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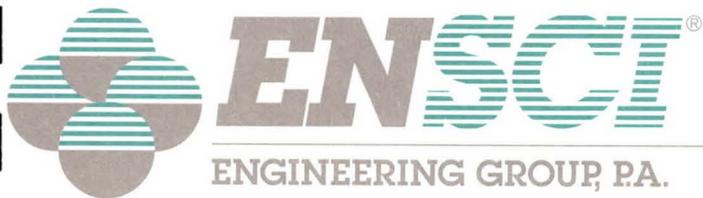
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June 9, 1993

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

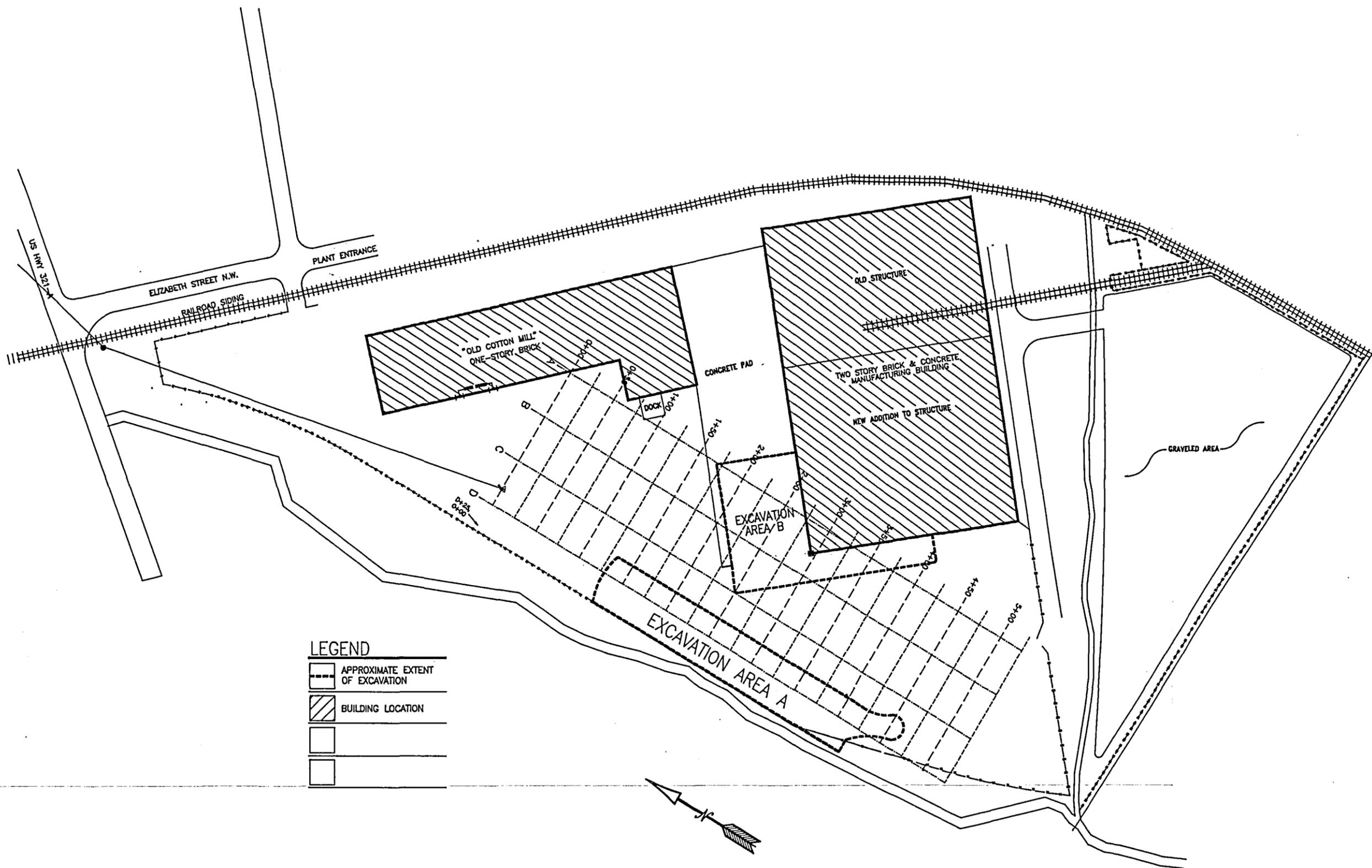
Post Office Box 80275
Raleigh, North Carolina 27623-0275

T (919) 787-8209
F (919) 881-8205

1108 Old Thomasville Road
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T (919) 883-7505
F (919) 882-7958





LEGEND

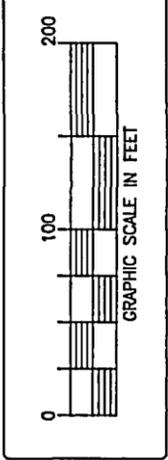
- APPROXIMATE EXTENT OF EXCAVATION
- BUILDING LOCATION
-
-



CLIENT: THOMASVILLE FURNITURE INC.
 PROJECT NAME: LENOIR PLANT
 CITY: LENOIR STATE: NORTH CAROLINA
 DRAWING TITLE: EXCAVATION AREAS

SCALE: 1" = 100'
 DATE: 6/8/93
 DRAWING NO.: IFT-DD
 LAYER: 0

DRAWN BY: DJ
 CHECK BY: BB
 DATE: 6/8/93
 JOB NO.: DRUM DIG
 DRAWING NO.: IFT-DD
 LAYER: 0



TFI, Lenoir, NC/NCDEHNR/D. Rumford
June 9, 1993
Page 2

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, 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.

H₂O sol - floats, Combustibility = flammable, Iodine Crystal - red/orange/yellow - indicates

acetate, alcohol, ketone or mixture - H₂O 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: _____

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

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



February 25, 1994

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

Subject: Site Inspection Prioritization
Thomasville Furniture Industries NCD 054 290 770
Lenoir, Caldwell County, NC

Dear Mr. Benedikt:

This report contains the findings of the Site Inspection Prioritization of the Thomasville Furniture Industries site (NCD 054 290 770), located near Highway 321-A on Elizabeth Street in Lenoir, Caldwell County, North Carolina.

The Thomasville Furniture Ind. (TFI) Site is an active furniture manufacturing facility which has caused the contamination of soil and groundwater on-site in Lenoir, Caldwell County, North Carolina. A series of former on-site burial trenches that were in operation from 1975 to 1979 have been determined to be the source of groundwater contamination. During this time, drummed solid and liquid solvent wastes were deposited in a series of trenches approximately 9 feet deep. Volatile and semi-volatile organic compounds have been detected in on-site monitoring well samples and soil samples. Surface water and sediment samples collected below the site PPE did not reveal a release of site specific contaminants to the surface water pathway. However, sediment and aqueous samples collected from Blair Fork at locations upstream of the TFI site PPE revealed elevated levels of petroleum hydrocarbons.

The facility operated a dip tank with a solution of phenolic compounds until 1978 for the purpose of wood treatment and preservation. Contamination of the soil around the vat resulted following a release of spent preservation solution. The contaminated soil surrounding the dip tank was excavated and removed to a RCRA permitted disposal facility in 1991.

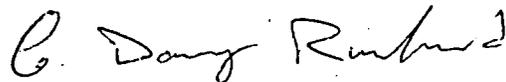
Mr. Benedikt
February 25, 1994
page 2

A phased site investigation by private contractors has revealed several buried trenches at the western edge of the TFI property. Approximately 14780 tons of contaminated soil and 153 55-gallon drums have been removed from the excavation area. The lateral extent of excavation was halted at the foundation of the warehouse which was built in 1988. Buried waste drums and contaminated soil could possibly extend underneath the warehouse.

