.5-5.0)	Mercury	0.2	mg/L	<0.0025	mg/L	06/06/91
4	B-2 (3.5-5.0)	Mercury	0.2	mg/L	<0.0025	mg/L	06/06/91
2	B-1 (13.5-15.0)	Lead	5.0	mg/L	<0.025	mg/L	06/08/91
3	MW-1 (3.5-5.0)	Lead	5.0	mg/L	0.038	mg/L	06/08/91
4	B-2 (3.5-5.0)	Lead	5.0	mg/L	0.054	mg/L	06/08/91
2	B-1 (13.5-15.0)	Selenium	1.0	mg/L	<0.025	mg/L	06/10/91
3	MW-1 (3.5-5.0)	Selenium	1.0	mg/L	<0.025	mg/L	06/10/91
4	B-2 (3.5-5.0)	Selenium	1.0	mg/L	<0.025	mg/L	06/10/91
2	B-1 (13.5-15.0)	Silver	5.0	mg/L	<0.25	mg/L	06/05/91
3	MW-1 (3.5-5.0)	Silver	5.0	mg/L	<0.25	mg/L	06/05/91
4	B-2 (3.5-5.0)	Silver	5.0	mg/L	<0.25	mg/L	06/05/91

Comments:

*Please note that this report does not include matrix spike and corrected results as required in the TCLP Method (40 CFR, Part 261, Subpart C, Appendix I).

FORM TCLP-METLSCN Rev. 051591

Site Name: Thomasville Furniture Ind.
Site Number: NCD 054 290 770

Site Location: Lenoir, N.C.
Caldwell County
Latitude: 35 55 58.5
Longitude: 81 32 32.0

Date: May 03, 1993

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	416	416	162	162
>1/4 to 1/2 mile	869	1,285	339	501
>1/2 to 1 mile	3,054	4,339	1,382	1,883
>1 to 2 miles	6,509	10,848	2,682	4,565
>2 to 3 miles	4,317	15,165	1,746	6,311
>3 to 4 miles	5,860	21,025	2,416	8,727

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.

Ref. 32

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

4WD-WPB

RECEIVED
SEP 30 1993
SUPERFUND SECTION

Mr. Doug Rumford
CERCLA Branch
North Carolina Department of Environment,
Health and Natural Resources
P.O. Box 27687
Raleigh, North Carolina 27611-7687

Dear Mr. Rumford:

Enclosed please find the results of the private well sampling which was performed in conjunction with the Expanded Site Inspection of the Reliance Universal of KY site.

If you should have any additional data needs, please do not hesitate to call me at (404) 347-5065.

Sincerely yours,

Craig A. Benedikt

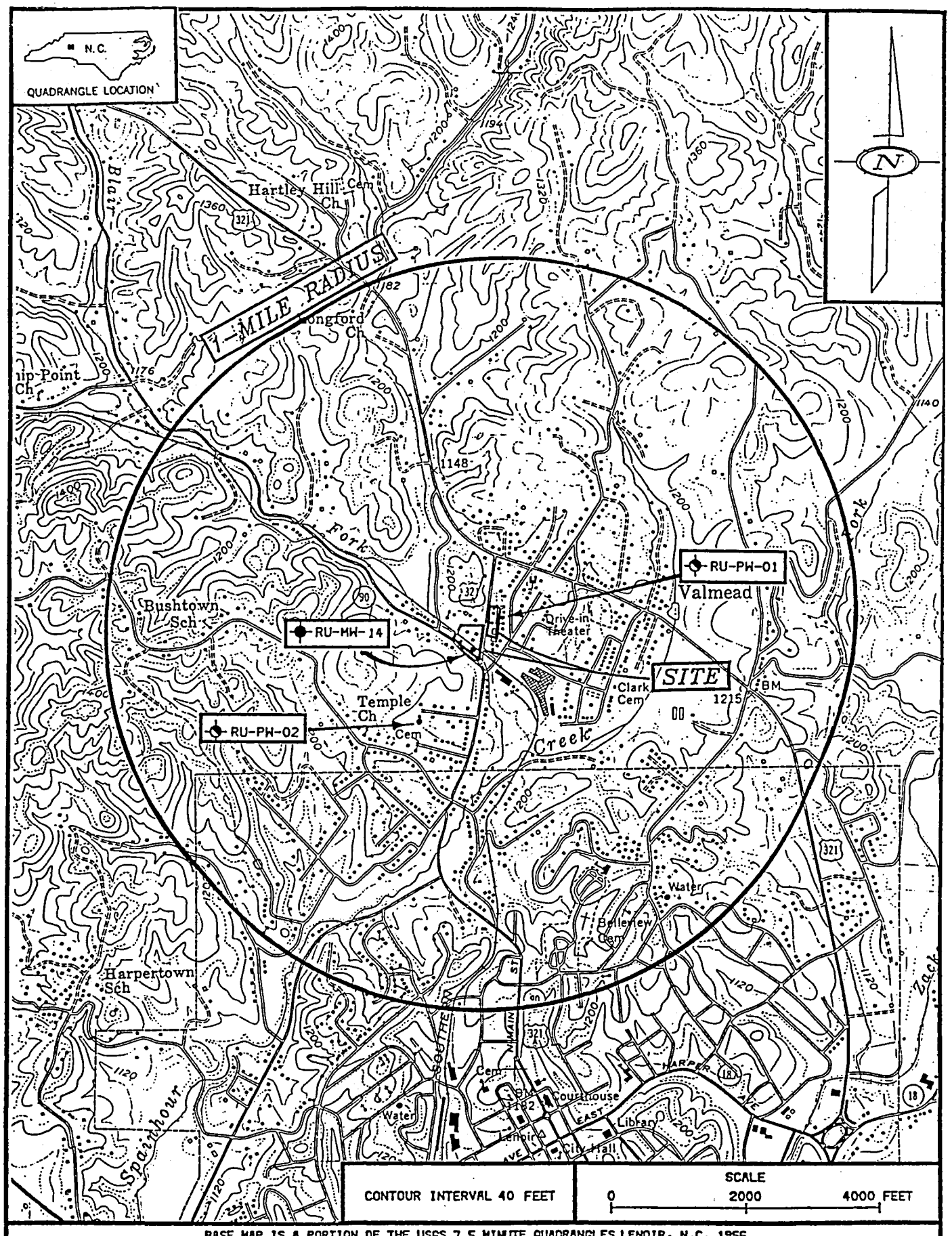
Craig A. Benedikt
EPA NC CERCLA Project Officer

Enclosure

TABLE 1
(Continued)

Sample Code	Sample Type	Location	Rationale
RU-SB-09	Subsurface Soil	North of the northern site entrance	To determine the absence or presence of contaminants
RU-SD-01	Sediment	In Blairs Fork Creek at western property boundary	To characterize background conditions for surface water
RU-SD-02	Sediment	Downstream of site at ~~Upstream side of~~ Hwy. 321-A bridge in Blairs Fork Creek	To determine the absence or presence of contaminants in Blairs Fork Creek
RU-PW-01	Groundwater	From private well at 210 Elizabeth St., NW (100' east of fenced stor. area	To characterize background conditions and to determine if private well is contaminated
RU-PW-02	Groundwater	From private well at 1327-A Boxwood PL., 1200' southwest of facility area	To determine the if the private well has been contaminated
RU-MW-14	Groundwater	From monitoring well number 14 (installed onsite for Levine-Fricke study, near ozonator)	To determine the absence or presence of groundwater contamination

RU - Reliance Universal
SS - Surface Soil
SB - Subsurface Soil
SD - Sediment
PW - Private Well
MW - Monitoring Well



BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLES LENOIR, N.C. 1956

GROUNDWATER SAMPLE LOCATION MAP
RELIANCE UNIVERSAL INC.
LENOIR, CALDWELL COUNTY, NORTH CAROLINA

FIGURE 5

TABLE 2
Field Measurements of Water Samples
Reliance Universal of Kentucky
Lenoir, Caldwell County, North Carolina

Sample Code	pH	Conductivity Umhos/cm	Temperature (degrees Farenheit)
RU–PW–01	5.82	1056	62.2
RU–PW–02	7.38	7.44	50
RU–MW–14	4.5	6970	71.7
RU–TB–01	6.97	3.49	51.8

RU – Reliance Universal
PW – Private Well
MW – Monitoring Well
TB – Trip Blank

wells onsite, the depth to groundwater is estimated to vary between five and ten feet below land surface (bls) with seasonal fluctuations in rainfall (Ref. 20, Figure 5). The direction of groundwater flow is generally to the southwest (Ref. 20, Figure 5).

Beneath the saprolite lies magmatic granitic gneiss - a bedrock characterized as foliated to massive, granitic to quartz diorite, and containing biotite and amphiboles (Refs. 23, p. 13; 24). Groundwater occurs in bedrock through its joint and fracture openings; however, water capacity of the saprolite is many times greater than that of bedrock. There is no indication of any confining layer between the saprolite and bedrock (Refs. 23, pp. 13, 22, 44, 45; 25, p. 28). Most of the drilled wells in Caldwell County are less than 200 feet deep, with an average depth of 123 feet, and an average yield of 9 gallons per minute. These wells utilize bedrock for potable water, whereas dug or bored wells average 30 feet in depth, and utilize saprolite for potable use (Ref. 23, p. 72).

5.2 Groundwater Pathway Targets

Anything in current

Most residences within the city limits of Lenoir obtain their water from the City of Lenoir water distribution system (Refs. 6, p. 23; 26). However, as of 1986, up to 300 houses within the city limits were served by private wells (Ref. 27). The Lenoir system obtains its water from an intake on Lake Rhodhiss, approximately 25 miles south of the city (Refs. 28, 29, 30). Several areas outside Lenoir are served by the Caldwell County Water System. Coverage areas of the Caldwell County Water System include many roads outside the Lenoir city limits, and are indicated on Reference 3. The county water system obtains its water from the cities of Lenoir and Granite Falls (Ref. 29).

Several homes within ½ mile of the site obtain drinking water from private wells (Refs. 6, 9). The nearest well is located at 210 Elizabeth Street, NW, east of the Reliance storage area (Ref. 6, p. 2). At least one other residence on Elizabeth Street, NW relies on groundwater for its potable water source (Ref. 9). Several residences on Boxwood Place, ¼ mile south of Reliance, also obtain their potable water from wells (Refs. 6, 9).

How many ft away?

TABLE 7
Summary of Inorganic Analytical Results
Groundwater and Sediment Samples

Reliance Universal of Kentucky
Lenoir, Caldwell County, North Carolina

	Background Sample	Onsite Well	Offsite Well	Background Sample	Downstream Sample
Sample Code	RU-PW-01	RU-MW-14	RU-PW-02	RU-SD-01	RU-SD-02
Analytes:	ug/l	ug/l	ug/l	mg/kg	mg/kg
Aluminum	20UJ	2200J	–	2800	3900
Arsenic	3UJ	15J	–	1UJ	–
Barium	12J	500J	9J	27	34
Beryllium	1UJ	2J	–	0.51J	0.59
Calcium	7000J	29000	6500J	150	210
Chromium	4UJ	23JN	–	5.1	8.4
Cobalt	3UJ	52J	–	3.3	3.4
Copper	20UJ	–	–	3.3	–
Iron	9UJ	140000J	–	6000	7600
Lead	3UJ	6J	–	3.3	5.4
Magnesium	3100J	7000J	1100J	850	1400
Manganese	1UJ	7900J	–	230	110
Nickel	5UJ	6J	–	2.1J	3.1
Potassium	1300J	4300J	1100J	920	1400
Selenium	4UJ	–	–	0.77U	2.4J
Sodium	5100J	6700J	4200J	29	28
Vanadium	3UJ	–	–	11	13
Zinc	10J	110J	–	16J	26J

– – Material was analyzed for but not detected above sample quantitation limit (SQL) MW – Monitoring Well

J – Estimated Value SD – Sediment RU – Reliance Universal

U – Material was analyzed for but not detected. The number given is the SQL. PW – Private Well

– Three times background concentration, or greater than or equal to SQL.

TABLE 8
Summary of Organics and PCBs Analytical Results Groundwater and Sediment Samples

Reliance Universal of Kentucky
Lenoir, Caldwell County, North Carolina

	Background Well	Onsite Well	Offsite Well	Background Sample	Downstream Sample
Sample Code	RU-PW-01	RU-MW-14	RU-PW-02	RU-SD-01	RU-SD-02
Purgeables:	ug/L	ug/L	ug/L	ug/kg	ug/kg
Acetone	10U	7100000J	–	13U	–
Methyl Ethyl Ketone	10U	9600J	–	13U	–
Methyl Isobutyl Ketone	10U	330000J	–	13U	–
Toluene	10U	18000	–	13U	–
Ethylbenzene	10U	40000J	–	13U	–
Xylene (Total)	10U	120000J	–	13U	42J
Unidentified Compounds/#	–	80000J/6	–	–	–
Extractables:					
Acenaphthene	10U	25J	–	430U	–
Benzo(a)anthracene	10U	–	–	430U	500
(3-and/or4-)methylphenol	10U	190	–	430U	–
Benzo(b and/or k)fluoranthene	10U	–	–	430U	740
Benzo-a-pyrene	10U	–	–	430U	280J
Chrysene	10U	–	–	430U	690
Indeno(1,2,3-cd)pyrene	10U	–	–	430U	98J
Benzo(ghi)perylene	10U	–	–	430U	66J
Naphthalene	10U	110	–	430U	–
Fluorene	10U	23J	–	430U	–
Fluoranthene	10U	32J	–	430U	–
Pyrene	10U	14J	–	430U	760
Phenanthrene	10U	43J	–	430U	–
Unidentified Compounds/#	–	2000J/7	–	5000J/2	3000J/2
PCBs:					
PCB-1254 (Aroclor 1254)	1.0U	3.5	–	43U	1400

– – Material was analyzed for but not detected above sample quantitation limit (SQL).

J – Estimated Value RU – Reliance Universal SD – Sediment

U – Material was analyzed for but not detected. The number given is the SQL. PW – Private Well MW – Monitoring Well

– Three times background concentration, or greater than or equal to SQL.

