659SERBSF10,637

659SERBSF10,637

Site Name (Subject):	UNITED MERCHANTS/OLD FORT PLANT
Site ID (Document ID):	NONCD0000010
Document Name (DocType):	Preliminary Assessment/Site Inspection (PA/SI)
Report Segment:	
Description:	Preliminary Assessment Report
Date of Document:	6/18/2008
Date Received:	
Box: *Enter SF and # with no spaces*	SF10,637
Access Level:	PUBLIC
Division:	WASTE MANAGEMENT
Section:	SUPERFUND
Program (Document Group):	SERB (SERB)
Document Category:	FACILITY

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

NCDENR

North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director | Division of Waste Management | Michael F. Easley, Governor
William G. Ross Jr., Secretary

June 18, 2008

Ms. Jennifer Wendel, RPM
NC Superfund Site Evaluation Section
US EPA Region IV Waste Division
61 Forsyth St., 11th Floor
Atlanta, GA 30303-3104

Subject: PRELIMINARY ASSESSMENT REPORT
Old Fort Finishing
(a.k.a.: Old Fort Industrial Park; United Merchants and Manufacturers)
Old Fort, McDowell Co., NC

Dear Ms Wendel,

The above site was screened for potential listing under CERCLA. Based on findings of this Preliminary Assessment, the NC Superfund Section does not recommend listing this site on CERCLIS for further federal investigation.

Site Location and History:

The site address is listed as One Water Street, Old Fort, McDowell County, NC. Site geographic coordinates are 35° 37' 43" (35.6286 °) north latitude and - 82° 10' 23" (-82.1831 °) west longitude. These coordinates are reported by TEC Environmental, Inc., consultants for Old Fort Industrial Park LLC. The site is bounded by a railway to the north, by Mill Creek to the west, by rail sidings and a 15-acre property to the east, and by Interstate 40 and a school property to the South. The Catawba River is located southeast, directly across the highway from the site (Ref. 1, Figs 1-2).

The Union Tanning Company was constructed on site in 1904. The facility used "acid wood and tan bark" to tan leather hides until the facility was destroyed by a lightning fire in 1930. From 1947 to 1984, the United Merchants and Manufacturing Company operated the site as Old Fort Finishing Co, a 16-acre tricot and synthetic textile-manufacturing plant. Subsequent to the plant closing, several small businesses leased portions of the facility. Old Fort Industrial Park, LLC acquired the property in the late 1990s. On June 11, 2008, local news media reported that PRC Industries planned to renovate the facility to manufacture household appliances (Refs 2-5).

Site Regulatory History:

In 1987, United Merchants and Manufacturers (UMM), Inc. closed out the site's wastewater treatment plant. Closeout included collection of liquid and sludge samples from the treatment plant aeration basin. The sludge sample was analyzed for EP Toxicity parameters, which included arsenic, barium, cadmium, chromium, lead mercury, selenium and silver, plus selected pesticides. None of the substances was detected. The basin liquid was analyzed for National Pollutant Discharge Elimination System (NPDES) parameters, which included chromium, lead and mercury but not arsenic. Based on the results, the liquid was recommended for discharge to surface water (Ref. 6).

The closeout included collection of groundwater samples from two nearby monitoring wells. The groundwater samples were collected in September 1987 and analyzed for volatile and organic compounds and pesticides. One groundwater sample contained methylene chloride (35 ug/l), toluene (5 ug/l) and alpha BHC (10 ug/l) (Ref. 6).

In December 1987, the NC Division of Health Services collected two groundwater samples from Well #2A, a production well located on a 15-acre parcel east of the former plant. Well 2A had been donated by UMM to the Town of Old Fort, and was being used for public water supply. The groundwater samples contained the chlorinated solvents tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (DCE) (Appendix A). The PCE and TCE concentrations exceeded draft NC groundwater quality standards. In January 1988, the NC Department of Human Resources advised the Town of Old Fort against future use of the well for public supply. Concurrently, NC Division of Environmental Management issued a Notice of Noncompliance to UMM (Refs 7-8) .