An observed release to groundwater of contaminants attributable to the site has been documented. However, the majority of nearby residents have access to city supplied water, with very few utilizing private drinking water wells. Several private wells in the area have been sampled revealing no off-site migration of contaminants. No surface water intakes or sensitive environments have been impacted as a result of conditions at the site. Based upon the above factors, the NC Superfund Section recommends that no further remedial action be taken under CERCLA or SARA, and that a "No Further Remedial Action Planned" (NFRAP) status be assigned this site.

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

Sincerely,



G. Doug Rumford,
Hydrogeologist
NC Superfund Section

**STATE OF
NORTH CAROLINA**

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

SITE INSPECTION PRIORITIZATION

**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**

SITE INSPECTION PRIORITIZATION

Thomasville Furniture Industries
NCD 054 290 770
Lenoir, Caldwell County, North Carolina

February 1994

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

Prepared by:



Doug Rumford
Hydrogeologist

Reviewed by:



Pat DeRosa
CERCLA Branch Head

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FIGURE 3 **N.C. DOT AERIAL PHOTOGRAPH MAP 4**

EXECUTIVE SUMMARY

The Thomasville Furniture Industries (TFI) Site is an active furniture manufacturing facility which has caused the contamination of soil and groundwater on-site in Lenoir, Caldwell County, North Carolina. A series of former on-site burial trenches that were in operation from 1975 to 1979 have been determined to be the source of groundwater contamination. During this time, drummed solid and liquid solvent wastes were deposited in a series of trenches approximately 9 feet deep. Volatile and semi-volatile organic compounds have been detected in on-site monitoring well samples and soil samples. Surface water and sediment samples collected below the site PPE did not reveal a release of site specific contaminants to the surface water pathway. However, sediment and aqueous samples collected from Blair Fork at locations upstream of the TFI site PPE revealed elevated levels of petroleum hydrocarbons.

The facility operated a dip tank with a solution of phenolic compounds until 1978 for the purpose of wood treatment and preservation. Contamination of the soil around the vat resulted following a release of spent preservation solution. The contaminated soil surrounding the dip tank was excavated and removed to a RCRA permitted disposal facility in 1991.

A phased site investigation by private contractors has revealed several buried trenches at the western edge of the TFI property. Approximately 14780 tons of contaminated soil and 153 55-gallon drums have been removed from the excavation area. The lateral extent of excavation was halted at the foundation of the warehouse which was built in 1988. Buried waste drums and contaminated soil could possibly extend underneath the warehouse.

An observed release to groundwater of contaminants attributable to the site has been documented. However, the majority of nearby residents have access to city supplied water, with very few utilizing private drinking water wells. Several private wells in the area have been sampled revealing no off-site migration of contaminants. No surface water intakes or sensitive environments have been impacted as a result of conditions at the site. Based upon the above factors, the NC Superfund Section recommends that no further remedial action be taken under CERCLA or SARA, and that a "No Further Remedial Action Planned" (NFRAP) status be assigned to this site.

1.0 Introduction

Under authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the N.C. Superfund Section conducted a Site Inspection Prioritization (SIP) for the Thomasville Furniture Industries (TFI) facility in Lenoir, Caldwell County, North Carolina. The purpose of this investigation was to update information on conditions at the TFI site and potentially impacted populations and sensitive environments not documented in the original site inspection report, December 1988 (Ref. 2). This data was used to assess the threat posed to human health and the environment and to determine the need for additional CERCLA/SARA or other appropriate action. The scope of the Site Inspection Prioritization included review of available file information, a revised target survey and a more thorough evaluation of the surface water pathway. Additional sources of information used in this evaluation include Phase I, II, III, and IV Assessment Reports prepared by ENSCI Corporation (Refs. 3; 4; 5; 28).

2.0 Site Description, Operational History and Waste Characteristics

2.1 Location

The Thomasville Furniture Industries facility is located in a semi-urban area of Lenoir, Caldwell County. The geographic coordinates of the site are 35° 55' 58.5" North Latitude and 81° 32' 32" West Longitude (Ref. 1; Fig. 1). The TFI site is near US Highway 321-A on Elizabeth Street, approximately 1/2 mile north of downtown. The climate in this area is characterized as temperate. Mean annual precipitation is 52 inches with a mean annual evaporation of 36 inches, yielding a net annual precipitation of 16 inches (Ref. 6). The 2-year, 24-hour rainfall for this area is 3.5 inches (Ref. 7).

The elevation of the facility ranges from a minimum of 1120 feet above Mean Sea Level (MSL) to a maximum of 1150 feet above MSL. The surrounding areas range in elevation from 1120 to 1320 feet above MSL within a 1-mile radius of the site. Elevations in the surrounding areas generally increase to the north and northwest (Ref. 8).

2.2 Site Description

The TFI site is an active furniture manufacturing facility approximately 30 acres in size (Ref. 9). The area of concern at the site is a series of former trenches used for dumping process wastes which included general trash, glue wastes and finishing room wastes (Ref. 43). This area is currently a hard packed gravel and asphalt parking lot (Ref. 3, Cross-Section).