INORGANIC DATA QUALIFIERS REPORT

Case Number: 19715
Project Number: 93-0381
Site: Reliance Universal, Lenoir, NC

Element	Flag	Samples Affected	Reason
A. Water			
Sb, Pb, Mn, Ag, V	U	All positives > IDL, but < CRDL	Baseline instability
Al, Cu, Fe, Mg, Na	U	All positives > IDL, but	Positives in blanks
Cr	JN	All positives with Fe concentrations in solution > 16,000 ug/L	Suspected positive interference as noted in the blind ICS
Se	J	All	Matrix spike recovery - 59.6%
Cr	J	All	Matrix duplicate RPD - 139.4%
CN	J	All	Technical holding time exceeded with 15 days elapsing between sampling and analysis
CN	J	All	Sample pH < 12 when received by the laboratory
All Metals	J	All	Sample pH > 2.0 when received by the laboratory
Ni	J	MDES54	% RSD > 20% for ICP multiple exposures
B. Soil			
Sb, Cu, Pb, Mn, Ag, V	U	All positives > IDL, but < CRDL	Baseline instability
Fe, Zn	U	All positives > IDL, but < 10X contaminant level	Positives in blanks
Ag	JN	All positives with Fe concentrations in solution > 120,000 ug/L	Suspected positive interference as noted in the blind ICS
As	J	All	Matrix spike recovery - 61.6%
Sb	J R	All positives All negatives	Matrix spike recovery - 25.5%
Se	J R	All positives All negatives	Matrix spike recovery - 9.3% Matrix duplicate RPD - 90.1%
Zn	J	All	Serial dilution percent difference - 10.7%
Pb	J	MDES34	Duplicate MSA r <.995
Ni	J	MDES31, 37, 39, 46, & 49	% RSD > 20% for ICP multiple exposures
Be	J	MDES34, 35, & 49	% RSD > 20% for ICP multiple exposures

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/18/93

PROJECT NO. 93-0381 SAMPLE NO. 75801 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC
STATION ID: PW-01 COLLECTION START: 04/07/93 1515 STOP: 00/00/00
CASE NUMBER: 19715 SAS NUMBER: MD NUMBER: ES52

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
20UJ	ALUMINUM	1UJ	MANGANESE
20UJ	ANTIMONY	0.10UJ	MERCURY
3UJ	ARSENIC	5UJ	NICKEL
12J	BARIUM	1300J	POTASSIUM
1UJ	BERYLLIUM	4UJ	SELENIUM
2UJ	CADMIUM	4UJ	SILVER
7000J	CALCIUM	5100J	SODIUM
4UJ	CHROMIUM	3UJ	THALLIUM
3UJ	COBALT	NA	TIN
20UJ	COPPER	3UJ	VANADIUM
9UJ	IRON	10J	ZINC
3UJ	LEAD		
3100J	MAGNESIUM		

REMARKS
SAMPLE RECEIVED WITH A PH GREATER THAN 2

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/18/93

PROJECT NO. 93-0381 SAMPLE NO. 75802 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC
STATION ID: PW-02 COLLECTION START: 04/07/93 0946 STOP: 00/00/00
CASE NUMBER: 19715 SAS NUMBER: MD NUMBER: ES53

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
40UJ	ALUMINUM	1UJ	MANGANESE
20UJ	ANTIMONY	0.10UJ	MERCURY
3UJ	ARSENIC	5UJ	NICKEL
9J	BARIUM	1100J	POTASSIUM
1UJ	BERYLLIUM	4UJ	SELENIUM
2UJ	CADMIUM	4UJ	SILVER
6500J	CALCIUM	4200J	SODIUM
4UJ	CHROMIUM	3UJ	THALLIUM
3UJ	COBALT	NA	TIN
5UJ	COPPER	4UJ	VANADIUM
9UJ	IRON	5UJ	ZINC
4UJ	LEAD		
1100J	MAGNESIUM		

REMARKS
SAMPLE RECEIVED WITH A PH GREATER THAN 2

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/18/93

METALS DATA REPORT

** PROJECT NO. 93-0381 SAMPLE NO. 75803 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
** SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC
** STATION ID: MW-14 COLLECTION START: 04/07/93 1145 STOP: 00/00/00
** CASE NUMBER: 19715 SAS NUMBER: MD NUMBER: ES54

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
2200J	ALUMINUM	7900J	MANGANESE
20UJ	ANTIMONY	0.10UJ	MERCURY
15J	ARSENIC	6J	NICKEL
500J	BARIUM	4300J	POTASSIUM
2J	BERYLLIUM	4UJ	SELENIUM
2UJ	CADMIUM	10UJ	SILVER
29000	CALCIUM	6700J	SODIUM
23JN	CHROMIUM	3UJ	THALLIUM
52J	COBALT	NA	TIN
7UJ	COPPER	30UJ	VANADIUM
140000J	IRON	110J	ZINC
6J	LEAD		
7000J	MAGNESIUM		

REMARKS
SAMPLE RECEIVED WITH A PH GREATER THAN 2

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

INORGANIC DATA QUALIFIERS REPORT

Case Number: 19715
Project Number: 93-0381
Site: Reliance Universal, Lenoir, NC

Element	Flag	Samples Affected	Reason
A. Water			
Sb, Pb, Mn, Ag, V	U	All positives > IDL, but < CRDL	Baseline instability
Al, Cu, Fe, Mg, Na	U	All positives > IDL, but	Positives in blanks
Cr	JN	All positives with Fe concentrations in solution > 16,000 ug/L	Suspected positive interference as noted in the blind ICS
Se	J	All	Matrix spike recovery - 59.6%
Cr	J	All	Matrix duplicate RPD - 139.4%
CN	J	All	Technical holding time exceeded with 15 days elapsing between sampling and analysis
CN	J	All	Sample pH < 12 when received by the laboratory
All Metals	J	All	Sample pH > 2.0 when received by the laboratory
Ni	J	MDES54	% RSD > 20% for ICP multiple exposures
B. Soil			
Sb, Cu, Pb, Mn, Ag, V	U	All positives > IDL, but < CRDL	Baseline instability
Fe, Zn	U	All positives > IDL, but < 10X contaminant level	Positives in blanks
Ag	JN	All positives with Fe concentrations in solution > 120,000 ug/L	Suspected positive interference as noted in the blind ICS
As	J	All	Matrix spike recovery - 61.6%
Sb	J R	All positives All negatives	Matrix spike recovery - 25.5%
Se	J R	All positives All negatives	Matrix spike recovery - 9.3% Matrix duplicate RPD - 90.1%
Zn	J	All	Serial dilution percent difference - 10.7%
Pb	J	MDES34	Duplicate MSA r <.995
Ni	J	MDES31, 37, 39, 46, & 49	% RSD > 20% for ICP multiple exposures
Be	J	MDES34, 35, & 49	% RSD > 20% for ICP multiple exposures

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/18/93

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 93-0381 SAMPLE NO. 75801 SAMPLE TYPE: GROUNDWA
SOURCE: RELIANCE UNIVERSAL
STATION ID: PW-01
CASE.NO.: 19715 SAS NO.:

PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
CITY: LENOIR ST: NC
COLLECTION START: 04/07/93 1515 STOP: 00/00/00
D. NO.: ES52 MD NO: ES52

RESULTS	UNITS	PARAMETER
10UJ	UG/L	CYANIDE

REMARKS
HOLDING TIME EXCEEDED-CN
SAMPLE IMPROPERLY PRESERVED

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/18/93

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 93-0381 SAMPLE NO. 75802 SAMPLE TYPE: GROUNDWA	PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
SOURCE: RELIANCE UNIVERSAL	CITY: LENOIR ST: NC
STATION ID: PW-02	COLLECTION START: 04/07/93 0946 STOP: 00/00/00
CASE.NO.: 19715 SAS NO.:	D. NO.: ES53 MD NO: ES53

RESULTS	UNITS	PARAMETER
10UJ	UG/L	CYANIDE

REMARKS
HOLDING TIME EXCEEDED-CN
SAMPLE IMPROPERLY PRESERVED

REMARKS

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

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/18/93

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 93-0381 SAMPLE NO. 75803 SAMPLE TYPE: GROUNDWA
SOURCE: RELIANCE UNIVERSAL
STATION ID: MW-14
CASE NO.: 19715 SAS NO.:

PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
CITY: LENOIR ST: NC
COLLECTION START: 04/07/93 1145 STOP: 00/00/00
D. NO.: ES54 MD NO: ES54

RESULTS	UNITS	PARAMETER
10UJ	UG/L	CYANIDE

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

ORGANIC DATA QUALIFIER REPORT

Case Number 19715 Project Number 93-0381 SAS Number
Site ID. Reliance Universal, Lenoir, NC

Affected Samples	Compound or Fraction	Flag Used	Reason
Volatiles			
75803	acetone	J	erratic response factor continuing calibration
	2-butanone	J	erratic response factor continuing calibration
	4-methyl-2-pentanone	J	< quantitation limit
	ethylbenzene	J	> calibration range
	xylenes	J	> calibration range
75817	xylenes	J	high surrogate recovery
75818	4-methyl-2-pentanone	J	low internal standard recovery
	2-hexanone	J	low internal standard recovery
	tetrachloroethene	J	low internal standard recovery
	1,1,2,2-tetrachloroethane	J	low internal standard recovery
	toluene	J	low internal standard recovery
	chlorobenzene	J	low internal standard recovery
	ethylbenzene	J	low internal standard recovery
	styrene	J	low internal standard recovery
	xylene(total)	J	low internal standard recovery
Extractables			
75808-75827	phenol	R	unacceptable blind spike recovery
	acenaphthene	R	unacceptable blind spike recovery
75803	acenaphthene	J	< quantitation limit
	fluorene	J	< quantitation limit
	phenanthrene	J	< quantitation limit
	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
75811	2-methylnaphthalene	J	< quantitation limit
	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
	chrysene	J	< quantitation limit
	benzo(b)fluoranthene	J	< quantitation limit
	benzo(a)pyrene	J	< quantitation limit
75817	benzo(a)pyrene	J	< quantitation limit
	indeno(1,2,3-cd)pyrene	J	< quantitation limit
	benzo(g,h,i)perylene	J	< quantitation limit
75820	fluoranthene	J	< quantitation limit
75824	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
	benzo(a)anthracene	J	< quantitation limit
	chrysene	J	< quantitation limit
Pesticides			
75812	aroclor-1254	J	< quantitation limit
75813,814, 821,825	aroclor-1254	C	GC/MS confirmed

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 06/07/93

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** PROJECT NO. 93-0381   SAMPLE NO. 75801  SAMPLE TYPE: GROUNDWA   PROG ELEM: SSF   COLLECTED BY: L SOMMERVILLE **
** SOURCE: RELIANCE UNIVERSAL                                     CITY: LENOIR              ST: NC              **
** STATION ID: PW-01                                              COLLECTION START: 04/07/93  1515   STOP: 00/00/00 **
** CASE NUMBER: 19715          SAS NUMBER:                         D. NUMBER: ES52                              **
**                                                                                                                **
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UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
0.050U	ALPHA-BHC	0.50U	METHOXYCHLOR
0.050U	BETA-BHC	0.10U	ENDRIN KETONE
0.050U	DELTA-BHC	0.10U	ENDRIN ALDEHYDE
0.050U	GAMMA-BHC (LINDANE)	--	CHLORDANE (TECH. MIXTURE) /1
0.050U	HEPTACHLOR	0.050U	GAMMA-CHLORDANE /2
0.050U	ALDRIN	0.050U	ALPHA-CHLORDANE /2
0.050U	HEPTACHLOR EPOXIDE	5.0U	TOXAPHENE
0.050U	ENDOSULFAN I (ALPHA)	1.0U	PCB-1016 (AROCLOR 1016)
0.10U	DIELDRIN	2.0U	PCB-1221 (AROCLOR 1221)
0.10U	4,4'-DDE (P,P'-DDE)	1.0U	PCB-1232 (AROCLOR 1232)
0.10U	ENDRIN	1.0U	PCB-1242 (AROCLOR 1242)
0.10U	ENDOSULFAN II (BETA)	1.0U	PCB-1248 (AROCLOR 1248)
0.10U	4,4'-DDD (P,P'-DDD)	1.0U	PCB-1254 (AROCLOR 1254)
0.10U	ENDOSULFAN SULFATE	1.0U	PCB-1260 (AROCLOR 1260)
0.10U	4,4'-DDT (P,P'-DDT)		

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.
*C-CONFIRMED BY GCMS 1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.
2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 06/07/93

PROJECT NO. 93-0381 SAMPLE NO. 75802 SAMPLE TYPE: GROUNDWA
SOURCE: RELIANCE UNIVERSAL
STATION ID: PW-02
CASE NUMBER: 19715 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
CITY: LENOIR ST: NC
COLLECTION START: 04/07/93 0946 STOP: 00/00/00
D. NUMBER: ES53

UG/L	ANALYTICAL RESULTS
0.050U	ALPHA-BHC
0.050U	BETA-BHC
0.050U	DELTA-BHC
0.050U	GAMMA-BHC (LINDANE)
0.050U	HEPTACHLOR
0.050U	ALDRIN
0.050U	HEPTACHLOR EPOXIDE
0.050U	ENDOSULFAN I (ALPHA)
0.10U	DIELDRIN
0.10U	4,4'-DDE (P,P'-DDE)
0.10U	ENDRIN
0.10U	ENDOSULFAN II (BETA)
0.10U	4,4'-DDD (P,P'-DDD)
0.10U	ENDOSULFAN SULFATE
0.10U	4,4'-DDT (P,P'-DDT)

UG/L	ANALYTICAL RESULTS
0.50U	METHOXYCHLOR
0.10U	ENDRIN KETONE
0.10U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
0.050U	GAMMA-CHLORDANE /2
0.050U	ALPHA-CHLORDANE /2
5.0U	TOXAPHENE
1.0U	PCB-1016 (AROCLOR 1016)
2.0U	PCB-1221 (AROCLOR 1221)
1.0U	PCB-1232 (AROCLOR 1232)
1.0U	PCB-1242 (AROCLOR 1242)
1.0U	PCB-1248 (AROCLOR 1248)
1.0U	PCB-1254 (AROCLOR 1254)
1.0U	PCB-1260 (AROCLOR 1260)

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 06/07/93

** PROJECT NO. 93-0381 SAMPLE NO. 75803 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE **
** SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC **
** STATION ID: MW-14 COLLECTION START: 04/07/93 1145 STOP: 00/00/00 **
** CASE NUMBER: 19715 SAS NUMBER: D. NUMBER: ES54 **

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
0.050U	ALPHA-BHC	0.50U	METHOXYCHLOR
0.050U	BETA-BHC	0.10U	ENDRIN KETONE
0.050U	DELTA-BHC	0.10U	ENDRIN ALDEHYDE
0.050U	GAMMA-BHC (LINDANE)	--	CHLORDANE (TECH. MIXTURE) /1
0.050U	HEPTACHLOR	0.050U	GAMMA-CHLORDANE /2
0.050U	ALDRIN	0.050U	ALPHA-CHLORDANE /2
0.050U	HEPTACHLOR EPOXIDE	5.0U	TOXAPHENE
0.050U	ENDOSULFAN I (ALPHA)	1.0U	PCB-1016 (AROCLOR 1016)
0.10U	DIELDRIN	2.0U	PCB-1221 (AROCLOR 1221)
0.2U	4,4'-DDE (P,P'-DDE)	1.0U	PCB-1232 (AROCLOR 1232)
0.10U	ENDRIN	1.0U	PCB-1242 (AROCLOR 1242)
0.10U	ENDOSULFAN II (BETA)	1.0U	PCB-1248 (AROCLOR 1248)
0.10U	4,4'-DDD (P,P'-DDD)	3.5	PCB-1254 (AROCLOR 1254)
0.10U	ENDOSULFAN SULFATE	1.0U	PCB-1260 (AROCLOR 1260)
0.10U	4,4'-DDT (P,P'-DDT)		

REMARKS ***REMARKS***

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

ORGANIC DATA QUALIFIER REPORT

Case Number 19715 Project Number 93-0381 SAS Number
Site ID. Reliance Universal, Lenoir, NC