During June 1988, UMM contractors completed a Preliminary Hydrologic Assessment report. Groundwater sampling confirmed contamination in Well #2A and revealed PCE and TCE contamination in three on-site monitoring wells. Surface water samples collected from Mill and Branch creeks, adjacent to the plant, reportedly contained no contaminants. UMM contractors conducted surface (electromagnetic and resistivity) geophysical surveys on site to identify where metallic objects (such as steel drums) might be buried there (Ref. 9).

During an August 1988 Phase II assessment, UMM contractors completed nine soil borings, installed four monitoring wells and excavated nine test pits at the site. One test excavation, "Pit B", revealed thirteen buried drums. Another excavation encountered coal waste and building debris, and three excavations encountered "metallic waste" (Ref. 10).

Two soil samples, six drum sludge/resin samples and one drum liquid sample were collected from Pit B. Two samples of discolored soil were collected from a second excavation. The soil and sludge samples contained volatile and semi-volatile organic compounds, including acetone, benzene, toluene, ethylbenzene, xylenes, trichloroethene, tetrachloroethene, phthalates, naphthalene and 2-methyl naphthalene (Ref. 10). The excavation drum sludges and liquid contained the following inorganics:

Analyte	Number of sludge samples	Concentration range (mg/kg)	Liquid (mg/l)
Antimony	3	6.8-24	- -
Arsenic	3	1.9-29	- -
Cadmium	1	1.0	23.6
Chromium	5	14-359	- -
Copper	4	152-1850	0.04
Lead	5	44-1590	16.8
Nickel	4	9-68	- -
Selenium	0	NA	0.011
Zinc	6	12-110	54,000

In December 1988, local officials reported that 55-gallon drums had allegedly been buried at multiple locations on site during the mid-1970s (Ref. 11). In May 1989, UMM contractors began a Phase III investigation, excavating and removing buried drums detected at two locations. Sixty-seven drums were removed from Pit B, located in the western portion of the property. Forty-one drums were removed from Pit No. 6, located in the eastern portion of the property. Drum contents were sampled for disposal characterization. Excavations performed at other geophysical anomaly locations encountered no additional drums (Ref. 12.

Following drum and sludge excavation, soil samples were collected from the bottoms of Pit B and Pit 6 and compared to background soil concentrations. Post-excavation concentrations of organic compounds were reduced and inorganic concentrations did not exceed background concentrations (Ref. 12).

In 1990, at the request of the NC Superfund Section, UMM contractors conducted an additional geophysical survey on site. The survey detected no additional features indicative of buried drums. Chemical analysis of buried fly ash detected by the survey did not reveal any hazardous constituents. In July 1990, based on the investigation results to date, the NC Superfund Section concluded that no further soil remediation would be required at the site (Refs 13-16).

As part of this investigation, the NC Superfund Section queried US EPA on-line databases for regulatory information regarding the site. Neither the EPA Enforcement and Compliance History Online (ECHO) nor the EPA Envirofacts Warehouse contained any entries pertaining to Old Fort Finishing, Old Fort Industrial Park or United Merchants (Refs 17-18).

In March 2004, an EPA Region IV On-scene Coordinator responded to a request by NCDENR to assist in response to an on-site spill of No. 6 Fuel Oil. The 1000 gallon spill was determined to have originated at a damaged aboveground storage tank in September 2003. Fuel oil had subsequently migrated via storm water controls to a drainage ditch and entered the Catawba River (Ref. 19).

Groundwater Pathway

The site is located within the inactive Brevard Fault Zone, which separates the Blue Ridge physiographic and geologic provinces to the northwest from the Piedmont physiographic and Inner Piedmont geologic provinces to the southeast. Bedrock beneath the site is covered by 20 to 40 feet of weathered saprolite and alluvial deposits (Ref. 9).

Bedrock identified on site includes mylonite (sheared metamorphic rock) containing micas, quartz and feldspar, and schist (metamorphic rock) containing mica, quartz and phyllonite. During drilling of an Old Fort plant production well, subsurface voids were noted at depths of 140-180 feet. The voids were interpreted to be a potential indication of solution of marble or other carbonate rock by groundwater flow (Ref. 9).