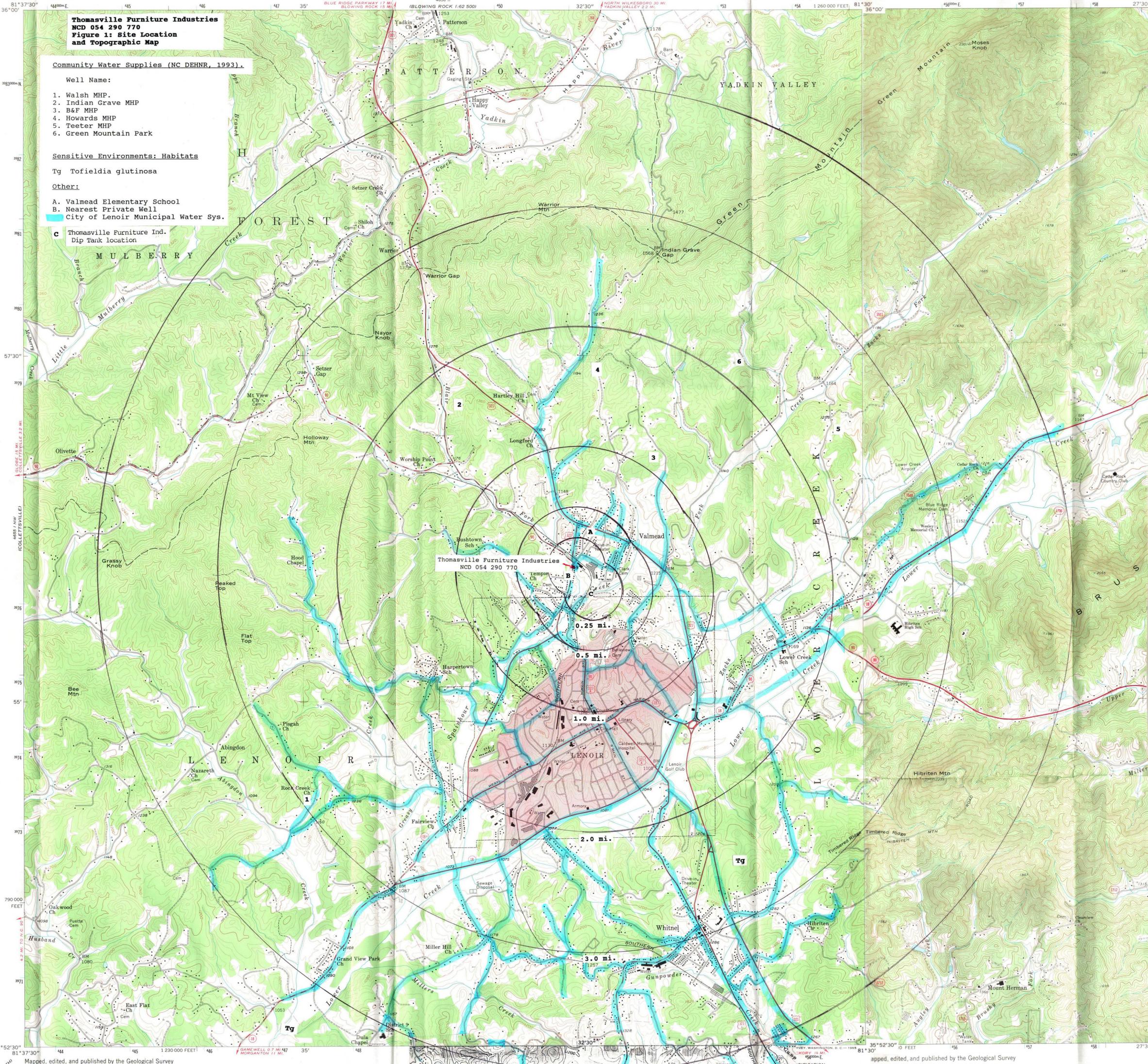
62-002-22-59W

KINGS CREEK, N. C.
N3552.5-W8122.5/7.5
1970
AMS 4755 IV NW-SERIES V842

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LENOIR QUADRANGLE
NORTH CAROLINA-CALDWELL CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



**Thomasville Furniture Industries
NCD 054 290 770
Figure 1: Site Location
and Topographic Map**

Community Water Supplies (NC DEHNR, 1993).

Well Name:

1. Walsh MHP.
2. Indian Grave MHP
3. B&F MHP
4. Howards MHP
5. Teeter MHP
6. Green Mountain Park

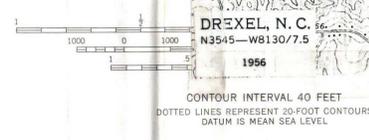
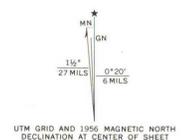
Sensitive Environments: Habitats

Tg Tofieldia glutinosa

Other:

- A. Valmead Elementary School
- B. Nearest Private Well
- C. City of Lenoir Municipal Water Sys.
- c Thomasville Furniture Ind.
Dip Tank location

Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1947. Field check 1956
Polyconic projection. 1927 North American datum
10,000-foot grid based on North Carolina coordinate system
1000-meter Universal Transverse Mercator grid ticks,
zone 17, shown in blue
Fine red dashed lines indicate selected fence and field lines
visible on aerial photographs. This information is unchecked
Red tint indicates area in which only
landmark buildings are shown
Unchecked elevations are shown in brown

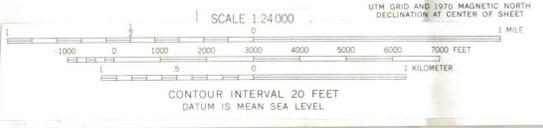


THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods from aerial
photographs taken 1966. Field checked 1970
Polyconic projection. 1927 North American datum
10,000-foot grid based on North Carolina coordinate system
1000-meter Universal Transverse Mercator grid ticks,
zone 17, shown in blue

LENOIR, N. C.
N3552.5-W8130/7.5
1956
AMS 4655 I NE-SERIES V842



UTM GRID AND 1970 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

Access to the site is restricted by a chain-link fence which surrounds the facility (Refs. 3, Fig. 1; 10, p.1). Blair Fork Creek bounds the property to the southwest while the southeastern edge of the property is bounded by the head-waters of Spainhour Creek (Ref. 8; Fig. 1). The site is bounded to the north by Elizabeth and Valmead Streets. The Reliance Universal facility and a petroleum distribution terminal are located northwest of the site (Fig. 3). Several buildings used for warehousing and manufacturing are located on the site (Fig. 3). No evidence of unusually stressed vegetation was found at the site during the on-site reconnaissance (Ref. 10). Land use surrounding the site to a radius of .5 mile is primarily industrial and urban becoming rural to the east, west, and north (Ref. 8). Private residences bound the facility property to the east and the west. The nearest residence is located approximately 200 feet west of the former trench area of the site (Refs. 8; 10, map). The northern edge of the Lenoir city limits boundary is located approximately 0.25 miles south of the facility. The nearest school, Valmead Elementary School, is located approximately 0.25 mile north of the facility (Refs. 8; 10, map).

2.3 Operational History and Waste Characteristics

The TFI site is currently owned by Thomasville Furniture Industries, Inc. and is operated as Thomasville Furniture Industries (Ref. 39). The site has been used for furniture manufacturing by various companies since the early 1900's. TFI purchased the facility from Caldwell Furniture Inc. in 1968 (Ref. 11). TFI filed its RCRA Part A Permit Application on November 17, 1980 and received its RCRA 3001 Permit on May 15, 1986 (Refs. 12; 13). The facility is currently regulated as a RCRA large quantity generator (Ref. 39). The facility also received an air discharge permit, number 4172R5 on March 15, 1984, which expired in October 1987 (Ref. 14).

Wastes generated at the facility are classified as flammable D001 solids and non-halogenated F003 and F005 solvents (Refs. 9; 36; 37). Constituents contained in these F003/5 wastes include acetone, n-butyl alcohol, ethyl acetate, isobutanol, methanol, methyl ethyl ketone, methyl isobutyl ketone, toluene, and xylene (Ref. 37). During the period of 1975 to 1979, scrapings from filler and lacquer booths were drummed and disposed of in on-site trenches, along with solidified formaldehyde based and poly-vinyl acetate based glues (Refs. 9; 12; 43). The trench area is under the facility's asphalt and gravel parking lot near the old cotton mill building (Refs. 5; 17; Fig. 3). In December 1990, a drum thought to contain solvent material was discovered in an excavation pit at the parking lot (Refs. 3, p.3; 40). The drum was manifested off-site along with other solvent waste generated on-site (Ref. 40).

An incinerator operated at the site from 1979 through 1983. Solid wastes from clean-up operations of the finishing room were burned during this period. An industrial boiler, operational from 1979 through 1983, burned non-hazardous solid waste at the facility. Since 1983, the industrial boiler has been operated in accordance with TFI's air discharge permit (Ref. 43).