Affected Samples	Compound or Fraction	Flag Used	Reason
Volatiles			
75803	acetone	J	erratic response factor continuing calibration
	2-butanone	J	erratic response factor continuing calibration
	4-methyl-2-pentanone	J	< quantitation limit
	ethylbenzene	J	> calibration range
	xylenes	J	> calibration range
75817	xylenes	J	high surrogate recovery
75818	4-methyl-2-pentanone	J	low internal standard recovery
	2-hexanone	J	low internal standard recovery
	tetrachloroethene	J	low internal standard recovery
	1,1,2,2-tetrachloroethane	J	low internal standard recovery
	toluene	J	low internal standard recovery
	chlorobenzene	J	low internal standard recovery
	ethylbenzene	J	low internal standard recovery
	styrene	J	low internal standard recovery
	xylene(total)	J	low internal standard recovery
Extractables			
75808-75827	phenol	R	unacceptable blind spike recovery
	acenaphthene	R	unacceptable blind spike recovery
75803	acenaphthene	J	< quantitation limit
	fluorene	J	< quantitation limit
	phenanthrene	J	< quantitation limit
	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
75811	2-methylnaphthalene	J	< quantitation limit
	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
	chrysene	J	< quantitation limit
	benzo(b)fluoranthene	J	< quantitation limit
	benzo(a)pyrene	J	< quantitation limit
75817	benzo(a)pyrene	J	< quantitation limit
	indeno(1,2,3-cd)pyrene	J	< quantitation limit
	benzo(g,h,i)perylene	J	< quantitation limit
75820	fluoranthene	J	< quantitation limit
75824	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
	benzo(a)anthracene	J	< quantitation limit
	chrysene	J	< quantitation limit
Pesticides			
75812	aroclor-1254	J	< quantitation limit
75813,814, 821,825	aroclor-1254	C	GC/MS confirmed

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PURGEABLE ORGANICS DATA REPORT 06/07/93

PROJECT NO. 93-0381 SAMPLE NO. 75801 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC
STATION ID: PW-01 COLLECTION START: 04/07/93 1515 STOP: 00/00/00

CASE NO.: 19715 SAS NO.: D. NO.: ES52

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
10U	CHLOROMETHANE	10U	1,2-DICHLOROPROPANE
10U	BROMOMETHANE	10U	CIS-1,3-DICHLOROPROPENE
10U	VINYL CHLORIDE	10U	TRICHLOROETHENE(TRICHLOROETHYLENE)
10U	CHLOROETHANE	10U	DIBROMOCHLOROMETHANE
10U	METHYLENE CHLORIDE	10U	1,1,2-TRICHLOROETHANE
10U	ACETONE	10U	BENZENE
10U	CARBON DISULFIDE	10U	TRANS-1,3-DICHLOROPROPENE
10U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)	10U	BROMOFORM
10U	1,1-DICHLOROETHANE	10U	METHYL ISOBUTYL KETONE
10U	1,2-DICHLOROETHENE (TOTAL)	10U	METHYL BUTYL KETONE
10U	CHLOROFORM	10U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
10U	1,2-DICHLOROETHANE	10U	1,1,2,2-TETRACHLOROETHANE
10U	METHYL ETHYL KETONE	10U	TOLUENE
10U	1,1,1-TRICHLOROETHANE	10U	CHLOROBENZENE
10U	CARBON TETRACHLORIDE	10U	ETHYL BENZENE
10U	BROMODICHLOROMETHANE	10U	STYRENE
		10U	TOTAL XYLENES

REMARKS

REMARKS

FOOTNOTES
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*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PURGEABLE ORGANICS DATA REPORT 06/07/93

PROJECT NO. 93-0381 SAMPLE NO. 75802 SAMPLE TYPE: GROUNDWA
SOURCE: RELIANCE UNIVERSAL
STATION ID: PW-02

PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
CITY: LENOIR ST: NC
COLLECTION START: 04/07/93 0946 STOP: 00/00/00

CASE NO.: 19715 SAS NO.: D. NO.: ES53

UG/L	ANALYTICAL RESULTS
10U	CHLOROMETHANE
10U	BROMOMETHANE
10U	VINYL CHLORIDE
10U	CHLOROETHANE
10U	METHYLENE CHLORIDE
10U	ACETONE
10U	CARBON DISULFIDE
10U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
10U	1,1-DICHLOROETHANE
10U	1,2-DICHLOROETHENE (TOTAL)
10U	CHLOROFORM
10U	1,2-DICHLOROETHANE
10U	METHYL ETHYL KETONE
10U	1,1,1-TRICHLOROETHANE
10U	CARBON TETRACHLORIDE
10U	BROMODICHLOROMETHANE

UG/L	ANALYTICAL RESULTS
10U	1,2-DICHLOROPROPANE
10U	CIS-1,3-DICHLOROPROPENE
10U	TRICHLOROETHENE(TRICHLOROETHYLENE)
10U	DIBROMOCHLOROMETHANE
10U	1,1,2-TRICHLOROETHANE
10U	BENZENE
10U	TRANS-1,3-DICHLOROPROPENE
10U	BROMOFORM
10U	METHYL ISOBUTYL KETONE
10U	METHYL BUTYL KETONE
10U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
10U	1,1,2,2-TETRACHLOROETHANE
10U	TOLUENE
10U	CHLOROBENZENE
10U	ETHYL BENZENE
10U	STYRENE
10U	TOTAL XYLENES

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PURGEABLE ORGANICS DATA REPORT 06/07/93

PROJECT NO. 93-0381 SAMPLE NO. 75803 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC
STATION ID: MW-14 COLLECTION START: 04/07/93 1145 STOP: 00/00/00

CASE NO.: 19715 SAS NO.: D. NO.: ES54

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
1000U	CHLOROMETHANE	1000U	1,2-DICHLOROPOPANE
1000U	BROMOMETHANE	1000U	CIS-1,3-DICHLOROPROPENE
1000U	VINYL CHLORIDE	1000U	TRICHLOROETHENE(TRICHLOROETHYLENE)
1000U	CHLOROETHANE	1000U	DIBROMOCHLOROMETHANE
1000U	METHYLENE CHLORIDE	1000U	1,1,2-TRICHLOROETHANE
7100000J	ACETONE	1000U	BENZENE
1000U	CARBON DISULFIDE	1000U	TRANS-1,3-DICHLOROPROPENE
1000U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)	1000U	BROMOFORM
1000U	1,1-DICHLOROETHANE	330000J	METHYL ISOBUTYL KETONE
1000U	1,2-DICHLOROETHENE (TOTAL)	1000U	METHYL BUTYL KETONE
1000U	CHLOROFORM	1000U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
1000U	1,2-DICHLOROETHANE	1000U	1,1,2,2-TETRACHLOROETHANE
9600J	METHYL ETHYL KETONE	18000	TOLUENE
1000U	1,1,1-TRICHLOROETHANE	1000U	CHLOROBENZENE
1000U	CARBON TETRACHLORIDE	40000J	ETHYL BENZENE
1000U	BROMODICHLOROMETHANE	1000U	STYRENE
		120000J	TOTAL XYLENES

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

ORGANIC DATA QUALIFIER REPORT

Case Number 19715 Project Number 93-0381 SAS Number
Site ID. Reliance Universal, Lenoir, NC

Affected Samples	Compound or Fraction	Flag Used	Reason
Volatiles			
75803	acetone	J	erratic response factor continuing calibration
	2-butanone	J	erratic response factor continuing calibration
	4-methyl-2-pentanone	J	< quantitation limit
	ethylbenzene	J	> calibration range
	xylenes	J	> calibration range
75817	xylenes	J	high surrogate recovery
75818	4-methyl-2-pentanone	J	low internal standard recovery
	2-hexanone	J	low internal standard recovery
	tetrachloroethene	J	low internal standard recovery
	1,1,2,2-tetrachloroethane	J	low internal standard recovery
	toluene	J	low internal standard recovery
	chlorobenzene	J	low internal standard recovery
	ethylbenzene	J	low internal standard recovery
	styrene	J	low internal standard recovery
	xylene(total)	J	low internal standard recovery
Extractables			
75808-75827	phenol	R	unacceptable blind spike recovery
	acenaphthene	R	unacceptable blind spike recovery
75803	acenaphthene	J	< quantitation limit
	fluorene	J	< quantitation limit
	phenanthrene	J	< quantitation limit
	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
75811	2-methylnaphthalene	J	< quantitation limit
	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
	chrysene	J	< quantitation limit
	benzo(b)fluoranthene	J	< quantitation limit
	benzo(a)pyrene	J	< quantitation limit
75817	benzo(a)pyrene	J	< quantitation limit
	indeno(1,2,3-cd)pyrene	J	< quantitation limit
	benzo(g,h,i)perylene	J	< quantitation limit
75820	fluoranthene	J	< quantitation limit
75824	fluoranthene	J	< quantitation limit
	pyrene	J	< quantitation limit
	benzo(a)anthracene	J	< quantitation limit
	chrysene	J	< quantitation limit
Pesticides			
75812	aroclor-1254	J	< quantitation limit
75813,814, 821,825	aroclor-1254	C	GC/MS confirmed

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 06/07/93

PROJECT NO. 93-0381 SAMPLE NO. 75801 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC
STATION ID: PW-01 COLLECTION START: 04/07/93 1515 STOP: 00/00/00

CASE NO.: 19715 SAS NO.: D. NO.: ES52

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
10U	PHENOL	25U	3-NITROANILINE
10U	BIS(2-CHLOROETHYL) ETHER	10U	ACENAPHTHENE
10U	2-CHLOROPHENOL	25U	2,4-DINITROPHENOL
10U	1,3-DICHLOROBENZENE	25U	4-NITROPHENOL
10U	1,4-DICHLOROBENZENE	10U	DIBENZOFURAN
10U	1,2-DICHLOROBENZENE	10U	2,4-DINITROTOLUENE
10U	2-METHYLPHENOL	10U	DIETHYL PHTHALATE
10U	2,2'-CHLOROISOPROPYLETHER	10U	4-CHLOROPHENYL PHENYL ETHER
10U	(3-AND/OR 4-)METHYLPHENOL	10U	FLUORENE
10U	N-NITROSODI-N-PROPYLAMINE	25U	4-NITROANILINE
10U	HEXACHLOROETHANE	25U	2-METHYL-4,6-DINITROPHENOL
10U	NITROBENZENE	10U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
10U	ISOPHORONE	10U	4-BROMOPHENYL PHENYL ETHER
10U	2-NITROPHENOL	10U	HEXACHLOROBENZENE (HCB)
10U	2,4-DIMETHYLPHENOL	25U	PENTACHLOROPHENOL
10U	BIS(2-CHLOROETHOXY) METHANE	10U	PHENANTHRENE
10U	2,4-DICHLOROPHENOL	10U	ANTHRACENE
10U	1,2,4-TRICHLOROBENZENE	10U	CARBAZOLE
10U	NAPHTHALENE	10U	DI-N-BUTYLPHTHALATE
10U	4-CHLOROANILINE	10U	FLUORANTHENE
10U	HEXACHLOROBUTADIENE	10U	PYRENE
10U	4-CHLORO-3-METHYLPHENOL	10U	BENZYL BUTYL PHTHALATE
10U	2-METHYLNAPHTHALENE	10U	3,3'-DICHLOROBENZIDINE
10U	HEXACHLOROCYCLOPENTADIENE (HCCP)	10U	BENZO(A)ANTHRACENE
10U	2,4,6-TRICHLOROPHENOL	10U	CHRYSENE
25U	2,4,5-TRICHLOROPHENOL	10U	BIS(2-ETHYLHEXYL) PHTHALATE
10U	2-CHLORONAPHTHALENE	10U	DI-N-OCTYLPHTHALATE
25U	2-NITROANILINE	10U	BENZO(B AND/OR K)FLUORANTHENE
10U	DIMETHYL PHTHALATE	10U	BENZO-A-PYRENE
10U	ACENAPHTHYLENE	10U	INDENO (1,2,3-CD) PYRENE
10U	2,6-DINITROTOLUENE	10U	DIBENZO(A,H)ANTHRACENE
		10U	BENZO(GHI)PERYLENE

REMARKS ***REMARKS***

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/93

EXTRACTABLE ORGANICS DATA REPORT

** PROJECT NO. 93-0381 SAMPLE NO. 75802 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE **
** SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC **
** STATION ID: PW-02 COLLECTION START: 04/07/93 0946 STOP: 00/00/00 **
**
** CASE NO.: 19715 SAS NO.: D. NO.: ES53 **

UG/L	ANALYTICAL RESULTS
10U	PHENOL
10U	BIS(2-CHLOROETHYL) ETHER
10U	2-CHLOROPHENOL
10U	1,3-DICHLOROBENZENE
10U	1,4-DICHLOROBENZENE
10U	1,2-DICHLOROBENZENE
10U	2-METHYLPHENOL
10U	2,2'-CHLOROISOPROPYLETHER
10U	(3-AND/OR 4-)METHYLPHENOL
10U	N-NITROSODI-N-PROPYLAMINE
10U	HEXACHLOROETHANE
10U	NITROBENZENE
10U	ISOPHORONE
10U	2-NITROPHENOL
10U	2,4-DIMETHYLPHENOL
10U	BIS(2-CHLOROETHOXY) METHANE
10U	2,4-DICHLOROPHENOL
10U	1,2,4-TRICHLOROBENZENE
10U	NAPHTHALENE
10U	4-CHLOROANILINE
10U	HEXACHLOROBUTADIENE
10U	4-CHLORO-3-METHYLPHENOL
10U	2-METHYLNAPHTHALENE
10U	HEXACHLOROCYCLOPENTADIENE (HCCP)
10U	2,4,6-TRICHLOROPHENOL
25U	2,4,5-TRICHLOROPHENOL
10U	2-CHLORONAPHTHALENE
25U	2-NITROANILINE
10U	DIMETHYL PHTHALATE
10U	ACENAPHTHYLENE
10U	2,6-DINITROTOLUENE

UG/L	ANALYTICAL RESULTS
25U	3-NITROANILINE
10U	ACENAPHTHENE
25U	2,4-DINITROPHENOL
25U	4-NITROPHENOL
10U	DIBENZOFURAN
10U	2,4-DINITROTOLUENE
10U	DIETHYL PHTHALATE
10U	4-CHLOROPHENYL PHENYL ETHER
10U	FLUORENE
25U	4-NITROANILINE
25U	2-METHYL-4,6-DINITROPHENOL
10U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
10U	4-BROMOPHENYL PHENYL ETHER
10U	HEXACHLOROBENZENE (HCB)
25U	PENTACHLOROPHENOL
10U	PHENANTHRENE
10U	ANTHRACENE
10U	CARBAZOLE
10U	DI-N-BUTYLPHTHALATE
10U	FLUORANTHENE
10U	PYRENE
10U	BENZYL BUTYL PHTHALATE
10U	3,3'-DICHLOROBENZIDINE
10U	BENZO(A)ANTHRACENE
10U	CHRYSENE
10U	BIS(2-ETHYLHEXYL) PHTHALATE
10U	DI-N-OCTYLPHTHALATE
10U	BENZO(B AND/OR K)FLUORANTHENE
10U	BENZO-A-PYRENE
10U	INDENO (1,2,3-CD) PYRENE
10U	DIBENZO(A,H)ANTHRACENE
10U	BENZO(GHI)PERYLENE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 06/07/93

** PROJECT NO. 93-0381 SAMPLE NO. 75803 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE **
** SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC **
** STATION ID: MW-14 COLLECTION START: 04/07/93 1145 STOP: 00/00/00 **
**
** CASE NO.: 19715 SAS NO.: D. NO.: ES54 **