The nearest community wells to the site that are presently operational are Town of Old Fort Municipal Well # 2., approximately one mile southwest of the site, and Municipal Wells #5, #9 and #10, located one mile northeast from the site (Ref.s 20-21). The now-inactive, contaminated Municipal Well # 2A is located 0.25 mile east of the site property. Wells #2, #5, #9 and #10 were sampled in January and September 1989, but no contaminants were reported in the samples. (Appendix A).

In January 1989 the NCDHR sampled two private domestic wells (Piercy; Rhodes) and one private commercial well located 0.25 to 0.5 mile east and southeast from the site property. No contaminants were detected in the three wells. However, sampling at three additional domestic wells located in Old Fort (Harris; Bradley; Harvey) during Fall of 1989 revealed PCE, TCE and DCE contamination (Appendix A). The locations of the contaminated domestic wells were unavailable at the time of this report. However, in July 1990, the NC Superfund Section reported that municipal water service was being provided to off-site residences whose wells had been contaminated (Ref. 15).

In 1989 UMM initiated groundwater remediation efforts by pumping the former Old Fort Finishing plant's on-site production well to intercept the groundwater contaminant plume beneath the site. UMM conducted quarterly groundwater monitoring events on site from 1989 through 1996. Use of the plant production well for process water was discontinued in September 2000. However, Old Fort Industrial Park, LLC, has conducted annual groundwater monitoring at the site since 1999 (Ref. 1).

Groundwater PCE concentration near the drum burial area (MW-6) increased to maximum (6000 ug/l) in the early 1990s and decreased considerably thereafter, approaching non-detect by 2002. PCE concentration in the on-site production well fluctuated throughout the monitoring period, but generally ranged between 10 and 50 ug/l. To the northeast (MW-7), PCE and TCE declined to minimal concentrations during the 1990s, but then increased steadily beginning in 2001. The increase is consistent with resumption of natural groundwater migration toward the Catawba River following shutdown of the plant production well. However, sampling at other monitoring wells in 2006 did not confirm the presence of an extensive groundwater plume beneath the eastern portion of the site (Ref. 1). The NC Superfund Section, Inactive Hazardous Sites Branch presently conducts regulatory oversight of groundwater monitoring at the site

Surface Water Pathway:

The site's 15-mile surface water pathway extends northeast along the Catawba River to a location northwest of Marion, NC. NC Public Water Supply geodatabase indicates no community surface-water intakes within the pathway (Refs 20-21). The Catawba River is sufficiently large and accessible to be recreationally fished (Figs 1-2). USGS database indicates that the nearest wetland is located 1.5 miles downstream from the site in the Catawba floodplain (Ref. 22). NC Natural Heritage Program database currently identifies no State or Federally listed Threatened or Endangered species within the pathway (Ref. 23).

UMM obtained a renewed NPDES discharge permit from the state in December 1989 (Ref. 24). Permitted discharge of wastewater to the Catawba River ceased in 2000 when groundwater withdrawal from the on-site production well was discontinued. Available records do not indicate that Catawba River surface water or sediment sampling occurred during historical site investigations.

Soil Exposure and Air Pathway:

Old Fort School is located across Mill Creek, southwest of the site. However, contaminated subsurface soil and drums identified during historical site investigations have been removed from the property Refs. 12, 14). Based on available information, soil contamination at this site currently poses minimal hazard to human health.

United Merchants and Mfg, Inc., is listed on the NC Division of Air Quality permit database. However, the entry contains no emissions reports for the permit period (1993 through 2006) (Ref. 25).

Based on the above findings, this site is not recommended for further evaluation under CERCLA. If you have any questions, please contact me at stuart.parker@ncmail.net or Jim Bateson at james.bateson@ncmail.net.

Sincerely,

_____,	6/18/08	_____,	6/18/08
Stuart F. Parker Hydrogeologist NC Superfund Section	Date	Jim Bateson, Head Site Evaluation & Removal Branch NC Superfund Section	Date

cc: Scott Ross, file

ABBREVIATED PRELIMINARYASSESSMENT CHECKLIST

Figures: 1) Site Location Map
2) Site Aerial Photograph

Appendix A: Groundwater sampling data and location map

References:

1) TEC Environmental , PC: 2006 Annual Groundwater Monitoring Report, Old Fort Industrial Park (Formerly United Merchants and Manufacturers Facility), One Water Street, Old Fort, North Carolina. Groundwater Incident Number 3575, January 16, 2007. 41 pages.
2) "Old Fort Revisited" http://dburgin.tripod.com/old_fort.html. Printed June 11 2008. 5 pages
3) Sanborn Mapping Company: Old Fort, NC: April 1918; December 1924; 2 pages.
4) NC Directory of Manufacturing Firms, 1976, 1 page
5) *The McDowell News* : http://www.mcdowellnews.com, June 11, 2008. 2 pages.
6) Davis & Floyd, Inc. Wastewater Treatment Plant Closeout, United Merchants and Manufacturers, Inc., Old Fort, North Carolina. Draft Report, November 1987. 27 pages.
7) Knox, Wade, NCDHR Western Regional Office, Letter to Town of Old Fort Mayor William B. Early, re: Water Supply System, Old Fort NC, January 19, 1988. Attached Draft Laboratory Evaluation. 2 pages.
8) Link, Donald R., NC DWM Groundwater Management Division, letter to United Merchants and Manufacturers, Inc, re: Notice of Noncompliance, NCAC Subchapter 2L, January 22, 1988. 2 pages.
9) Davis & Floyd, Inc.; Atlanta Testing & Engineering, Inc., Preliminary Hydrologic Assessment, Old Fort Finishing Plant, Old Fort, NC, June 1988. 17 pages.
10) Atlanta Testing & Engineering, Inc., Phase II Hydrogeologic Assessment, United Merchants, Inc. Old Fort Finishing Plant, Old Fort, McDowell County, NC. November 22, 1988. 12 pages.
11) Masters, Keith, RCRA Compliance Officer, letter to Grover Nicholson, NC CERCLA, re: Old Fort Finishing Plant/United Merchants Site, December 13, 1988; Attached map. 3 pages
12) Atlanta Testing & Engineering, Inc., Drum Excavation and Sampling Program, United Merchants, Inc., Old Fort, McDowell County, NC. July 13, 1989. 6 pages.
13) Varlashkin, Charlotte, NC DEHNR, Superfund Section. Letter to United Merchants and Manufacturing, Inc, re: Old Fort Finishing Plant Cleanup, March 13, 1990. 2 pages.
14) United Merchants, Greenville, SC, Letter to Charlotte Varlashkin re: Old Fort Finishing Plant, April 20, 1990. Attached map and analytical report. 5 pages.
15) Varlashkin, Charlotte, NC DEHNR, Superfund Section. Letter to Lee Crosby, Section Chief, re: United Merchants, Old Fort, McDowell County: Recommendation for No Further Action for Soils, July 9, 1990. 2 pages.
16) Varlashkin, Charlotte, NC DEHNR, Superfund Section. Letter to United Merchants and Manufacturing, Inc, re: Old Fort Finishing, July 17, 1990. 1 page.
17) US EPA Enforcement & Compliance History Online, http://www.epa-echo.gov (printout), June 9, 2008, 2 pages.
18) US EPA Envirofacts Data Warehouse. http://oaspub.epa.gov/ , Query result printouts, June 19, 2008. 10 pages.
19) US EPA Pollution Report Profile, Old Fort Industrial Complex Oil Spill, Old Fort - EPA Region IV, POLREF # 1 – Final POLREP, http://www.epaosc.net/polrep March 31, 2004. 4 pages.
20) Parker, Stuart F., NC Superfund Section, Memorandum to file re: Public Water Supplies, June 17, 2008.
21) NC Public Water Supply Surface Water Protection and Assessment (swap) on line. http://swap.deh.enr.state.nc.us/swap/ , query printout, June 17, 2008. 6 pages.
22) US Geological Survey Wetlands Geodatabase, http://wetlandsfws.er.usgs.gov/wtlnds/launch.html , query printout, June 18, 2008, 1 page.
23) NC Natural Heritage Program Virtual Workroom, http://nhpweb.enr.state.nc.us query printout, June 18, 2008. 8 pages.
24) Dechant, Kay, NCDEM Groundwater Section. Letter to United Merchants and Manufacturers, Inc re: Old Fort Finishing Plant, January 31, 1989. 1 page.
Wilms, R. Paul, NCDEM, Transmittal letter and attached NPDES Permit No. NC0077623, December 1, 1989. 5 pages.
25) NC Division of Air Quality, Criteria and Toxic Air Pollutant Point Source Emissions Report, United Merchants & Mfg, Inc. Printout, June 9, 2008. 3 pages.