POLYVU
K&M Division
Torrance, CA 90503
P-119

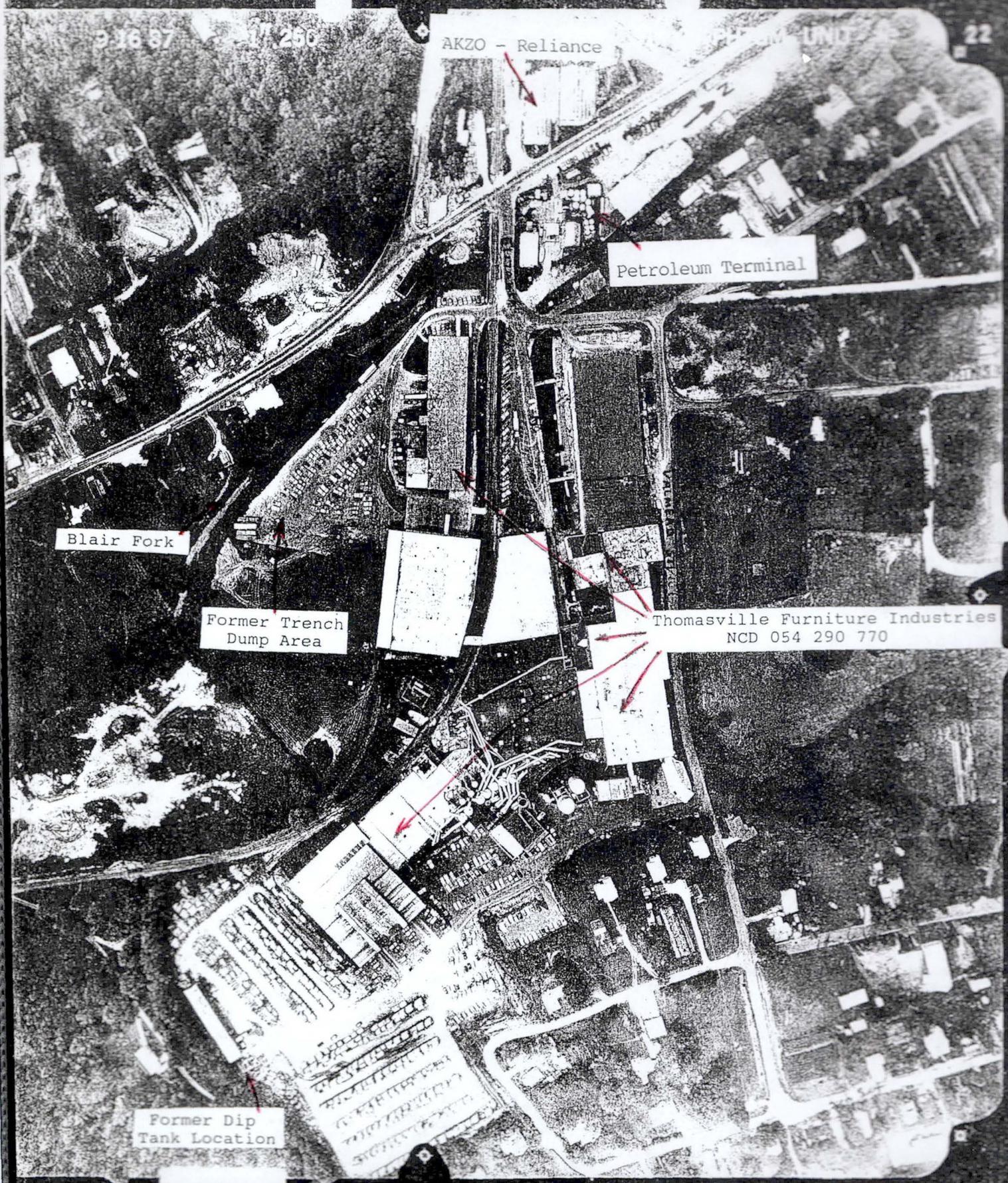


Figure 3. **FORMER TRENCH DUMP AREA**
N.C. DOT Aerial Photograph
1" = 250'

From approximately 1971 to 1975, the facility also conducted lumber treating on-site using phenolic compounds within a dip tank (Refs. 11; 30; 43). The dip tank was located at the southern edge of the property on the bank of Lower Creek (Ref. 10, map; Fig. 3). The geographic coordinates of the former dip tank are 35° 55' 48" North Latitude and 81° 32' 23" West Longitude (Ref. 1). A release to the environment of these F032 classified wastes resulted in the contamination of the soil in the vicinity of the containment vessel (Ref. 15). The contaminated soil, tank bottom sludges, and contaminated wastewater were removed to a RCRA permitted facility in August, 1991 (Ref. 16). Three soil samples from beneath the vat were collected and analyzed for phenolic compounds (Ref. 15).

The North Carolina Department of Human Resources, Solid Waste Management Section performed a Screening Site Investigation (SSI) at the TFI Lenoir site in October 1987 (Ref. 2). A sampling plan was initiated in order to determine if hazardous constituents had been released to soil and surface water at the site. Soil samples were collected at an off-site background location and near the solvent drum storage area. Laboratory analytical data indicated that elevated levels of bis(2-ethylhexyl) phthalate (552 ppm) and dibutyl phthalate (2.7 ppm) were present in soils near the solvent drum storage area (Ref. 2, App. B). Surface water and sediment samples collected from the site drainage ditch and Blair Fork did not indicate a release of hazardous contaminants (Ref. 2). This investigation indicated that further studies should be performed at this site.

In June of 1991, TFI contracted ENSCI Corp. to perform an assessment and sampling investigation of the area where the buried drum was located at the TFI Lenoir site (Ref. 3, p.3). A total of 8 groundwater monitoring wells were installed including: 6 shallow monitoring wells ranging from 10 feet deep to 21 feet deep (including background well MW-1), and 2 deep monitoring wells both 41 feet in depth (Ref. 3, App. B).

Analysis of groundwater samples indicated elevated levels of benzene (0.0056 ppm; 1.1 times background PQL), m-xylene (0.47 ppm; 94 times background PQL), o,p-xylene (0.140 ppm; 28 times background PQL), acetone (0.490 ppm; 2.2 times background), naphthalene (0.050 ppm; 5 times background PQL), 2-methylnaphthalene (0.034 ppm; 3.4 times background PQL), bis(2-ethylhexyl)phthalate (0.120 ppm; 12 times background PQL) present in groundwater (Ref. 3, Table 2, App. E).

In May of 1991, Trigon Engineering Consultants (TEC) performed a closure investigation for TFI in the area of the former wood treatment vat at the Lenoir facility (Ref. 30). The investigation included the installation of a 20 foot deep monitoring well and 2 exploratory soil borings. A groundwater sample and several soil samples were retrieved for laboratory analysis of purgeable halocarbons, phenols and leachable metals. Laboratory analytical data did not reveal detectable constituent concentrations above quantitation limits or above regulatory levels for TCLP (Ref. 30).

In May of 1992, ENSCI Corp. performed a phase II investigation at the TFI site (Ref. 4). This investigation intended to: delineate possible trench locations and buried drums using ground-penetrating radar; define soil gas anomalies and determine contaminant identity using Petrex sampling tubes; and collect surface water and sediment samples from Blair Fork Creek as well as resample existing groundwater monitoring wells (Ref. 4, p.3).

Data from the ground-penetrating radar revealed several linear alignments of hyperbolic reflections underneath the parking lot area. Approximately 225 of these hyperbolic reflections were detected during the survey (Ref. 4, p.8). Results of the Petrex soil gas survey indicated that a definable soil gas plume consisting of a variety of organics is present in the area of the parking lot where drums were later unearthed. These organics include petroleum hydrocarbons, cycloalkanes/alkenes, and halogenated compounds (Ref.4, p.17, Figs. 16,17,19). A second definable soil gas plume, thought to be comprised of toluene, was identified at the northern end of the study area (Ref. 4, Fig. 18).

Surface water samples were collected from 4 locations on Blair Fork Creek (Ref. 4, fig. 6). Sample results revealed the highest levels of contaminants to be from the sample furthest upstream along the TFI property, with the exception of acetone (0.660 ppm), 2-methylphenol (0.011 ppm) and 4 methyl-2-pentanone (0.023 ppm) which were all found in the sample collected at the furthest downgradient location (Ref. 4, Table 4, App. C). Other surface water contaminants detected include: 2-butanone (MEK)(0.024 ppm), toluene (0.008 ppm), ethylbenzene (.011 ppm), and xylene (0.025 ppm). Sediment samples collected from the creek indicated the presence of polar and non-polar petroleum hydrocarbons, oil & grease, and halogenated compounds. The highest concentrations of these compounds were found in the upper reaches of Blair Fork Creek as it enters TFI property, no samples were collected downstream of the site drainage PPE (Ref. 4, p.15, Fig. 6, Table 6).

In October of 1992, a third phase assessment and sampling investigation was conducted by ENSCI Corp. at the TFI facility (Ref. 5). An additional 5 groundwater monitoring wells were installed including: 3 monitoring wells 20 feet deep, 1 monitoring well 15 feet deep, and 1 monitoring well to a depth of 40 feet (Ref. 5, App. B).