UG/L	ANALYTICAL RESULTS
100U	PHENOL
100U	BIS(2-CHLOROETHYL) ETHER
100U	2-CHLOROPHENOL
100U	1,3-DICHLOROBENZENE
100U	1,4-DICHLOROBENZENE
100U	1,2-DICHLOROBENZENE
100U	2-METHYLPHENOL
100U	2,2'-CHLOROISOPROPYLETHER
190	(3-AND/OR 4-)METHYLPHENOL
100U	N-NITROSODI-N-PROPYLAMINE
100U	HEXACHLOROETHANE
100U	NITROBENZENE
100U	ISOPHORONE
100U	2-NITROPHENOL
100U	2,4-DIMETHYLPHENOL
100U	BIS(2-CHLOROETHOXY) METHANE
100U	2,4-DICHLOROPHENOL
100U	1,2,4-TRICHLOROBENZENE
110	NAPHTHALENE
100U	4-CHLOROANILINE
100U	HEXACHLOROBUTADIENE
100U	4-CHLORO-3-METHYLPHENOL
100U	2-METHYLNAPHTHALENE
100U	HEXACHLOROCYCLOPENTADIENE (HCCP)
100U	2,4,6-TRICHLOROPHENOL
250U	2,4,5-TRICHLOROPHENOL
100U	2-CHLORONAPHTHALENE
250U	2-NITROANILINE
100U	DIMETHYL PHTHALATE
100U	ACENAPHTHYLENE
100U	2,6-DINITROTOLUENE

UG/L	ANALYTICAL RESULTS
250U	3-NITROANILINE
25J	ACENAPHTHENE
250U	2,4-DINITROPHENOL
250U	4-NITROPHENOL
100U	DIBENZOFURAN
100U	2,4-DINITROTOLUENE
100U	DIETHYL PHTHALATE
100U	4-CHLOROPHENYL PHENYL ETHER
23J	FLUORENE
250U	4-NITROANILINE
250U	2-METHYL-4,6-DINITROPHENOL
100U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
100U	4-BROMOPHENYL PHENYL ETHER
100U	HEXACHLOROBENZENE (HCB)
250U	PENTACHLOROPHENOL
43J	PHENANTHRENE
100U	ANTHRACENE
100U	CARBAZOLE
100U	DI-N-BUTYLPHTHALATE
32J	FLUORANTHENE
14J	PYRENE
100U	BENZYL BUTYL PHTHALATE
100U	3,3'-DICHLOROBENZIDINE
100U	BENZO(A)ANTHRACENE
100U	CHRYSENE
150U	BIS(2-ETHYLHEXYL) PHTHALATE
100U	DI-N-OCTYLPHTHALATE
100U	BENZO(B AND/OR K)FLUORANTHENE
100U	BENZO-A-PYRENE
100U	INDENO (1,2,3-CD) PYRENE
100U	DIBENZO(A,H)ANTHRACENE
100U	BENZO(GHI)PERYLENE

REMARKS

REMARKS

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MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

** PROJECT NO. 93-0381 SAMPLE NO. 75803 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: L SOMMERVILLE
** SOURCE: RELIANCE UNIVERSAL CITY: LENOIR ST: NC
** STATION ID: MW-14 COLLECTION START: 04/07/93 1145 STOP: 00/00/00
** CASE.NO.: 19715 SAS NO.: D. NO.: ES54 MD NO: ES54

ANALYTICAL RESULTS UG/L

100JN		PHENYLPROPANEDIOIC ACID
	*	PROPANOIC ACID, METHYLHYDROXYTRIMETHYLPENTYL
100JN		ESTER
30JN		METHYLBENZOIC ACID
2000J		7 UNIDENTIFIED COMPOUNDS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
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Memorandum

To: File

From: G. Doug Rumford GDR

Date: 5/17/93

Subject: Thomasville Furniture Ind. NCD 054 290 770
Lenoir, Caldwell County, NC
Telephone Conversations with Millie Buchanan and Mike Lane

Millie Buchanan of the NC Clean Water Fund (NCCWF), Asheville office, was contacted on this day at 704-251-0518. Ms. Buchanan told me that the NCCWF has not sampled any private wells in Lenoir. She also said that if any wells were sampled, the Caldwell County Health Department (CCHD) would have done the sampling. Ms. Buchanan suggested that I call Mike Lane of the CCHD.

Mr. Mike Lane of the CCHD was then contacted at 704-757-1353 and asked about private well sampling in the area of Thomasville Furniture/Reliance Universal in Lenoir. Mr. Lane told me that in the Spring of 1992, 3 residential wells in that area were sampled by CCHD. According to Mr. Lane, laboratory analytical data indicated that all samples were free of chemical contaminants.

MEMORANDUM

To: Superfund Section Staff

From: Hal Bryson Hal

Date: August 17, 1992

Subject: Update on Status of Well Head Protection Programs in N.C.

Carl Bailey of the DEM's Groundwater Section has provided me with the following information regarding the establishment of Well Head Protection Areas (WHPAs) in North Carolina:

- Currently there are no WHPAs in North Carolina.

- A number of local governments in the state have been funded by EPA "demonstration grants" to initiate the development of local Well Head Protection Programs; however, the formal designation of WHPAs can not be initiated until the Groundwater Section has a program approved by EPA -- such approval would grant authority to the DEM to formally establish WHPAs in local areas.

- Formal approval by EPA of the Groundwater Section's WHPA Program is expected within 12 to 18 months.

- Counties currently attempting to develop local WHPA programs include Bladen, Buncombe, Columbus, Gaston, Lee, Moore, Randolph, Robeson, Scotland, and Stokes.

The Superfund Section should contact Mr. Bailey in another year or so to update this information.

HCB\whpamem

ENSCI®
ENGINEERING GROUP, P.A.

June 9, 1993

Mr. G. Doug Rumford
Hydrogeologist
NCDEHNR-Superfund Section
Division of Solid Waste Management
Post Office Box 27687
Raleigh, North Carolina 27611-7687

RE: Remedial Operations Summary, Thomasville Furniture Industries, Inc., Lenoir, North Carolina Facility

Dear Mr Rumford:

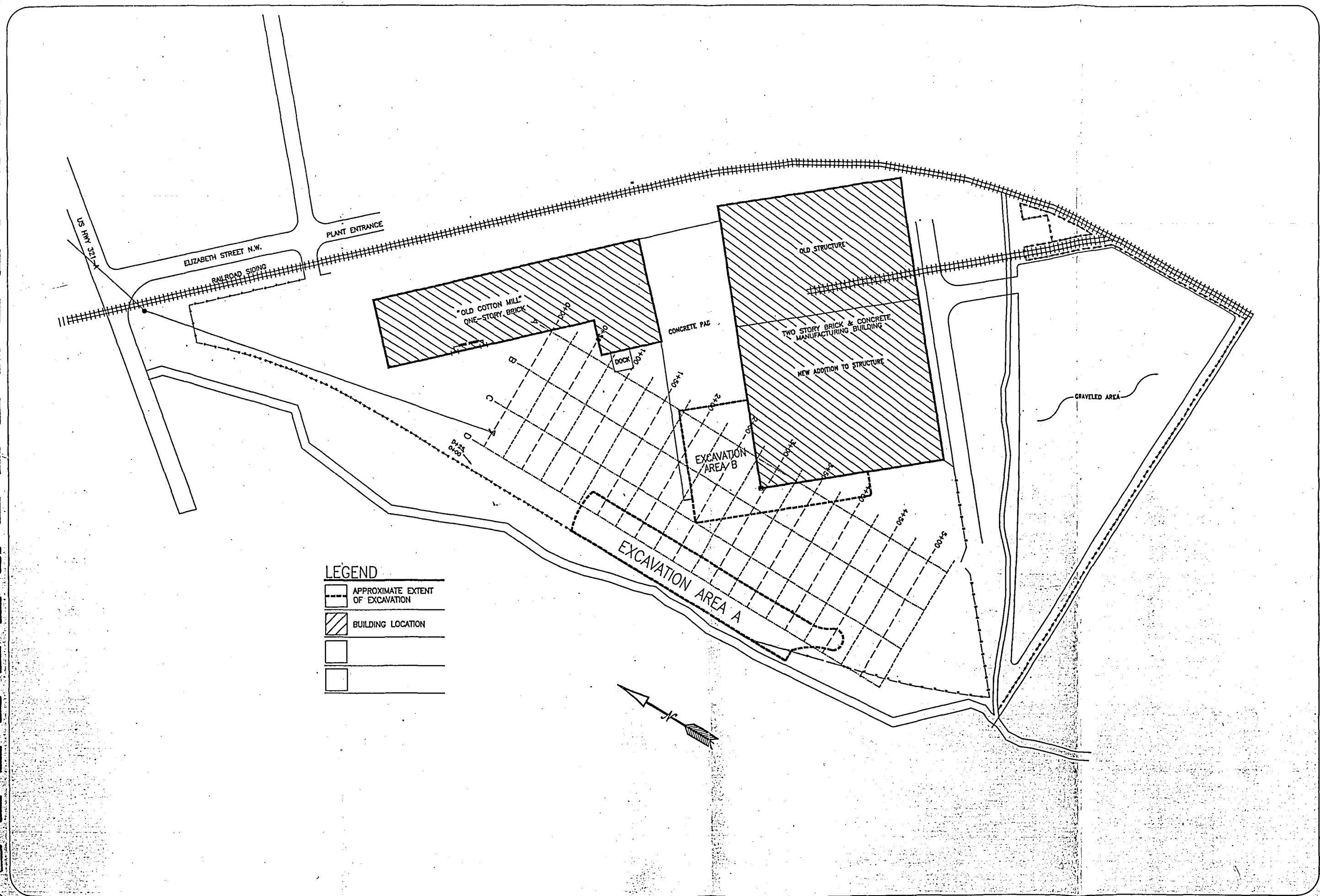
Per conversations with Mr. Mark Holton, with Womble Carlyle Sandridge & Rice, I have assembled the following brief summary of remedial activity that occurred at the Thomasville Furniture Industries, Inc. (TFI) facility located in Lenoir, North Carolina. It is my understanding that this summary should include information relative to quantities of hazardous and non-hazardous materials shipped from the subject facility and analytical data relative to drums of excavated liquid waste shipped from the TFI facility to their current treatment storage and disposal facility (TSD) in May, 1993.

ENSCI Engineering Group, P.A. (ENSCI) excavated and disposed of 544.34 tons of non-hazardous soils and 14,780.31 tons of hazardous soil and debris between March 8, 1993 and May 8, 1993. The materials were disposed of at the Laidlaw Environmental Services of South Carolina, Inc. (Pinewood) facility located in Pinewood, South Carolina. The materials shipped from the TFI facility were profiled into the Pinewood facility with South Carolina Department of Health and Environmental Control (DHEC), Bureau of Solid and Hazardous Waste approval. The DHEC approval dates for the Authorization Request Forms were April 11, 1993 and April 14, 1993 for non-hazardous and hazardous materials, respectively. The waste stream authorization numbers for the TSD facility are PW-04886-5101 and PW-04886-5102 for non-hazardous and hazardous materials, respectively.

During the excavation operations, ENSCI excavated 153 buried drums at the subject facility. The drums were excavated from two areas of the facility identified as Area A and Area B (see Figure 1). Area A contained 97 drums and Area B contained 56 drums. There were a total of three liquids drums excavated and disposed from the facility, two from Area A and one from Area B. The balance of the excavated drums contained solid materials. The excavated drums of solid materials contained, for the most part, similar materials that included glue, trash, and assorted

Post Office Box 80275
Raleigh, North Carolina 27623-0275
T (919) 787-8209
F (919) 881-8205

1108 Old Thomasville Road
High Point, North Carolina 27260
T (919) 883-7505
F (919) 882-7958



DRAWN BY: DJ
CHECK BY: BB
CAD TYPE: DRUM DIG
FILE:
SCALE: 1" = 100'
DATE: 6/8/93
DRAWING NO: TFI-DD1
LASER: 0

CLIENT: THOMASVILLE FURNITURE INC.
PROJECT NAME: LENOIR PLANT
CITY: LENOIR
STATE: NORTH CAROLINA
DRAWING TITLE: EXCAVATION AREAS

ENSR® ENGINEERING GROUP, P.A.

debris with occasional groundwater. Materials in excavated drums were sampled and analyzed using the Sensidyne® HazCat® Kit Chemical Identification System. The HazCat System uses three preliminary screening tests in a decision tree format to separate an unknown into one or more distinct categories. The unknown is then usually identified with less than five additional tests. Analytical summary sheets for the three liquids drums analyzed using the HazCat Kit are included in Appendix A. Several representative summary sheets for HazCat analyses performed on excavated solids are included in Appendix B.

If I can answer any questions, please do not hesitate to call.

Sincerely Yours,

ENSCI Engineering Group, P.A.

Bruce K. Braswell

Bruce K. Braswell, P.G.
Senior Hydrogeologist

BKB:srr

Enclosure

cc: Mark Holton
bcc: File

Appendix A

HazCat System Analytical Summary Sheets For Excavated Liquids

TFI - Lenoir

Drum Characterization Sheet

Drum # A-1

Original Location # A

# of Layers 2

Date Drum Discovered _____

# of Layers Tested 2 (1 of 2)

Description of Drum: _____

Description of Material: Black Sludge

Reactivity: AIR Y (N)

WATER Y (N)

ACID Y (N)

PH: 6.0

FLAMMABILITY (Y) N

CHLORINATED Y N

PCB Y N N/A

IODINE CRYSTAL Negative

OTHER TESTS: _____

DRUM CLASSIFICATION: _____

NAME OF FIELD CHEMIST: Michael T. Brown

TFI - Lenoir

Drum Characterization Sheet

Drum # A-64

Original Location # A # of Layers 1

Date Drum Discovered 4-2-93 # of Layers Tested 1

Description of Drum: 55 Gallon Metal - No lid.

Description of Material: Brown Liquid

Reactivity: AIR Y (N)

WATER Y (N)

ACID Y (N)

PH: 5

FLAMMABILITY (Y) N

CHLORINATED Y (N)

PCB Y N (N/A)

IODINE CRYSTAL Unsaturated Hydrocarbon

OTHER TESTS: Oxidizer = negative, Acid test = negative, Water solubility = negative, Iodine crystal test = unsaturated hydrocarbon.

DRUM CLASSIFICATION: Unsaturated Hydrocarbon (Looks like an organic based stain.)

NAME OF FIELD CHEMIST: Larry George

TFI - Lenoir

Drum Characterization Sheet

Drum # B-21

Original Location # B Excavation # of Layers _____

Date Drum Discovered 4-22-93 # of Layers Tested _____

Description of Drum: _____

Description of Material: Liquid - Brown/Possible stain.

Reactivity: AIR Y (N)

WATER Y (N)

ACID Y (N)

PH: _____

FLAMMABILITY Y N

CHLORINATED Y N

PCB Y N N/A

IODINE CRYSTAL _____

OTHER TESTS: Oxidizer test = negative, OVA test = negative, Sulfide test = negative. H_2O sol - floats, Combustibility = flammable, Iodine Crystal - red/orange/yellow - indicates acetate, alcohol, ketone or mixture - H_2O separates - may be temperature/obtain mixture due to red color.