ABBREVIATED PRELIMINARY ASSESSMENT CHECKLIST

This checklist can be used to help the site investigator determine if an Abbreviated Preliminary Assessment (APA) is warranted. This checklist should document the rationale for the decision on whether further steps in the site investigation process are required under CERCLA. Use additional sheets, if necessary.

Checklist Preparer:

Stuart F. Parker/Hydrogeologist II	**June 18, 2008**
Name/Title	Date
401 Oberlin Rd, Suite 150, Raleigh NC	**919-508-8469**
Address	Phone
stuart.parker@ncmail.net	
E-mail Address	

Site Name: **Old Fort Finishing**
Previous Names (if any): **United Merchants and Manufacturers**
EPA ID #
Site Location: **One Water Street, Old Fort, NC 28762**
Latitude: **35.6286** **Longitude:** **- 82.1831**

Describe the release (or potential release) and its probable nature:
Groundwater; chlorinated solvents

Part 1 - Superfund Eligibility Evaluation

If all answers are "no" go on to Part 2, otherwise proceed to Part 3.	**YES**	**NO**
1. Is the site currently in CERCLIS or an "alias" of another site?		X
2. Is the site being addressed by some other remedial program (Federal, State, or Tribal)?	X	
3. Are the hazardous substances potentially released at the site regulated under a statutory exclusion (e.g., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?		X
4. Are the hazardous substances potentially released at the site excluded by policy considerations (i.e., deferred to RCRA corrective action)?		X
5. Is there sufficient documentation to demonstrate that no potential for a release that could cause adverse environmental or human health impacts exists (e.g., comprehensive remedial investigation equivalent data showing no release above ARARs, completed removal action, previous HRS score determined, or an EPA approved risk assessment completed)?		X

Please explain all "yes" answers.

Annual groundwater monitoring is currently overseen by NCDENR, Superfund Section, Inactive Hazardous Sites Branch.

Part 2 - Initial Site Evaluation

Use Exhibit 1 of the APA fact sheet to make site assessment decisions based on the answers below:	YES	NO
Does documentation indicate that a target (e.g., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site?	X	
Is there an apparent release at the site with no documentation of exposed targets, but there are targets on site or immediately adjacent to the site?		X
Is there an apparent release and no documented on-site targets or targets immediately adjacent to the site, but there are nearby targets (e.g., targets within 1 mile)?		X
Is there no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site?		X
Does the site lack documented on-site, adjacent, or nearby targets?		X
Does the site lack releases or potential to release?		X
Does the site lack uncontained sources containing CERCLA eligible substances are present on site?		X

Please explain all "yes" answer(s).

Sampling operations in 1987 documented contaminant migration to an active municipal drinking-water supply well.