Groundwater samples indicated elevated levels of acetone (0.660 ppm; 3.3 times background), carbon disulfide (0.0094 ppm; 1.9 times background PQL), chloroform (0.0077 ppm; 1.5 times PQL), benzene (0.0083 ppm; 1.7 times background PQL), m-xylene (0.900 ppm; 180 times background PQL), o,p-xylene (0.031 ppm; 6.2 times background PQL). A detailed library search was also performed on the groundwater samples indicating elevated levels of 1,1,2 trifluoroethane (15 ppb), isopropyl ether (6 ppb), and an unknown cycloalkane (29 ppb). The following semi-volatile compounds were also detected in the groundwater samples: naphthalene (0.042 ppm; 4.2 times background PQL), dibutyl phthalate (0.025 ppm; 2.5 times PQL), 2-methyl-naphthalene (0.013 ppm; 1.3 times background PQL), and bis(2-ethylhexyl)phthalate (0.140 ppm; 14 times background PQL) (Ref. 5, Tables 2,3,4).

In February of 1993, a Phase IV investigation was conducted by ENSCI Corp. at the TFI facility. Seven exploratory trenches were excavated to determine the extent and pattern of drum burial (Ref. 28).

At that time, a total of 27 drums were encountered and removed from the excavations. All drums were sampled upon removal and field analyzed. Field analysis of the contents of 7 of the drums revealed characteristic hazardous materials that are compounds associated with furniture manufacturing and finishing materials. The liquids in these drums tested positive for the presence of methyl ethyl ketone and xylene compounds (Ref. 28, p. 9,14, App. B).

Three subsurface soil samples were collected from the excavation trenches (Ref. 28, Fig. 2). Laboratory analysis indicated that elevated levels of toluene (10,000 ppm), ethylbenzene (920 ppm), m,p-xylene (2,700 ppm), o-xylene (590 ppm), bis(2-ethylhexyl) phthalate (400 ppm), n-butanol (170 ppm), isobutanol (250 ppm), methanol (320 ppm), isopropanol (290 ppm), and ethanol (230 ppm) were present in the soil samples (Ref. 28, Tables 1,2,3).

On April 27, 1993, Doug Rumford, Pat DeRosa, and Doug Moore of the North Carolina Superfund Section conducted a site reconnaissance at the TFI facility. Excavation operations at the former trench dump area were concentrated in 2 areas: in the parking lot between the Old Cotton Mill building and the warehouse building and along Blair Fork Creek (Ref. 35). At the time of the site reconnaissance, removal activities at both areas of excavation were completed. The excavation pit near the warehouse was observed being backfilled with clean fill material at the time of the reconnaissance (Ref. 10). The lateral extent of this excavated area stops at the edge of the warehouse which was built in 1988. However, buried waste was discovered in trenches right up to the foundation of the building. This indicates that the warehouse was constructed on top of the former trench dump area and that buried waste may extend throughout the area under the building (Refs. 10; 35; 43; 44; Photos).

Excavation of the former trench dump zone adjacent to Blair Fork Creek has been completed, backfilled with clean fill dirt and graded to the surface with gravel. Excavation operations at both of these areas were terminated upon encountering groundwater. At the time of the site reconnaissance, a total of 135 drums had been excavated and overpacked (Ref. 10; Photos). During the time period of March 8, 1993 to May 8, 1993, the excavation operations removed a total of 153 buried drums and 14,780 tons of hazardous soil and debris from the parking area (Ref. 35).

The location of the former wood preserving dip tank was also observed during the course of the site visit. The dip tank and any impacted soil associated with it had been removed in 1991. Inspection of this area did not reveal any visible signs of contamination. A monitoring well is present at the location previously occupied by the dip tank. However, soil and groundwater conditions downgradient of the former tank were not monitored at the time of removal (Ref. 10; 15; 30; Fig. 3).

3.0 Groundwater Pathway

3.1 Hydrogeologic Setting

The TFI facility is located near the western edge of the Inner Piedmont Belt Physiographic Province on the Blue Ridge Front. The region is characterized by moderate relief with low lying hills and peneplained valleys (Ref. 18, p.6).

The site is located on soils classified as Urban Land-Arents complex and Urban Land-Masada complex. The site is underlain almost equally by soils of these types. The Urban Land-Arents soils have been altered by urban development such that identification is not practical. The Masada soil has a brown loam surface layer grading to a clay/sandy clay loam subsoil. This soil type is prone to very rapid surface runoff due to slow infiltration rates (Ref. 19, p.29, Plate 6).

Under the surface soil layer is the saprolite layer. The saprolite layer varies greatly in thickness but typically ranges from 1 to 100 feet thick (Ref. 18, p.22). Drilling records indicate that the depth to the top of the saprolitic zone ranges from approximately 13 to 18 feet below land surface (Refs. 3, App. A; 5, App. B). Hydraulic conductivity of the saprolite layer ranges from 1 to 20 feet per day (3.5×10^{-4} to 7×10^{-3} cm/sec)(Ref. 41). The principal source of groundwater in the area is the unconfined fractured bedrock aquifer. Fractures in the crystalline and metamorphosed bedrock act as conduits for groundwater migration. The overlying saprolite acts as a reservoir for recharge of groundwater to the bedrock (Ref. 18, p.115).

The depth to the top of water in an aquifer is location dependant. During field activities at the site, groundwater was encountered between 6 and 10 feet below land surface (bls) (Ref.5, p.7). 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 (Ref. 18, p.115).

The most likely direction of groundwater flow, within the saprolite portion of the aquifer, under the TFI site is southwest toward Blair Fork Creek (Ref. 8). Under the surficial saprolite layer is the biotite gneiss and schist metamorphic bedrock of the Inner Piedmont Belt (Ref. 20). Groundwater circulation in the bedrock is limited to the joint and shear systems (Ref. 18, p.115). In the Lenoir area, the average depth of wells completed into the biotite gneiss is 123 feet with average yields of 9 gallons of water per minute (Ref. 18, p.72). Neither competent bedrock nor any confining layers were encountered during drilling operations (Refs. 3, App. B; 5, App. B). As a result, no bedrock wells were installed at the TFI site.

3.2 Groundwater Targets

Most residents in the vicinity of the TFI facility are served by the City of Lenoir municipal water system (Ref. 23; Fig. 1). This water system has a surface water source which obtains water from a single intake on Lake Rhodhiss. The City of Lenoir water system intake is located outside of the 4-mile site target distance limit (Ref. 21). As a result, the surface water intake will be unaffected by groundwater conditions at the site. The nearest potable water supply well in relation to the site trench dump area is located 450 feet west of the site on Boxwood Road (Refs. 8; 10). An EPA TAT-Team sampled this well and also a well north of the TFI site with the results showing no elevated levels of contaminants in either well (Ref. 32). Two wells upgradient of the site and one downgradient well were sampled by the Caldwell County Health Department. Laboratory analytical results indicated that these 3 wells were free of chemical contaminants (Refs. 33; 42). Seven community wells were identified within a 4-mile radius of the site (Ref. 22). There are no designated wellhead protection areas within the state of North Carolina (Ref. 34). A breakdown of residents who are not supplied with municipal potable water is as follows (Refs. 22; 23):

<u>Distance From Facility</u>	<u>Individual Well Residents</u>	<u>Community Well Residents</u>	<u>Total</u>
0 - 1/4 mi.	104	0	104
1/4 - 1/2 mi.	485	0	485
1/2 - 1 mi.	408	0	408
1 - 2 mi.	1360	255	1615
2 - 3 mi.	1811	592	2403
3 - 4 mi.	<u>2369</u>	<u>0</u>	<u>2369</u>
	6537	847	7384

3.3 Groundwater Conclusions

An observed release to groundwater has occurred at the TFI site. Elevated levels of volatile and semi-volatile organic compounds were detected in several on-site monitoring wells screened in the surficial portion of the aquifer system. There are no drinking water wells located within the area of known groundwater contamination. There is no documented evidence of any off-site wells being impacted by hazardous constituents migrating from the site. Most of the residents within the 4-mile radius of the TFI facility receive their potable water from the City of Lenoir Water System. This system is not likely to be affected by contaminated groundwater related to the TFI site because the city system draws water from a surface source located 11 miles from the site. Due to the extensive groundwater sampling data available, the NC Superfund Section did not conduct any further sampling.