DRUM CLASSIFICATION: Stain/Unsaturated aromatic hydrocarbons

NAME OF FIELD CHEMIST: Scott Driscoll

Appendix B

HazCat System Analytical Summary Sheets For Representative Solids

TFI - Lenoir

Drum Characterization Sheet

Drum # A-15

Original Location # _____ # of Layers 1

Date Drum Discovered _____ # of Layers Tested 1

Description of Drum: _____

Description of Material: Hard, White Glue

Reactivity: AIR Y (N)

WATER Y (N)

ACID Y (N)

PH: 7

FLAMMABILITY Y (N)

CHLORINATED Y (N)

PCB Y N (N/A)

IODINE CRYSTAL Negative

OTHER TESTS: _____

DRUM CLASSIFICATION: _____

NAME OF FIELD CHEMIST: David W. Lazzo

TFI - Lenoir

Drum Characterization Sheet

Drum # A-39

Original Location # A

# of Layers _____

Date Drum Discovered _____

# of Layers Tested _____

Description of Drum: _____

Description of Material: Brown, Moist dirt

Reactivity: AIR Y (N)

WATER Y (N) Insoluble

ACID Y (N)

PH: 6

FLAMMABILITY Y (N)

CHLORINATED (Y) N

PCB Y N (N/A)

IODINE CRYSTAL Negative

OTHER TESTS: _____

DRUM CLASSIFICATION: _____

NAME OF FIELD CHEMIST: _____

TFI - Lenoir

Drum Characterization Sheet

Drum # A-97

Original Location # _____ # of Layers _____

Date Drum Discovered 4-4-93 # of Layers Tested _____

Description of Drum: 17E

Description of Material: Stained Soil

Reactivity: AIR Y (N)

WATER Y (N)

ACID Y (N)

PH: 7

FLAMMABILITY Y (N)

CHLORINATED Y N (Cannot Determine)

PCB Y N N/A

IODINE CRYSTAL _____

OTHER TESTS: Oxidizer = negative, Characteristic = partly chars, char ignition = negative.

DRUM CLASSIFICATION: Unknown organic on soil.

NAME OF FIELD CHEMIST: Larry W. George

TFI - Lenoir

Drum Characterization Sheet

Drum # B-41

Original Location # Area B

# of Layers 1

Date Drum Discovered 4-27-93

# of Layers Tested 1

Description of Drum:

Description of Material: White glue plus gray clay (?)

Reactivity: AIR Y (N)

WATER Y (N)

ACID Y (N)

PH: 8.0

FLAMMABILITY Y (N)

CHLORINATED Y (N)

PCB Y N (N/A)

IODINE CRYSTAL Negative

OTHER TESTS:

DRUM CLASSIFICATION: Michael T. Brown

NAME OF FIELD CHEMIST:

Ref. 36

27

Region IV CM&E Form Side A

EPA ID: WCD054290710

Submitted by: _____ Date: _____

Entered by: _____ Date: _____

Facility Name: Thompson Fuentes City: Kenosha

EVALUATION DATA: New: __ Change: __ Delete: __ (——— : Required)

Agency: 5 Date: Mo. 07 / Day 27 / Year 92 Type: BIE OTH

Control Number — Data Entry Personnel: 009

Person: 063 Reason: ___

Coverage Areas: (E: Evaluated NE: Not Evaluated NA: Not Applic. D:Del.)

Generators		Transporters		TSD's			
GER	✓	TGR		DCH		DPB	
GGR	✓	TMR		DCL		DPP	
GLB	✓	TOR		DCP		DSI	
GSQ		TRR		DFR		DTR	
GMR	✓	TWD		DGS		DTT	
GOR	✓			DGW		DWP	
GPT	✓			DIN			
GRR	✓			DMC			
GSC				DMR			
				DOR			
				DOT			

Compliance Schedule (TSD, Gen., Trans.)

FEA ___ CAS ___

Evaluation Comments: (72) 1 : BIE inspection - In compliance

2 :

VIOLATION DATA: New: __ Change: __ Delete: __

#__ Agency: ___ Type: ___ Date (mdy) Determined: ___/___/___ Class: ___

Priority: ___ Branch: ___ Person: ___ Seq. Number (Data Entry) ___

Return to Compliance: -- Scheduled -- ___/___/___ --- Actual --- ___/___/___

Reg. Type: ___ Reg. Description (30): _____

Comment (72): _____

#__ Agency: ___ Type: ___ Date (mdy) Determined: ___/___/___ Class: ___

Priority: ___ Branch: ___ Person: ___ Seq. Number (Data Entry) ___

Return to Compliance: -- Scheduled -- ___/___/___ --- Actual --- ___/___/___

Reg. Type: ___ Reg. Description (30): _____

Comment (72): _____

#__ Agency: ___ Type: ___ Date (mdy) Determined: ___/___/___ Class: ___

Priority: ___ Branch: ___ Person: ___ Seq. Number (Data Entry) ___

Return to Compliance: -- Scheduled -- ___/___/___ --- Actual --- ___/___/___

Reg. Type: ___ Reg. Description (30): _____

Comment (72): _____

Continue violation data on Side B if necessary -

Day - BIE

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RECEIVED AUG 1992 RCRA File Room

unannounced

RCRA INSPECTION REPORT

1) Facility Information

Thomasville Furniture
315 Elizabeth St
Lenoir NC NCD 054 290 770

2) Facility Contact

Sherry Stockton
Thomas Gibson

3) Survey Participants

Thomas Gibson
Robert Purcell
Phill Delp

4) Date of Inspection

7-29-92

5) Purpose of Survey

To determine compliance w/ 40 CFR 266

6) Facility Description

This facility manufactures wooden furniture. D001 waste solids had been burned as fuel in an industrial boiler. The last time waste was burned was August 20, 1991. All solid waste is now shipped off site as a D001 waste to Southeastern Chemicals; Chemical Conservation of Georgia and M&J Solvents. Burn records are maintained on site.

7) Waste Minimization

NA

8) Site Deficiencies

None noted

9) Recommendations

NA

Signed

Robert H Pierce / Phillip C Dey — Thomas J. Gibson, Jr

Inspector/Reviewer — Facility Contact

7-29-92

Date

Mass Ave. Furniture (BIF)

NCD 054 250 770

Ref. 37

29

Region IV CM&E Form Side A

EPA ID: NCD054290770

Submitted by: ____ Date: ____

Entered by: ____ Date: ____

Facility Name: Thomasville Furniture City: Lenoir

EVALUATION DATA: New: __ Change: __ Delete: __ (—— : Required)

Agency: S Date: Mo. 07 / Day ~~27~~ 30 / Year 92 Type: ~~CDR~~ LBP

Control Number — Data Entry Personnel: 009

Person: 063 Reason: ____

Coverage Areas: (E: Evaluated NE: Not Evaluated NA: Not Applic. D:Del.)

Generators: GER, GGR, GLB, GSQ, GMR, GOR, GPT, GRR, GSC

Transporters: TGR, TMR, TOR, TRR, TWD

TSD's: DCH, DCL, DCP, DFR, DGS, DGW, DIN, DLB, DLF, DLT, DMC, DMP, DOP, DOT, DPB, DPP, DSI, DTR, DTT, DWB

Compliance Schedule (TSD, Gen., Trans.)

FEA ____ CAS ____

Evaluation Comments:

(72) 1 : Land Disposal Restriction Inspection

2 : ____

VIOLATION DATA: New: __ Change: __ Delete: __

#__ Agency: ____ Type: ____ Date (mdy) Determined: ____/____/____ Class: ____

Priority: ____ Branch: ____ Person: ____ Seq. Number (Data Entry) ____

Return to Compliance: -- Scheduled -- ____/____/____ --- Actual --- ____/____/____

Reg. Type: ____ Reg. Description (30): ____

Comment (72): ____

#__ Agency: ____ Type: ____ Date (mdy) Determined: ____/____/____ Class: ____

Priority: ____ Branch: ____ Person: ____ Seq. Number (Data Entry) ____

Return to Compliance: -- Scheduled -- ____/____/____ --- Actual --- ____/____/____

Reg. Type: ____ Reg. Description (30): ____

Comment (72): ____

#__ Agency: ____ Type: ____ Date (mdy) Determined: ____/____/____ Class: ____

Priority: ____ Branch: ____ Person: ____ Seq. Number (Data Entry) ____

Return to Compliance: -- Scheduled -- ____/____/____ --- Actual --- ____/____/____

Reg. Type: ____ Reg. Description (30): ____

Comment (72): ____

Continue violation data on Side B if necessary

ENTERED AUG 1992

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unannounced

LDR

RCRA INSPECTION REPORT

1) Facility Information
Thomasville Furniture
315 Elizabeth ST
Lenoir NC
NCD 054 290 770

2) Facility Contact

Thom Gibson

3) Survey Participants
Thom Gibson
R Pursell
Phil Delp

4) Date of Inspection

7-29-92

5) Purpose of Survey

To determine compliance with 40 CFR 268.

6) Facility Description

This facility manufactures wooden furniture. Wastes generated are D001/D035 solids consisting of lacquer dust, filters and rags. and F003/5 wash off solvents. Constituents contained in the F003/5 waste are Acetone; n-Butyl alcohol; Ethyl Acetate; isobutanol methanol, Methyl Ethyl Ketone; Methyl Isobutyl Ketone toluene and Xylene. All LDR notifications and certifications attached to each shipment of waste.

) Waste Minimizati NA

8) Site Deficiencies

none noted

9) Recommendations

NA

Signed

Robert Pierce / Philip Day
Inspector/Reviewer

Thomas J. Gibson Jr
Facility Contact

7-29-92
Date

ro ville (CDR)
) 05Y 290 770

Region IV CM&E Form Side A

Ref. 38
Submitted by: _____ Date: _____
Entered by: _____ Date: _____

EPA ID: NCD054219070

Facility Name: Thomasville Furniture City: Lenoir

EVALUATION DATA: New: __ Change: __ Delete: __ (▬ : Required)

Agency: S Date: Mo. 07 / Day 29 / Year 92 Type: CEI

Control Number
Data Entry Personnel 009

Person: 063 Reason: ___

Coverage Areas: (E: Evaluated NE: Not Evaluated NA: Not Applic. D: Del.)

Generators		Transporters		TSD's					
GER	E	TGR		DCH		DLB		DPB	
GGR	E	TMR		DCL		DLF		DPP	
GLB	E	TOR		DCP		DMS		DSI	
GSQ	E	TRR		DFR		DOR		DTR	
GMR	E	TWD		DGS		DOT		DTT	
GOR	E			DGW				DWP	
GPT	E			DIN					
GRR	E								
GSC	E								

Compliance Schedule (TSD, Gen., Trans.)
FEA ___ CAS ___

Evaluation Comments: (72) 1 : In Compliance
2 :

VIOLATION DATA: New: __ Change: __ Delete: __

Agency: ___ Type: ___ Date (mdy) Determined: __/__/__ Class: ___
Priority: ___ Branch: 01 Person: ___ Seq. Number (Data Entry) ___
Return to Compliance: -- Scheduled -- __/__/__ --- Actual --- __/__/__
Reg. Type: ___ Reg. Description (30): ___
Comment (72): ___

Agency: ___ Type: ___ Date (mdy) Determined: __/__/__ Class: ___
Priority: ___ Branch: ___ Person: ___ Seq. Number (Data Entry) ___
Return to Compliance: -- Scheduled -- __/__/__ --- Actual --- __/__/__
Reg. Type: ___ Reg. Description (30): ___
Comment (72): ___

Agency: ___ Type: ___ Date (mdy) Determined: __/__/__ Class: ___
Priority: ___ Branch: ___ Person: ___ Seq. Number (Data Entry) ___
Return to Compliance: -- Scheduled -- __/__/__ --- Actual --- __/__/__
Reg. Type: ___ Reg. Description (30): ___
Comment (72): ___

Continue violation data on Side B if necessary

AUG 1992 ENTERED RCRIS
AUG 1992 RECEIVED RCRA File Room

Unannounced

RCRA INSPECTION REPORT

1) Facility Information
Thomasville Furniture
315 Elizabeth St
Lenoir NC NCD 054 210 770

2) Facility Contact
Steve Stookie
Thomas Gibson

3) Survey Participants
Thomas Gibson
Robert Lum
Phil Dulp

4) Date of Inspection
7-29-92

5) Purpose of Survey
To determine compliance with 40 CFR 262 and the applicable sections of 40 CFR 265 and 268.

6) Facility Description
This facility manufactures wooden furniture
wastes generated are: D001 - solids and
F003/5 liquid - wash off solvent

Transporters used are: Southeastern Chemical
M & H Solvents
Chemical Conversion of Georgia

same

TSD's used are:

waste accumulated at: 1) pumphouse - F003/5 no waste at time of inspection 2) wash off tank F003/5 acetone - one drum labeled, dated and closed.

Waste stored at: 1) Storage building - separate building, diked, ventilated all drums grounded. 11 drums of hazardous waste at the time of inspection

7) Waste Minimization

- experimenting with pallet covers (plastic) to reduce solid wastes
- installed collection pans, instead of sawdust to reduce volume of waste.

8) Site Deficiencies

None noted

9) Recommendations

None

Signed

Roberta H. Russell / Phillip Daly
Inspector/Reviewer

Thomas J. Gibson, Jr
Facility Contact

7-29-92
Date

Manifest Function
CD 054 290 770

Ref. 39

19

State of North Carolina
Department of Environment, Health, and Natural Resources

512 North Salisbury Street • Raleigh, North Carolina 27604

Division of Solid Waste Management

James B. Hunt, Jr., Governor | Telephone 919-733-2178 | Jonathan B. Howes, Secretary

May 4, 1993

THOMASVILLE FURNITURE INDS
PO BOX 339
THOMASVILLE NC 27361

RE: EPA ID No.: NCD054290770

Dear Sir:

Based on information received by this office for the site identified with the above EPA ID number, the State has accepted and processed the change in RCRA classification or information for the above listed site.

Your EPA ID number is active.

Current computer record of your facility contains following information:

(X Indicates Operational Status of Your Facility)

X LARGE GENERATOR - SMALL QNTY. GENERATOR
- TRANSPORTER - TREATER
- STORER - DISPOSER

Company Name:	THOMASVILLE FURNITURE INDS
Owner:	THOMASVILLE FURNITURE IND INC
Owner Address:	PO BOX 339
City, St.& ZIP:	THOMASVILLE NC 27361
Contact:	CHISOM ROCHELLE
Phone Number:	(919)476-2264
Location Addr.:	315 ELIZABETH STREET NW
City, St.& ZIP:	LENOIR NC 28645

Please verify the above computer information. Please notify us of any corrections.

We are advising EPA of the change. Please notify us if there is any further change in your operations which would affect your status, namely Company's Name, Ownership, Address, Contact, or Telephone.
Your EPA ID number is currently active.

Sincerely,

R. J. Edwards III

R.J. Edwards, Administrative Officer
Division of Solid Waste Management

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-4984 Fax # 919-733-0513

An Equal Opportunity Affirmative Action Employer

CC: ROBIN PURCELL

18

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved. OMB No. 2050-0026. Expires 9-30-92
GSA No. 0246-EPA-OT

Please refer to the *Instructions for Filing Notification* before completing this form. The information requested here is required by law (*Section 3010 of the Resource Conservation and Recovery Act*).