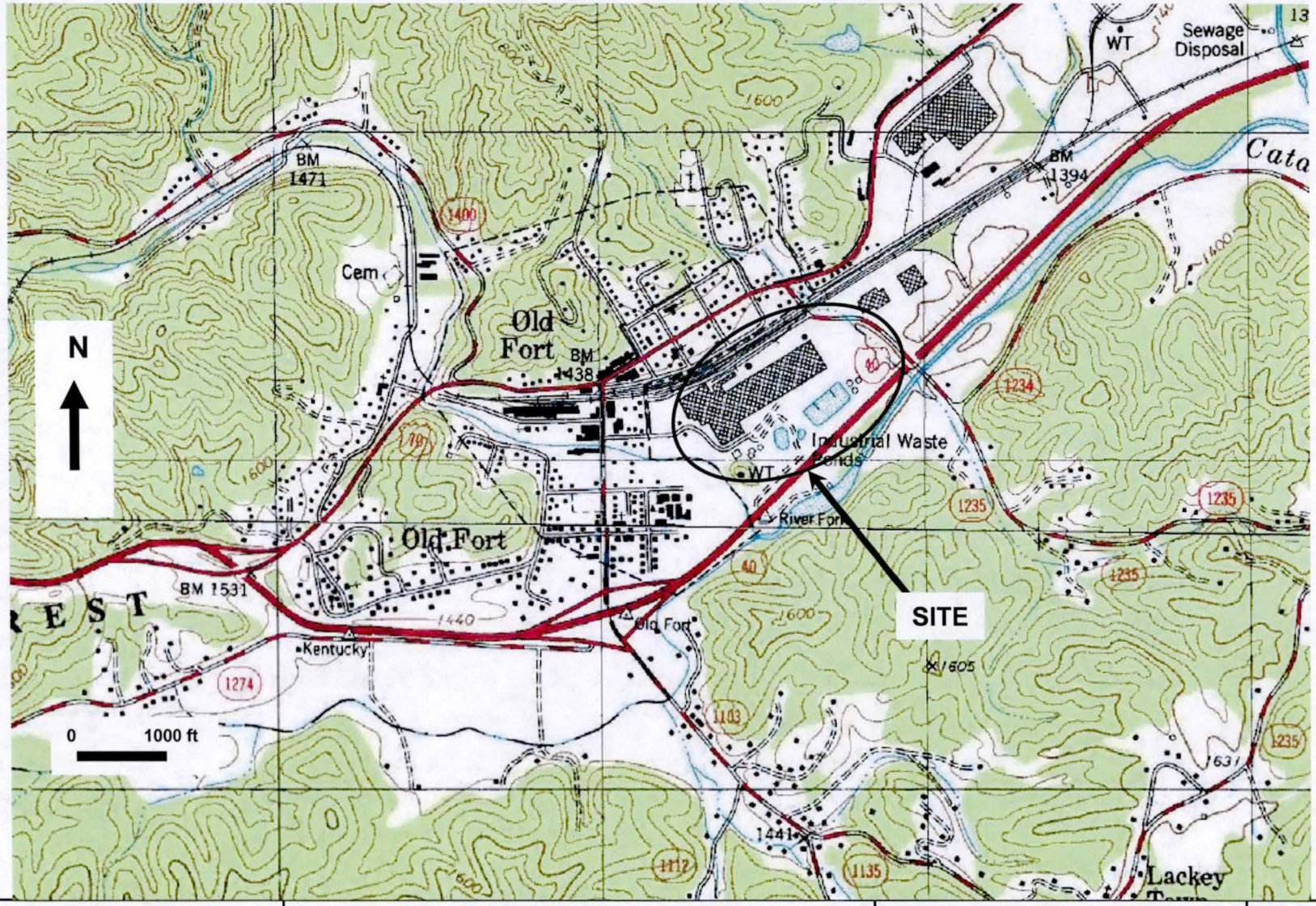
Part 3 - State Site Assessment Recommendation

Check the box that applies based on the conclusions of the APA:

- [X] NFRAP
- [ ] Higher Priority SI
- [ ] Lower Priority SI
- [ ] Defer to RCRA Subtitle C
- [ ] Defer to NRC
- [ ] Refer to Removal Program – further site assessment needed
- [ ] Refer to Removal Program – NFRAP
- [ ] Site is being addressed as part of another CERCLIS site
- [ ]