4.0 Surface Water Pathway

4.1 Hydrologic Setting

The Thomasville Furniture Industries facility is located in the watershed of Blair Fork Creek. The watershed covers approximately 5 square miles. The site drainage area is approximately 28 acres, with runoff directed off the site through a drainage ditch into Blair Fork Creek (Refs. 8; 10). Overland flow is directed to a drainage ditch which runs through the TFI property (Ref. 10; Photos). This intermittent drainage ditch enters Blair Fork Creek approximately 300 feet southeast of the former trench dump site. Surface water and sediment samples collected from the drainage ditch and downstream of the site PPE on Blair Fork, in 1987 by NC Superfund personnel, did not reveal any detectable hazardous constituents (Ref. 2).

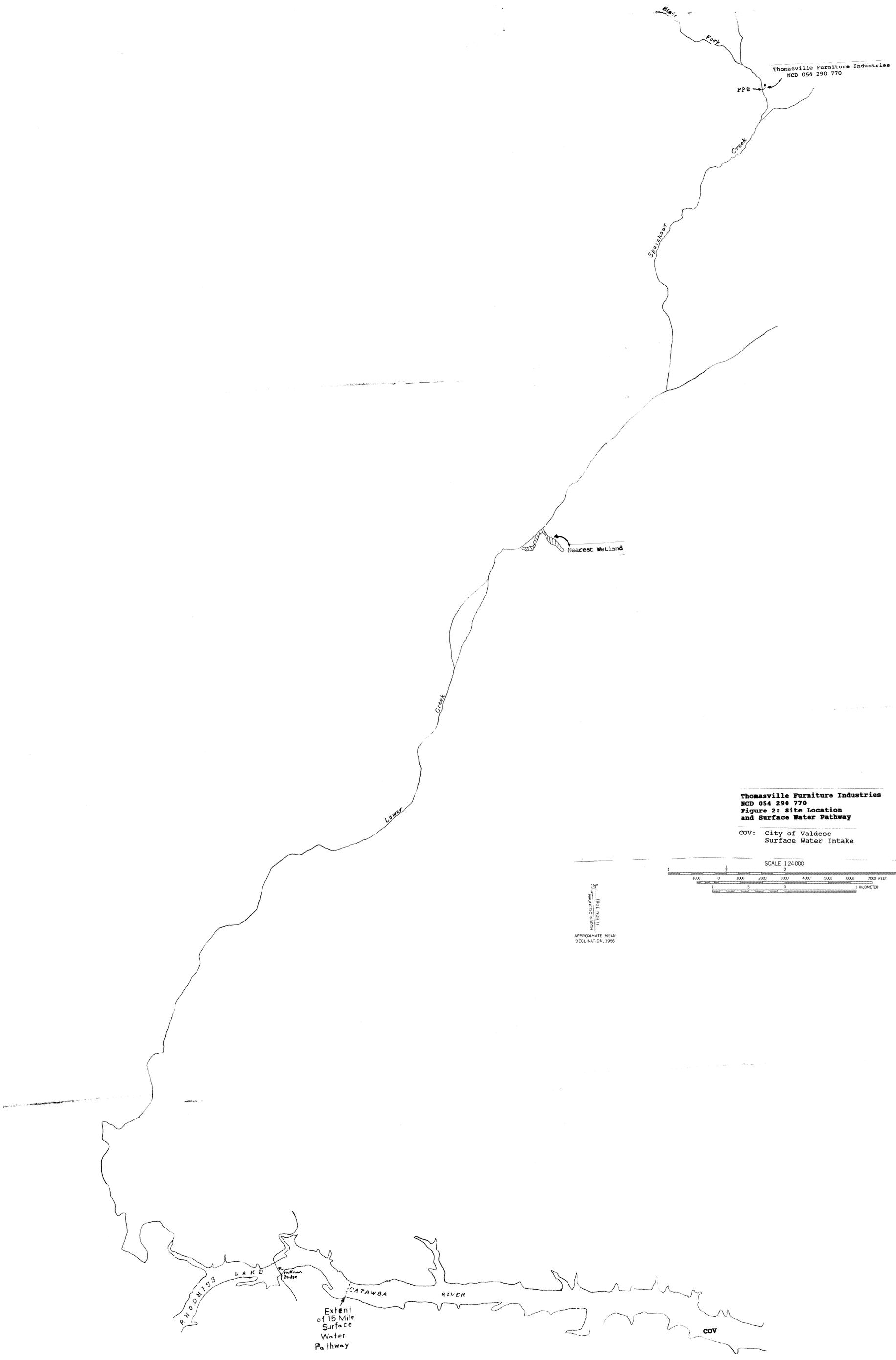
The surface water pathway begins at the point where the drainage ditch enters Blair Fork and continues approximately 0.25 miles south to the confluence with Spainhour Creek. From Spainhour Creek, the surface water pathway continues approximately 2.75 miles south to the confluence with Lower Creek. Lower Creek flows approximately 10.5 miles further until it joins the Catawba River at Lake Rhodhiss. The 15-mile surface water pathway ends approximately 0.75 miles east of Huffman Bridge (Fig. 2).

Flow rates in Blair Fork Creek were calculated to be 8 cubic feet per second (cfs) near the TFI site. At Highway 18 near Lenoir, the flow rate of Spainhour Creek was calculated to be 12 cfs. Flow rates in Lower Creek near Gamewell were calculated to be 85 cfs. Flow rates in the Catawba River/Lake Rhodhiss near the end of the 15-mile surface water pathway were calculated as 1357 cfs (Ref. 24). The former burial trenches at the TFI facility are located within the 100-year floodplain zone of Blair Fork Creek (Ref. 25).

4.2 Surface Water Targets

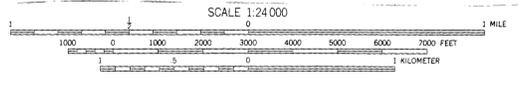
Although the cities of Lenoir, Granite Falls, Morganton, and Valdese utilize surface water, none of these cities operate surface water intakes along the 15-mile surface water migration pathway (Ref. 21). One 12.8 acre wetland with 0.10 miles of frontage was identified on Lower Creek, approximately 4.75 miles downstream of the site (Ref. 26). The Catawba River/Lake Rhodhiss is classified as being suitable for primary recreation as well as water supply (Ref. 29). Neither Spainhour Creek nor Blair Fork are designated as suitable for water supplies (Ref. 29). Lower Creek, below the Town of Gamewell, is classified as suitable for water supplies (Ref. 29).

There is an area at mile 5 of the migration pathway, at the confluence of Lower and Abingdon Creeks, that supports the habitat of the Sticky Bog Asphodel (*Tofieldia glutinosa*) (Fig. 1). This plant species is classified as a candidate for listing as an endangered or threatened species by the State of North Carolina (Ref. 26). Recreational fishing is documented downstream of the site in Spainhour Creek and Lower Creek. Lake Rhodhiss receives heavy recreational fishing pressure (Ref. 27).