EPA Notification of Regulated Waste Activity

United States Environmental Protection Agency

Date Received (For Official Use Only): MAR 1993

I. Installation's EPA ID Number (*Mark 'X' in the appropriate box*)

[ ] A. First Notification [X] B. Subsequent Notification (*complete item C*)

C. Installation's EPA ID Number: NCD054290770

II. Name of Installation (*Include company and specific site name*)

THOMASVILLE FURNITURE IND. INC

III. Location of Installation (*Physical address not P.O. Box or Route Number*)

Street: 315 ELIZABETH STREET

Street (continued):

City or Town: LENOIR | State: NC | ZIP Code: 28645-

County Code: | County Name: CALDWELL

IV. Installation Mailing Address (*See Instructions*)

Street or P.O. Box: SAME

City or Town: | State: | ZIP Code: -

V. Installation Contact (*Person to be contacted regarding waste activities at site*)

Name (*last*): CHISOM | (*first*): ROCHELLE

Job Title: MGR. ENV. COMP. | Phone Number (*area code and number*): 919-476-2264

VI. Installation Contact Address (*See Instructions*)

A. Contact Address: Location [ ] Mailing [X]

B. Street or P.O. Box: P.O. BOX 339

City or Town: THOMASVILLE | State: NC | ZIP Code: 27361-0339

VII. Ownership (*See Instructions*)

A. Name of Installation's Legal Owner: THOMASVILLE FURNITURE IND. INC

Street, P.O. Box, or Route Number: P.O. BOX 339

City or Town: THOMASVILLE | State: NC | ZIP Code: 27361-0339

Phone Number (*area code and number*): 919-472-4000

B. Land Type: P

C. Owner Type: P

D. Change of Owner Indicator: Yes [ ] No [X]

(Date Changed) Month Day Year:

Continue on reverse

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Approved. OMB No. 2050-0028. Expires 9-30-92
GSA No. 0246-EPA-OT

ID - For Official Use Only

SIC CODE NUMBER 2 5 1 1

VIII. Type of Regulated Waste Activity *(Mark 'X' in the appropriate boxes. Refer to instructions.)*

A. Hazardous Waste Activity

1. Generator (See Instructions)
   - [X] a. Greater than 1000kg/mo (2,200 lbs.)
   - [ ] b. 100 to 1000 kg/mo (220 - 2,200 lbs.)
   - [ ] c. Less than 100 kg/mo (220 lbs.)
2. Transporter (Indicate Mode in boxes 1-5 below)
   - [ ] a. For own waste only
   - [ ] b. For commercial purposes

   Mode of Transportation
   - [ ] 1. Air
   - [ ] 2. Rail
   - [ ] 3. Highway
   - [ ] 4. Water
   - [ ] 5. Other - specify
3. [ ] Treater, Storer, Disposer (at installation) Note: A permit is required for this activity, see instructions
4. Hazardous Waste Fuel
   - [ ] a. Generator Marketing to Burner
   - [ ] b. Other Marketers
   - [ ] c. Boiler and/or Industrial Furnace
     - [ ] 1. Smelter Deferral
     - [ ] 2. Small Quantity Exemption

     Indicate Type of Combustion Device(s)
     - [ ] 1. Utility Boiler
     - [ ] 2. Industrial Boiler
     - [ ] 3. Industrial Furnace
5. [ ] Underground Injection Control

B. Used Oil Fuel Activities

1. Off-Specification Used Oil Fuel
   - [ ] a. Generator Marketing to Burner
   - [ ] b. Other Marketer
   - [ ] c. Burner (Indicate device(s) - Type of Combustion Device
     - [ ] 1. Utility Boiler
     - [ ] 2. Industrial Boiler
     - [ ] 3. Industrial Furnace
2. [ ] Specification Used Oil Fuel Marketer (or On-site Burner) Who First Claims the Oil Meets the Specification

IX. Description of Regulated Wastes *(Use additional sheets if necessary)*

A. Characteristics of Nonlisted Hazardous Wastes. Mark 'X' in the boxes corresponding to the characteristics of nonlisted hazardous wastes your installation handles. *(See 40 CFR Parts 261.20 - 261.24)*

1. Ignitable (D001)	2. Corrosive (D002)	3. Reactive (D003)	4. Toxicity Characteristic (D000)	(List specific EPA hazardous waste number(s) for the Toxicity characteristic contaminant(s))
[X]	[ ]	[ ]	[ ]	

B. Listed Hazardous Wastes. (See 40 CFR 261.31 - 33. See instructions if you need to list more than 12 waste codes.)

1	2	3	4	5	6
7	**8**	**9**	**10**	**11**	**12**

C. Other Wastes. (State or other wastes requiring a handler to have an I.D. number. See instructions.)

1	2	3	4	5	6

X. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature	Name and Official Title *(type or print)*	Date Signed
David R. Masters	David R. Masters Manager Safety, Health & Security	3-18-93

XI. Comments

Note: Mail completed form to the appropriate EPA Regional or State Office. (See Section III of the booklet for addresses.)

August 5, 1992

MEMORANDUM

TO: File

FROM: Pat DeRosa PD

RE: Thomasville Furniture Industries
NCD 054 290 770
Lenoir, Caldwell County

On August 3, 1992, Superfund Section representatives Pat DeRosa and Charlotte Jesneck, met with Thomasville Furniture Industries (TFI) representatives Howard Grubbs, Sherry Stookey, and David Masters regarding planned site assessment activities at the Lenoir plant. Mr. Grubbs is the attorney and contact person for the site and can be reached at (704) 721-3600. Mr. Grubbs briefly summarized the findings of the site assessment work which has been conducted by ENSCI Corporation at this site since December 1990. Copies of these reports have been provided to the Superfund Section and the Hazardous Waste Section.

Briefly, groundwater contamination with organic chemicals has been detected on site. During the course of drilling for on-site contamination, Thomasville discovered a buried drum on site beneath a paved parking lot southwest of the "old cotton mill" building. The drum was exhumed and in the process the top was punctured. The drum was not sampled but "smelled like solvent" and was manifested off site along with other solvent waste generated on site. Subsequently, soil gas and geophysical studies were done in this area and anomalies were detected. TFI is currently planning to investigate this area further in late August - early September. They plan to dig 3 trenches approximately 60 ft. long and 10 ft. deep to characterize these anomalies. If drums are found, they will be removed, staged sampled and overpacked as needed. Drums will be sampled for volatile and semi-volatile organics. In addition, we suggested they test for TCLP compounds and total metals for 11 hazardous substances. We also suggested that they sample and remove contaminated soil samples to show that removal was complete.

In discussion, Mr. Grubbs mentioned protecting against any shock hazards during trenching. I asked if they suspected any nitrocellulose lacquers to be buried on site which might pose a fire and explosion hazard. They were not sure and took note of my suggested precaution.

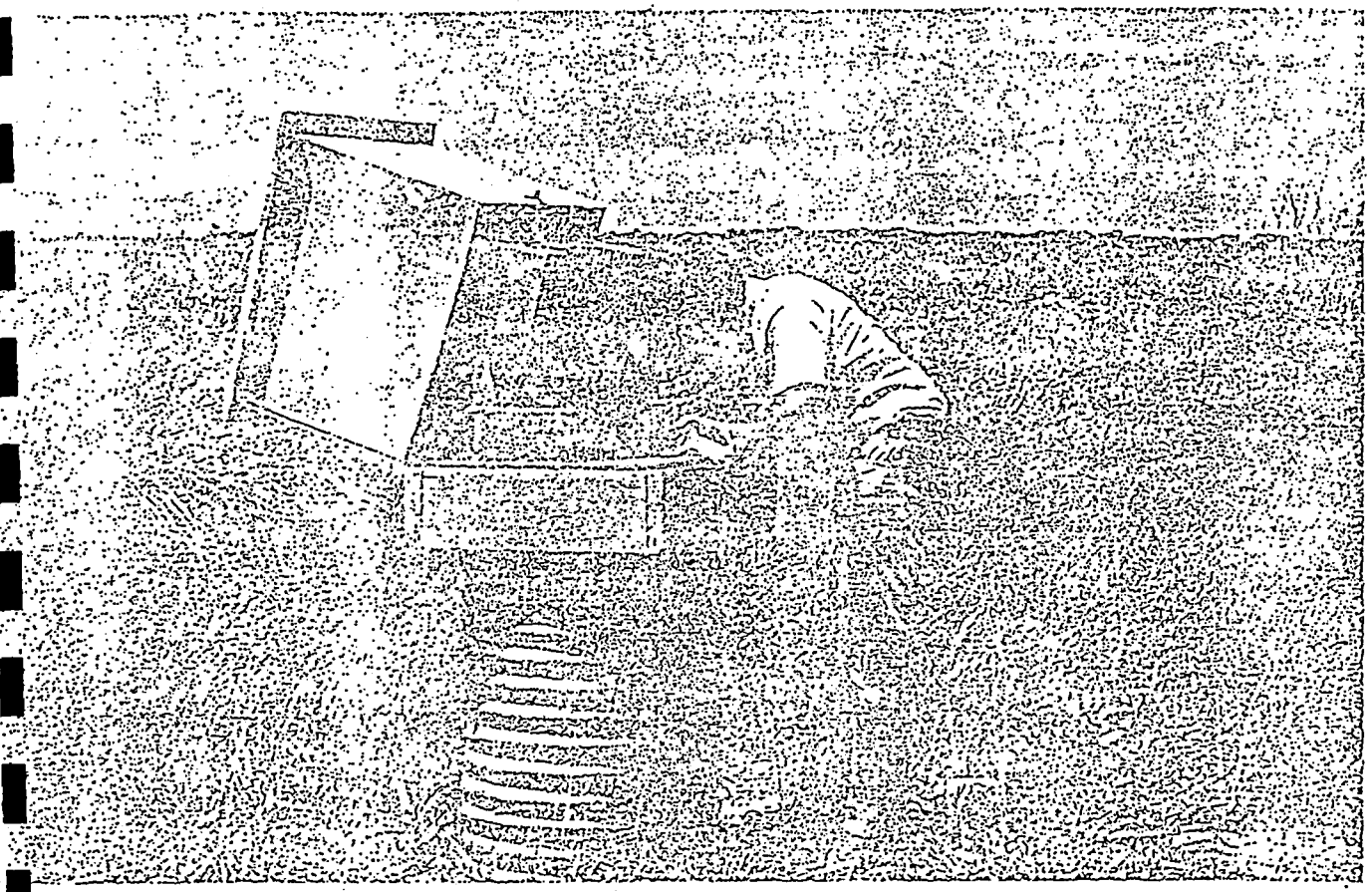
Mr. Grubbs indicated that TFI had been talking to community groups and had done active community outreach to keep the community informed of work they had done on site. He said that they had not been talking with Caldwell County Health Department. He also said that they were planning a press release before proceeding with the planned trenching and said they would send us an advance copy so we could contact the appropriate parties.

We informed TFI that their site was still being evaluated for further Federal Superfund action. Also, we briefly discussed their signing an AOC with the Inactive Sites Program after determining the results of the planned trenching and assessment activities. They will keep us informed.

cc: Robin Purcell, Hazardous Waste Section
Charlotte Jesneck

Ref. 41

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

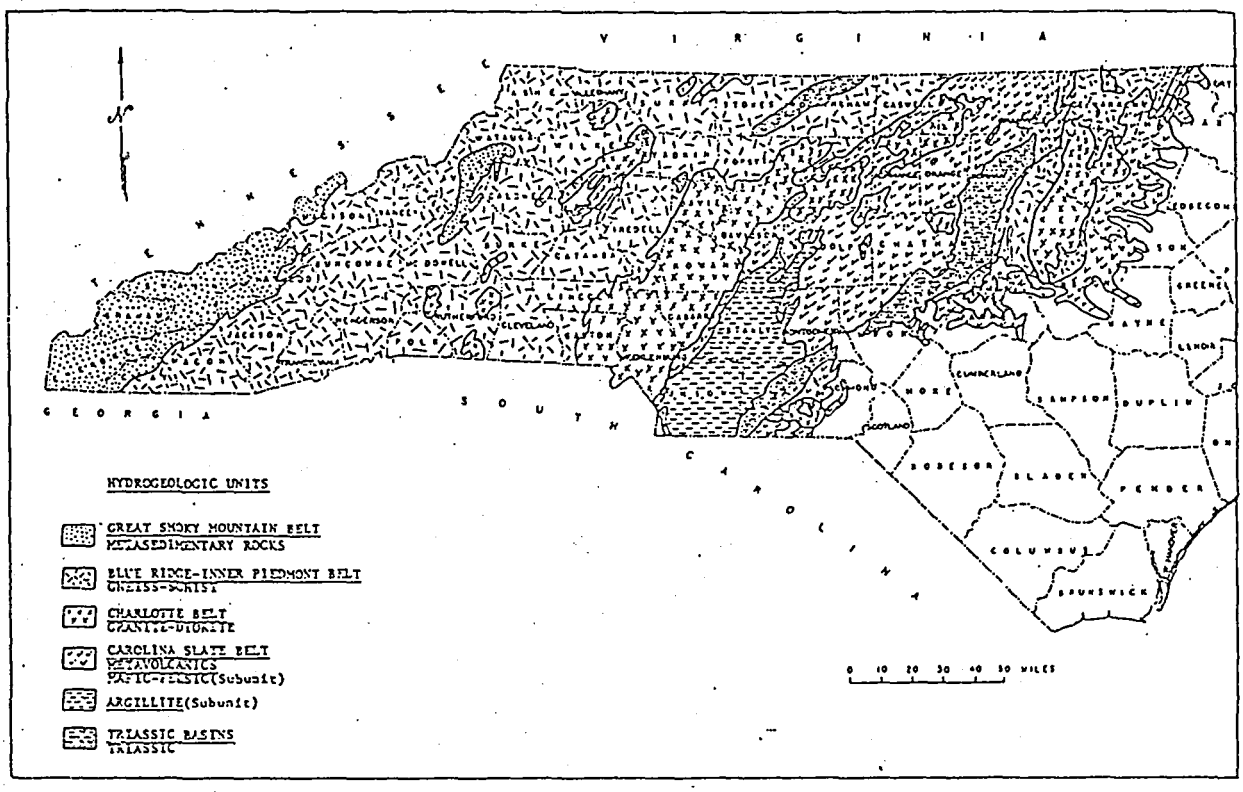
By Ralph C. Heath

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



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.

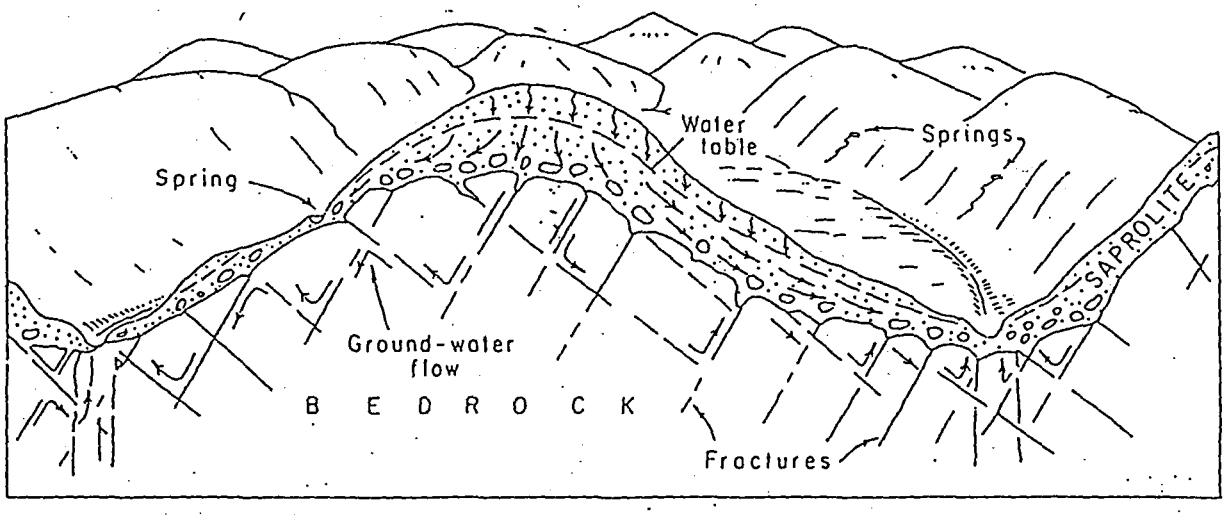
The bedrock underlying the Piedmont and mountains consists of many different types of igneous and metamorphosed igneous and sedimentary rocks. The Generalized Geological Map of North Carolina accompanying the discussion of WATER-BEARING ROCKS divides the bedrock in the Piedmont and mountains into six 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.

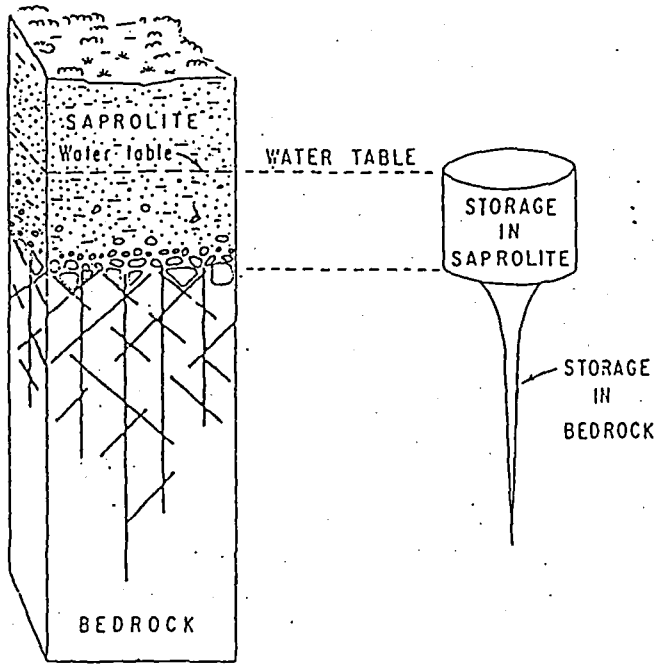
Faults are formed during earthquakes and generally contain larger and more extensive openings than those developed along joints. Joints, however, are far more numerous than faults.

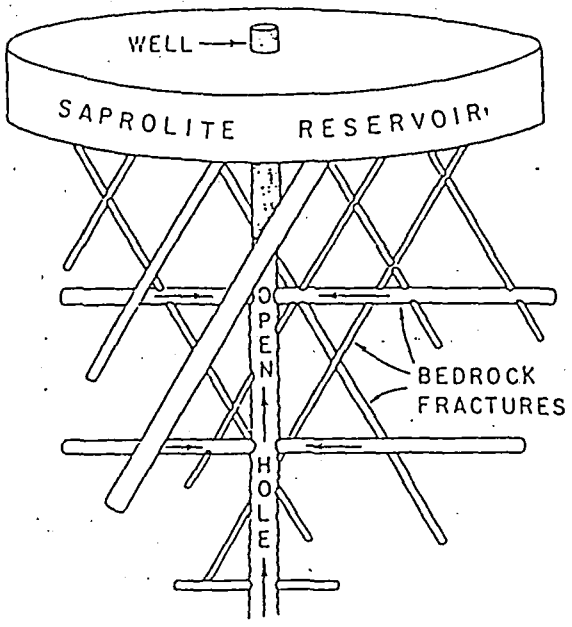
Fractures (joints and faults) are more abundant under valleys, draws, and other surface depressions than under hills. In fact, geologists assume that it is the presence of fractures that determined the position of valleys in the first place. Fractures tend to be more closely-spaced and the openings developed 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.

Ref. 42

CALDWELL COUNTY

616 West Ave., N.W./P.O. Box 2200
Lenoir, North Carolina 28645-2200
Telephone (704) 757-1277

Fire Marshal

Emergency Management

FAX NUMBER SENDING TO: 919-733-4811

TO: Doug RunFord

FROM: Mike Lane

SUBJECT: Thomasville Furniture

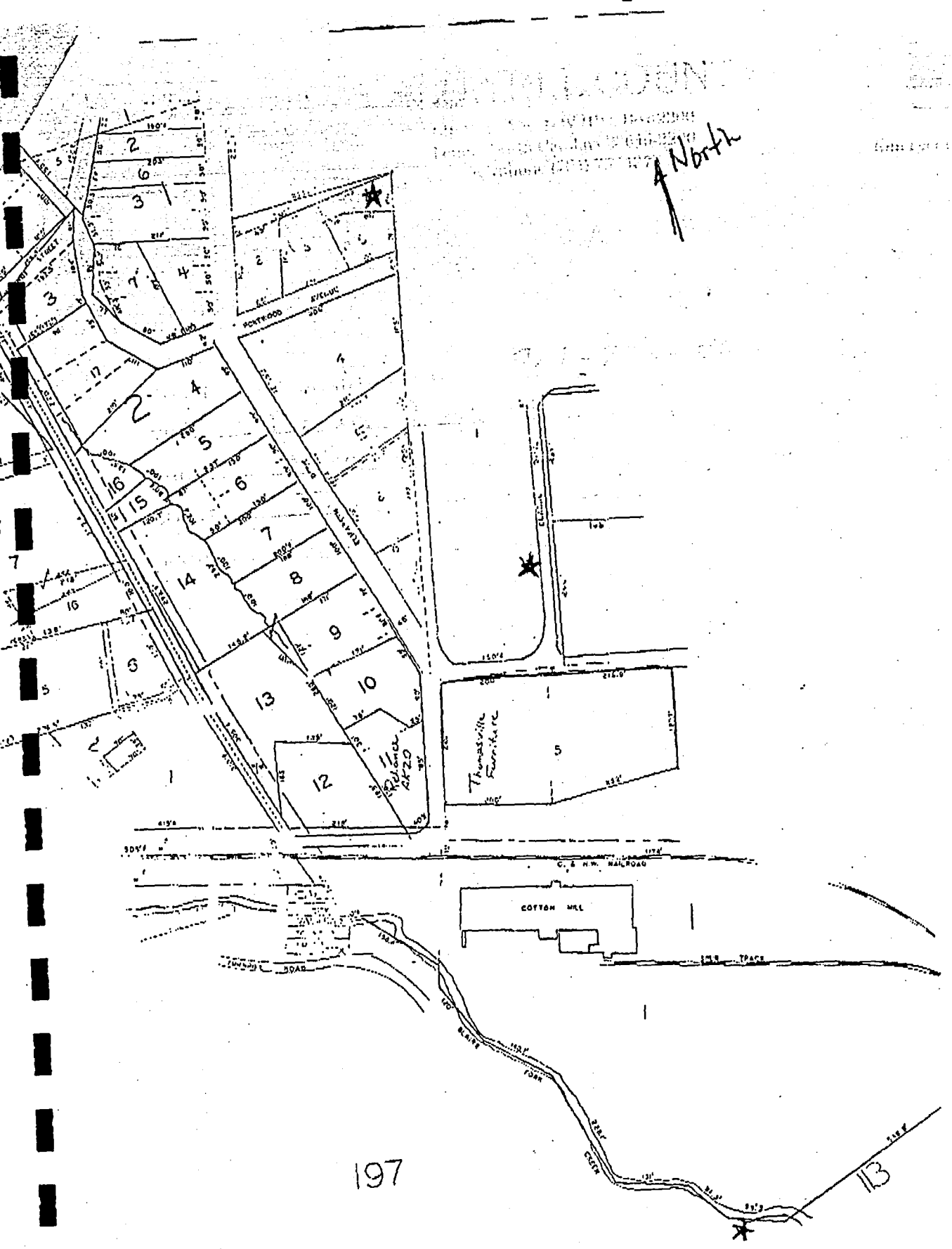
NUMBER OF PAGES: 2 (including cover sheet)

DATE: 11-18-93

IF YOU HAVE ANY PROBLEMS WITH THE FAX TRANSMITTAL PLEASE CALL: 704-757-1353

COMMENTS: This is a map of the Reliance AKZO Thomasville Furniture Area, with approximate locations of well sample locations. All samples were clean with no contamination. The majority of residents in this area are on municipal water supplies Those residents on wells did not want them sampled because they were afraid the wells would be condemned. If you need anything else please call

M. Lane



★ = sampling locations
(residential wells)
all samples were clean
and showed no organic contaminants

Ref. 43

Thomasville

January 27, 1994

Doug Rumford
North Carolina DEHNR
Division of Solid Waste Management
P.O. Box 27687
Raleigh, NC 27611-7687

Re: Thomasville Furniture Industries, Inc.
Lenoir Plant
USEPA I.D. No. NCD 054 290 770

Dear Mr. Rumford:

The following is in response to your letter requesting further information about the Lenoir Plant. If you have any questions about this information please let me know.

Question 1: The plant historically has generated general trash, glue waste and finishing room waste.

Question 2: The type of waste has remained similar. However, the quantity has increased with plant size and production level.

Question 3: From 1969 through 1983 we have no actual knowledge of waste disposal practices. However, it appears that materials were disposed of by a combination of offsite landfills and onsite incineration. While no records indicate onsite disposal, it would appear that materials were placed in onsite trenches during the mid to late 1970s.

Question 4: The incinerator operated from 1979 through 1983. It appears to have burned solid wastes from finishing room cleanup operations and some liquid finishing wastes. The boiler burned non-hazardous solid waste from 1979 through 1983. During the period of 1983 through 1991 solid finishing waste was burned in accordance with our permit. We did not burn any waste material in the boiler from August, 1991 through August, 1992. From August, 1992 until the present we burned non-hazardous finishing wastes in the boiler.

Question 5: No records indicate the exact period that lumber treating was conducted, the time period appears to have been from 1971 to 1975.

Question 6: The buried drum originally found in the parking lot area was discovered during a voluntary investigation of the site by a qualified consultant retained by Thomasville. Please refer to the initial report submitted at the time barrel was discovered.

Question 7: Both the exact time period and reason for on-site disposal is unknown at this time.

*** END OF DOCUMENT ***

THOMASVILLE FURNITURE INDUSTRIES, INC.
THOMASVILLE, NORTH CAROLINA

Question 8: The size of the area to be excavated was determined by the consultant retained by Thomasville to conduct this investigation. Methods of determining the area to be excavated are more fully described in reports previosly submitted to the Superfund Section.

Question 9: Further excavation in Area B would have undermined the building. Further information concerning this area can be found in a report that has just been submitted to the Superfund Section.

Question 10: Laboratory analytical data for the excavated soil and liquid contents of the excavated drums are included in a report just submitted to the Superfund Section.

Question 11: Shipping manifests are included in a report just submitted to the Superfund Section.

I hope these responses will help you finish your report on our site. If I can be of any further help please call me at (910) 476-2108.

Sincerely,

David R. Masters

David R. Masters, General Manager
Personnel, Safety & Environmental Affairs

cc: Tom Gibson

Post-It™ brand fax transmittal memo 7671	# of pages ▸ 2
To Doug Kunford	From Dave Masters
Co.	Co.
Dept.	Phone # 476-2108
Fax # 717-733-4811	Fax # 472-4069

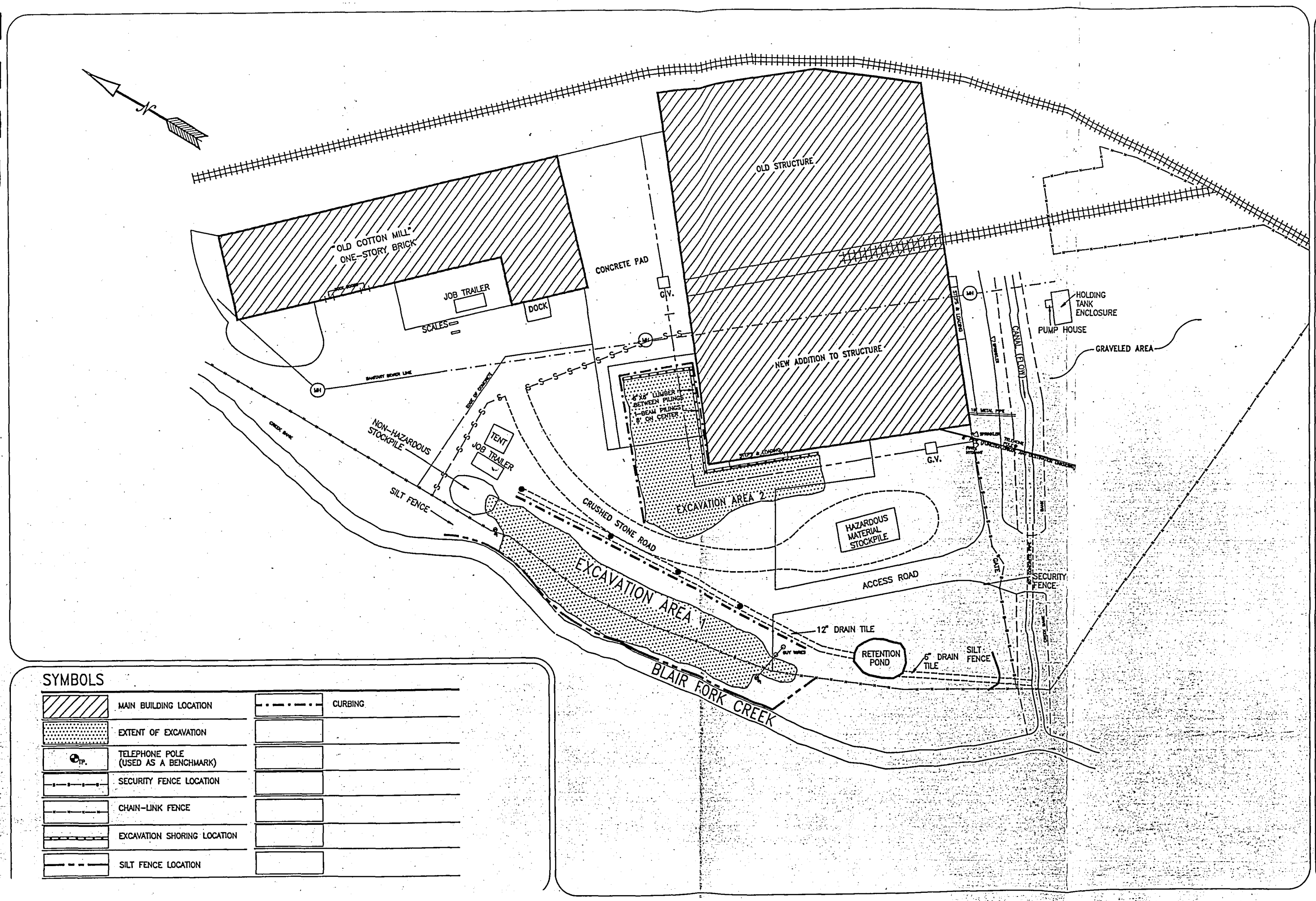
Ref. 44

Excavation Summary Report

Thomasville Furniture Industries, Inc. Facility
Lenoir, North Carolina
ENSCI Job #RT09-025
November 3, 1993