Thomasville Furniture Industries
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**Figure 2: Site Location
 and Surface Water Pathway**

COV: City of Valdese
 Surface Water Intake



TRUE NORTH
 MAGNETIC NORTH
 APPROXIMATE MEAN
 DECLINATION, 1956

Extent
 of 15 Mile
 Surface
 Water
 Pathway

4.3 Surface Water Conclusions

Elevated levels of several volatile organic compounds, semi-volatile organic compounds, and petroleum hydrocarbons have been detected in Blair Fork sediment and surface water samples upstream of the site PPE. The majority of the residents in the vicinity of the site rely on surface water derived from sources outside the target area. There are no surface water intakes located along the 15-mile migration pathway. The greatest threat of a contaminant release to surface water would be to recreational activities including fishing and swimming in Lower Creek and Lake Rhodhiss. Due to the classification of Lake Rhodhiss as being suitable for public water supply, future usage of water within the target distance limit for drinking water purposes is possible.

5.0 Soil Exposure and Air Pathways

5.1 Physical Conditions

Access to the former drum dump area at the TFI facility is restricted by a chain-link fence that surrounds the property. In addition to the fence, access to the southwestern section of the property is restricted by Blair Fork Creek. (Ref. 10). In 1988, the dirt and gravel surface in this parking area was asphalted (Refs. 10, p.1; 3, App. B). Drummed solid and liquid wastes were buried at a depth ranging from 2 to 9 feet below the surface of the parking area (Ref. 28, p.7). Approximately 14,780 tons of hazardous soil was excavated from the area of concern. All hazardous materials were disposed of at an off-site facility (Ref. 35). Following excavation of the drum burial trenches, the area was backfilled to within approximately 8 inches below grade. Crusher run gravel was used to complete backfilling the excavations to grade (Ref. 28, p. 7).

Approximately 51 tons of contaminated soil was removed from the former wood treatment vat area (Ref. 16). At the time of the site reconnaissance, this area had already been returned to surrounding grade (Photos). Areas surrounding the site are mostly comprised of residential, industrial, and commercial land uses. Properties to the northwest of the site include a bulk fuel oil distribution center and the former Reliance Universal industrial chemical manufacturing facility. The property adjoining the site to the south is a former cement/concrete plant (Ref. 10). A Southern Railroad spur line runs through the center of the TFI property.

5.2 Soil and Air Targets

Activities at the TFI facility require an average of 725 workers on site per work day (Ref. 10). Rural residences are located within the 0.25 mile radius of the site (Refs. 8; 10). The nearest residence is approximately 200 feet west of the buried drums source area, across Blair Fork (Ref. 8). The northern boundary of the City of Lenoir is located 0.25 mile south of the facility. The nearest school, Valmead Elementary School, is located approximately 0.25 mile north of the site (Refs. 8; 10). There are no wetlands or State or Federal threatened or endangered terrestrial species located on the site. However, the habitat of a plant species listed by the state as being of special concern is located approximately 2.5 miles southeast of the site (Ref. 26). Populations surrounding the site to within a 4-mile radius were determined by the N.C. State Center for Geographic Information and Analysis (NCSCGIA) (Ref. 31). The results of the survey are shown below:

Radius, miles	Population within ring	Cumulative Population
On-site Targets	725	725
0.0 - 0.25	416	1141
0.25 - 0.50	869	2010
0.5 - 1.0	3054	5064
1.0 - 2.0	6509	11573
2.0 - 3.0	4317	15890
3.0 - 4.0	5860	21750

5.3 Soil Exposure and Air Pathway Conclusions

Surface and subsurface soil samples were collected and indicate there has been a release of several volatile and semi-volatile compounds at the site. Air sampling has not been conducted at the site. Access to the site is limited by the fence as well as Blair Fork and Spainhour Creeks. Schools and residences are greater than 200 feet from the source areas. There are no threatened or endangered terrestrial species that inhabit the site. The primary threat of contaminant exposure in this pathway is to workers on the site through possible windblown particulate and gaseous emissions.

6.0 Summary and Conclusions

The Thomasville Furniture Industries facility in Lenoir, North Carolina was assessed to identify potential threats posed to human health and the environment. This assessment was also used to determine the need for further investigation at the site. Review of laboratory analytical data for all migration pathways revealed the groundwater pathway to be the pathway of primary concern. Analysis of groundwater samples collected on site indicate the presence of contaminants which are attributable to operations at the facility. There is a potential for future off-site migration of the plume of contaminated groundwater. However, due to the lack of actual contamination of groundwater targets in the vicinity, this pathway does not pose an immediate human health threat.

There is little threat to drinking water within the surface water pathway at the Thomasville Furniture Industries site due to the lack of surface water intakes. There is a potential for migration of groundwater to surface water causing contamination of a fishery.

The analysis of the soil exposure pathway indicates that the restricted access to the TFI site and the distance between sources and possible targets results in a minimal hazard to children and residents near the site. The primary threat of contaminant exposure in this pathway is to workers on the site. However, risk to on-site workers is unlikely given the removal of the contaminant sources.

The air exposure pathway poses a minimal hazard to nearby residents given the restricted access to the site, lack of widespread surficial soil contamination, and source removal. However, excavation activities at the site may have increased the risk of airborne contaminant exposure to on-site workers.

Based on the information gathered in this SIP, the NC Superfund Section recommends that no further remedial action be taken under CERCLA or SARA and that a "No Further Remedial Action Planned" (NFRAP) status be assigned to this site.

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NCD 054 290 770

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PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770

ROLL #1

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770

April 27, 1993

PHOTO

DESCRIPTION

- 1-5. Panoramic view of excavation area looking east.
- 6-9. Eastern view of excavation area at edge of new warehouse.
10. Blair Fork looking upstream along stockpile of clean fill.
11. Blair Fork looking downstream from excavation area.
12. Hazardous waste stockpile.
13. Runoff retention pond.
14. Staging area for overpacked drums; 127 overpacks present.
15. Empty rolloff boxes.
16. Runoff to retention pond drain: west view.
17. Runoff to retention pond drain: east view.
18. Retention pond : north view.
19. Retention pond overflow to site drainage.
20. Site drainage to Blair Fork : south view.
21. Site drainage to Blair Fork : north view.
22. Retention pond overflow into site drainage to Blair Fork.
23. East view of excavation.
24. Monitor wells MW-12 & MW-13 facing east.
25. Monitor wells MW-12 & MW-13 facing north.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 1-5: Panoramic view of excavation area looking east.



PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 6: Eastern view of excavation area at edge of new warehouse.

on
Torrance, CA
#PV119

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 7: Eastern view of excavation area at edge of new warehouse.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