Bruce K. Braswell, P.G.
Senior Hydrogeologist

ENSCI Engineering Group, P.A.
1108 Old Thomasville Road
High Point, North Carolina 27260
(919) 883-7505



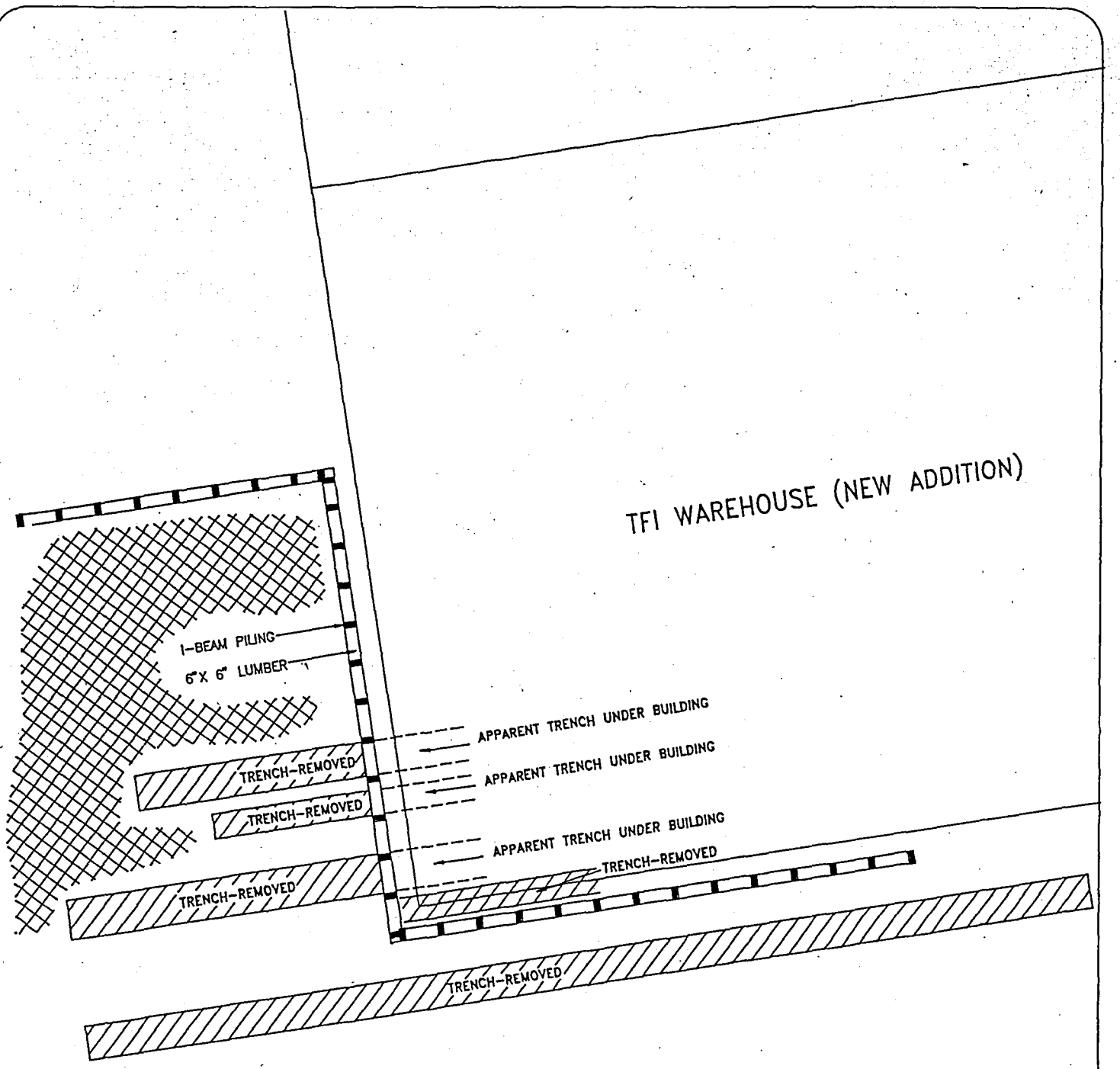
SYMBOLS

	MAIN BUILDING LOCATION		CURBING
	EXTENT OF EXCAVATION		
TP.	TELEPHONE POLE (USED AS A BENCHMARK)		
	SECURITY FENCE LOCATION		
	CHAIN-LINK FENCE		
	EXCAVATION SHORING LOCATION		
	SILT FENCE LOCATION		

CLIENT: THOMASVILLE FURNITURE INDUSTRIES
PROJECT NAME: LENOIR SITE
CITY: LENOIR
STATE: NORTH CAROLINA
DRAWING TITLE: REMEDIAL OPERATIONS LAYOUT

ENSR® ENGINEERING GROUP, P.A.

SCALE: 1"=80'
DATE: 10/18/93
DRAWN BY: DJ
CHECK BY: BB
JOB: R109-023
JOB TYPE: DRUMMING
DRAWING NAME: TFSITE
LAYER: 0
FIGURE: 3



LEGEND

	APPARENT TRENCH UNDER BUILDING
	EXCAVATED TRENCH
	AREA EXCAVATED TO REMOVE MISCELLANEOUS DEBRIS

ENNI® ENGINEERING GROUP, P.A.

CLIENT: THOMASVILLE FURNITURE IND.	SCALE: 1"=30'	DRAWN BY: DJ	
PROPERTY NAME: LENOIR SITE	DATE: 10/5/93	CHECK BY: BB	
CITY: LENOIR / STATE: NORTH CAROLINA		JOB NUMBER: RT09025	
		TYPE: DRUMDIG	
TITLE: TRENCH LOCATION MAP	DRAWING NAME: TFISITE2	FIGURE NUMBER: 9	

0 15 30
GRAPHIC SCALE IN FEET
(1"=30')

puncturing of any drums encountered. All of these machines were outfitted with 3/4" thick lexan blast shields to protect the equipment operator in the event of an explosion and supplied air for operator respiration. Equipment operators and the Response Team were always in constant communication with the job trailer (Command Center) via intrinsically safe voice activated radios manufactured by EARMARK®, Inc. in Hamden, Connecticut. Whenever excavating activity was in progress within the EZ, there were two responders suited up in high Level B PPE and ready to respond to any situation that may develop in the EZ.

Soil in the excavation area within the EZ was removed in 6-inch lifts by the trackhoes in order to prevent damage to encountered drums. Whenever a suspicious object was encountered, the operator would notify the Command Center and request assistance from the Response Team, if required. If requested, the Response Team would approach the excavation location to assist the equipment operator in identification of the suspicious object. All excavating activity in the EZ stopped when the Response Team was requested. The responders would approach the excavation and attempt to identify the nature of the encountered object. If identification was not possible, the responders would return to the CRZ while the equipment operator attempted to expose the unknown object.

Soil from the drum excavation areas was removed from the cells and transferred with a front end loader to the hazardous soil stockpile, or loaded directly onto trucks for transportation to the disposal facility. Additional safety procedures for excavation and drum removal are included as **Appendix A**.

3.2 Drum Removal Procedures

When buried drums were encountered, they were removed from the excavation using the trackhoe or a trackhoe fitted with a grappling device instead of an excavation bucket. The drums were placed upright beside the excavation. Competent (intact) drums, suspected of containing materials other than glue, were remotely placed in a steel blast berm. In order to prepare for the possibility that the drums contained shock-sensitive materials, each competent drum was remotely opened using a brass spike which was mounted on the drum grappler. All drums excavated were placed in overpack drums and profiled into TFI's current treatment storage and disposal facility (TSD), using analytical data generated by ENSCI during this phase of the project.

After remote opening, or if the contents of the drum were identified, the two-member response crew moved into the area, where they noted the condition and suspected contents of the drum, labelled the drum using spray paint, aided the grappler operator

2.8 Road Construction

After the commencement of hazardous soil and debris transportation, a road was constructed from the outer perimeter of the CRZ to the hazardous soils loading area to minimize dust from heavy truck traffic. The road was constructed on March 22 using 4-inch by 4-inch posts to form the edges and crushed stone between the posts (see **Figure 3**). This road bed prevented truck tires from picking up soil materials and moving the materials beyond the CRZ. Soil material was frequently cleaned from the crushed stone road bed by using the front end loader to scrape up the impacted road bed and load it onto the hazardous waste stockpile for disposal.

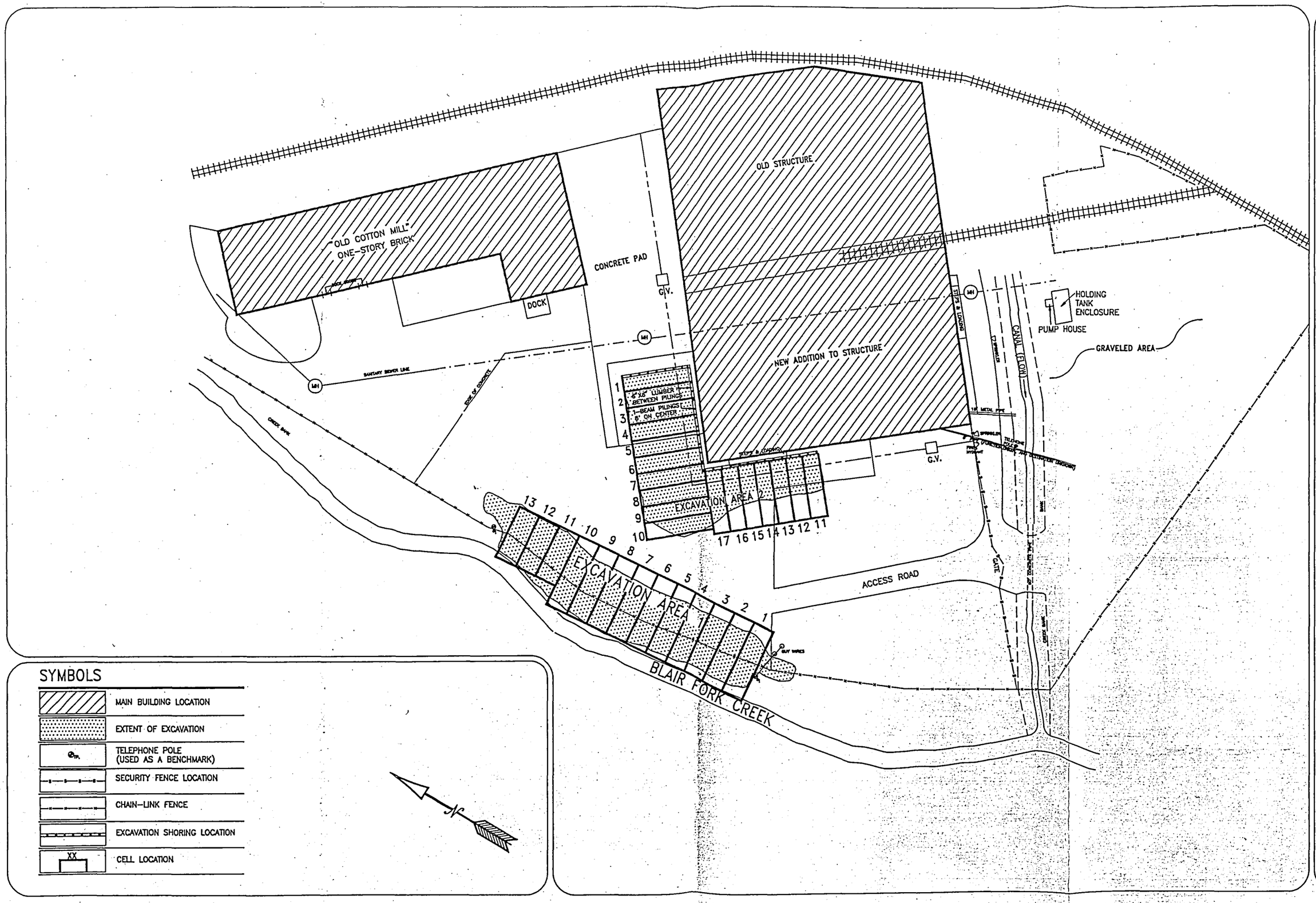
3. Excavation Activity

3.1 Excavation Procedures

Soil excavated during the construction of drainage ditches and the retention pond was field-screened using an Organic Vapor Analyzer (OVA) and placed in the non-hazardous soil stockpile. Placement in a stockpile did not constitute a definitive decision on the hazardous or non-hazardous characteristics of the soil. Samples from the stockpile were collected and analyzed prior to disposal (see **Table 1** and **Appendix B**).

Excavation for drum removal was performed in Excavation Areas 1 and 2 (see **Figure 8**). The areas were divided into cells to limit the exposed surface area in the event of rainfall and to facilitate backfilling operations. The initiation of excavating activity began on the south side of Excavation Area 1 and proceeded northward. Excavation Area B started on the northeastern side of the excavated area and proceeded toward the southwest. When the excavated area reached the western corner of the warehouse building, it was discovered that two debris filled trenches were present beyond the warehouse building to the southwest. The first trench was under the footing of the warehouse building, and excavation of the materials was performed between shoring I beams in 8-foot sections. The areas excavated under the footing were immediately filled with hardened concrete (5000 psi) to prevent settling of the footer. The trench extended from the western corner of the building under the footing for approximately 24-feet toward the southeast. The last trench to the southwest extended toward the southeast approximately 104-feet from the corner of the warehouse building (see **Figure 9**).

Equipment operating in the EZ included two trackhoes equipped with excavating buckets and a trackhoe equipped with a drum grappler. Both trackhoes equipped with excavating buckets had metal plates welded over the teeth of the bucket to prevent tearing and/or


"OLD COTTON MILL"
ONE-STORY BRICK
DOCK
CONCRETE PAD
G.V.
OLD STRUCTURE
NEW ADDITION TO STRUCTURE
SANITARY SEWER LINE
EDGE OF CONCRETE
CREEK BANK
4"x6" LUMBER
BETWEEN PILINGS
1-BEAM PILINGS
8' ON CENTER
EXCAVATION AREA 2
EXCAVATION AREA 1
BLAIR FORK CREEK
ACCESS ROAD
GATE
HOLDING
TANK
ENCLOSURE
PUMP HOUSE
GRAVELED AREA
CANAL (FLOW)
1" METAL PIPE
SPRINKLER
TELEPHONE POLE
FIRE HYDRANT
GUY WIRES
SYMBOLS
MAIN BUILDING LOCATION
EXTENT OF EXCAVATION
TELEPHONE POLE
(USED AS A BENCHMARK)
SECURITY FENCE LOCATION
CHAIN-LINK FENCE
EXCAVATION SHORING LOCATION
CELL LOCATION
GRAPHIC SCALE IN FEET
0 20 40 60 80 120 160
THOMASVILLE FURNITURE INDUSTRIES
LENOIR SITE
LENOIR
NORTH CAROLINA
EXCAVATION CELL LOCATIONS
DRAWN BY DJ
CHECK BY BB
JOB RT09-023
JOB TYPE DRUMMOND
FIGURE 8
SCALE 1"=80'
DATE 10/8/93
DRAWING NAME TRISITE
LAYER 0
ENSR
ENGINEERING GROUP, P.A.