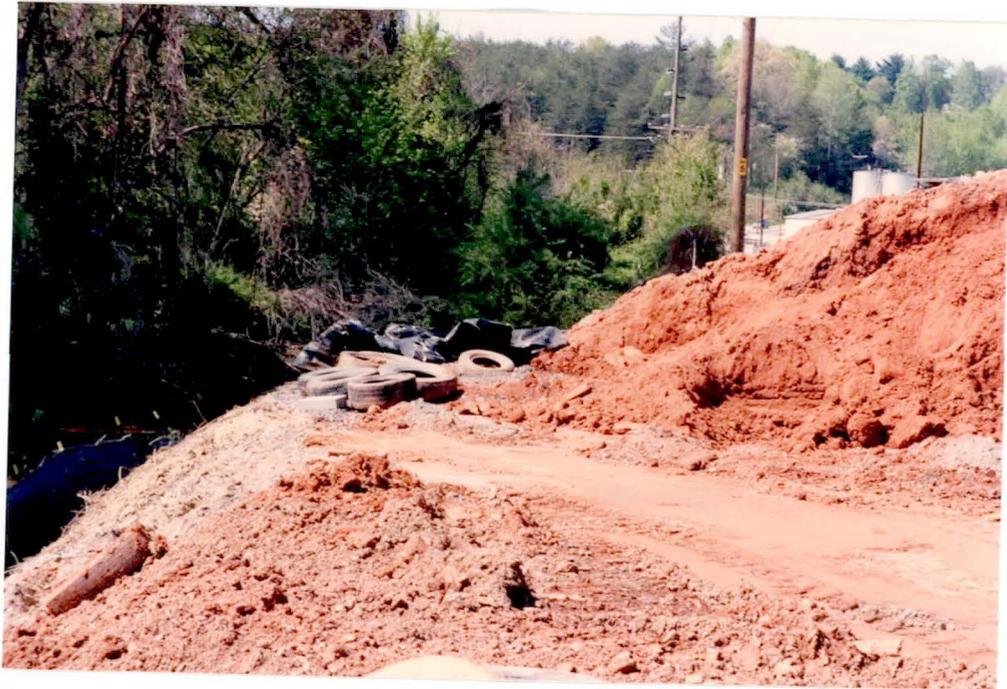
Photograph 8: Eastern view of excavation area at edge of new warehouse.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 9: Eastern view of excavation area at edge of new warehouse.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 10: Blair Fork looking upstream along stockpile of clean fill.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 11: Blair Fork looking downstream from excavation area.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 12: Hazardous waste stockpile.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 13: Runoff retention pond.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 14: Staging area for overpacked drums; 127 overpacks present.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 15: Empty rolloff boxes.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 16: Runoff to retention pond drain: west view.

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 17: Runoff to retention pond drain: east view.

K&M I on
Torrance, CA
OLY-
#PV119

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 18: Retention pond: north view.

&M Division
Torrance, CA
POLY
#PV119

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Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 19: Retention pond overflow to site drainage.

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Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 20: Site drainage to Blair Fork: south view.

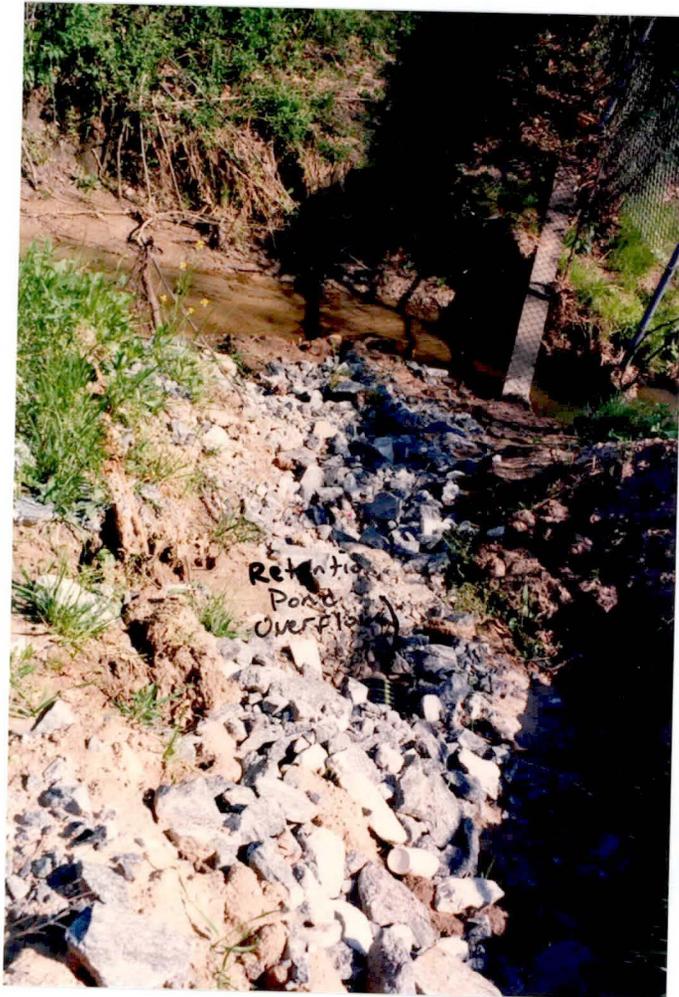
PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 21: Site draingage to Blair Fork: north view.

OLYMPUS
#PY119
M Division
Torrance, CA

PHOTO LOG
Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770



Photograph 22: Retention pond overflow into site drainage to Blair Fork.

M & M Division
Torrance, CA
POLY-10
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Photograph 23: East view of excavation.

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Photograph 24: Monitor wells MW-12 & MW-13 facing east.

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Photograph 25: Monitor wells MW-12 & MW-13 facing north.

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ROLL #2

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Thomasville Furniture Industries
Lenoir, Caldwell County, NC
NCD 054 290 770
April 27, 1993

Roll #2

PHOTO

DESCRIPTION

- 1-2. Monitor well at former dip tank location: south view, Lower Creek below fence line.
- 3-4. Drain for area runoff to Lower Creek.
- 5-6. Drain pipe to Lower Creek for runoff from area around former dip tank.

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Photograph 1: Monitor well at former dip tank location: south view, Lower Creek below fence line.

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Lenoir, Caldwell County, NC
NCD 054 290 770



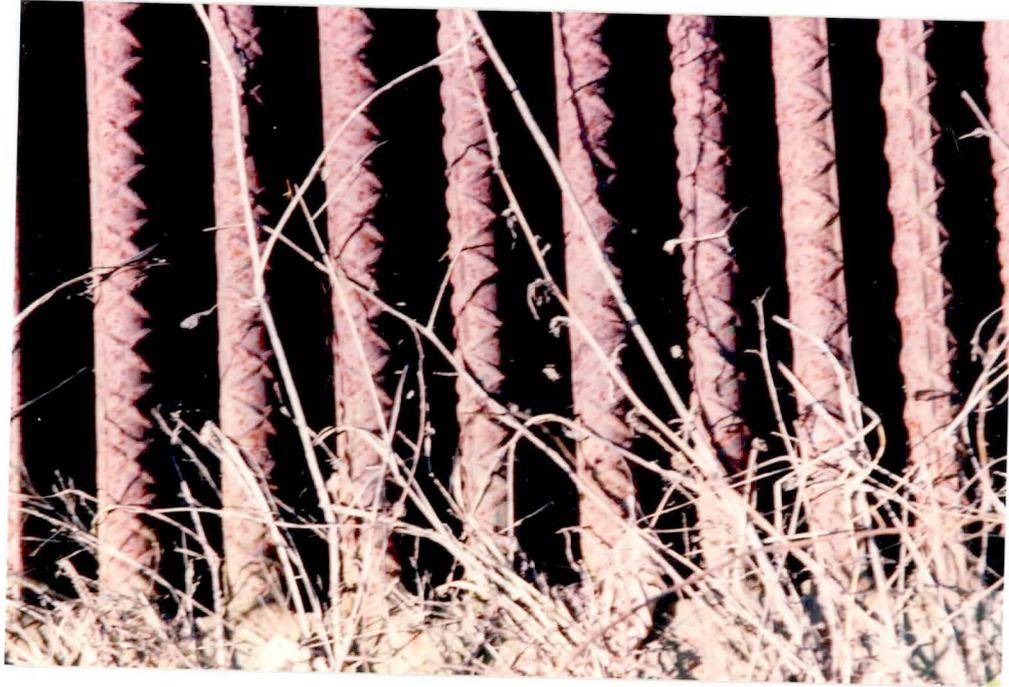
Photograph 2: Monitor well at former dip tank location: south view, Lower Creek below fence line.

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Photograph 3: Drain for area runoff to Lower Creek.

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Photograph 4: Drain for area runoff to Lower Creek.

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Photograph 5: Drain pipe to Lower Creek for runoff from area around former dip tank.

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Photograph 6:
Drain pipe to Lower Creek for runoff from area around former dip tank.

Drain pipe to Lower Creek for runoff from area around former dip tank.