State Reviewer: **Stuart F. Parker** _____ **June 18, 2008**

Print Name/Signature — Date



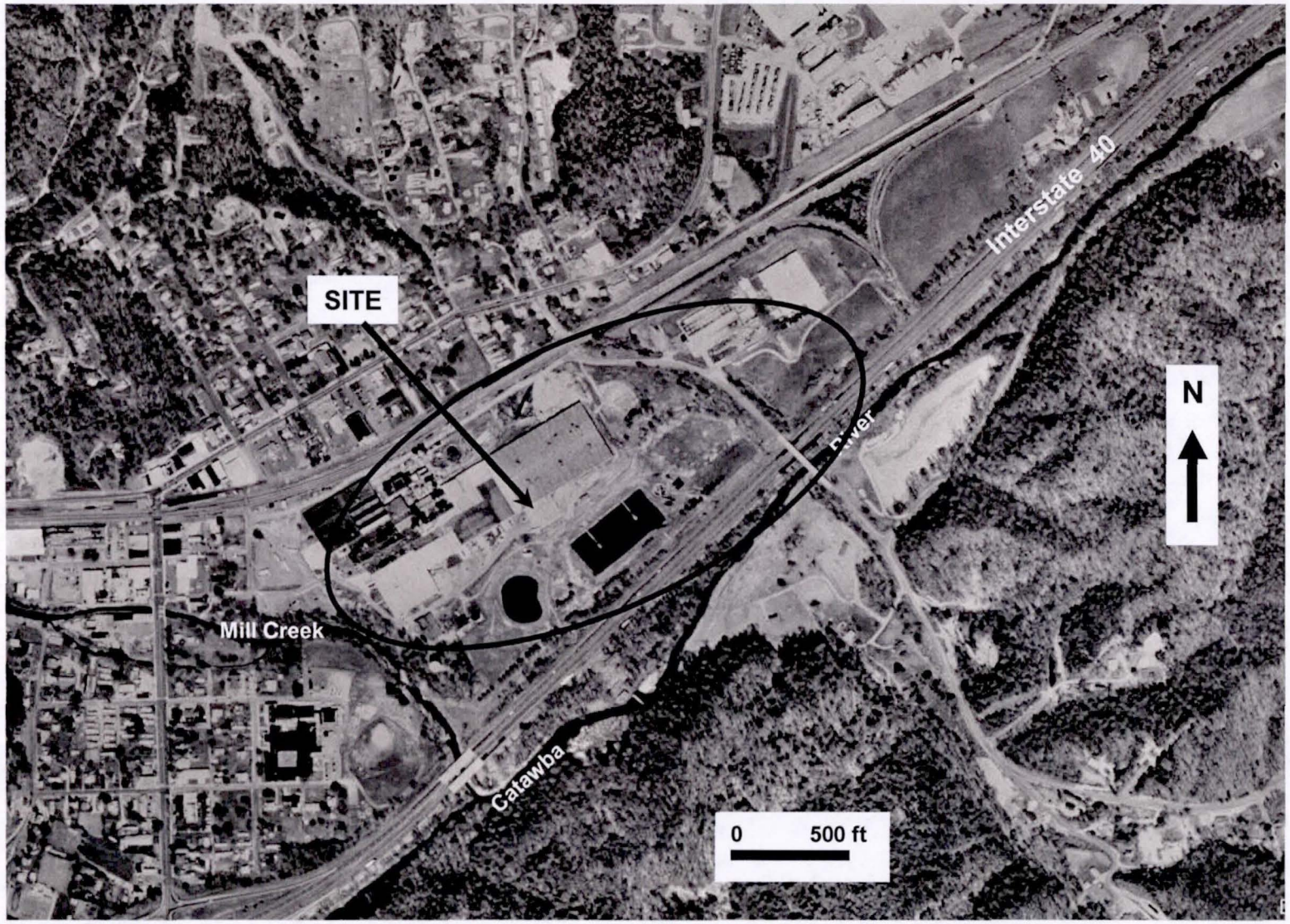
NCDENR

TITLE: Site Location Map

SITE NAME: Old Fort Finishing
LOCATION: Old Fort, McDowell County, NC

ASSEMBLED BY: Stuart F Parker
SCALE: as shown
DATE: 06/18/2008

FIGURE
1



NCDENR

TITLE: Site Aerial Photograph

SITE NAME: Old Fort Finishing
LOCATION: Old Fort, McDowell County, NC

ASSEMBLED BY: Stuart F Parker
SCALE: as shown
DATE: 06/18/2008

FIGURE
2

Appendix A :
Groundwater Sample
Data and Location Map

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

Name of Owner, Patient or Supply: Harvey res. - Old Fort - Private well

Address:

County: McDowell

Report to: WC Knox

Address: WRO
Black Mtn. 28711

Date Collected: 12-6-89

Collected By: WC Knox

Analysis Desired: VOC/SOC scan

VOC Analysis

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
903601			SEE ATTACHED SHEET(S)

Date Received 12-11-89 (?)

Date Reported 12-18-89

Date Extracted

Date Analyzed VOC 12/12/89 JPM

Reported By: John P. Nal

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

United Merchants
McDowell
Mc 3575

North Carolina Department of Human Resources
Division of Health Service
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation For
Chlorinated Solvents

DATE: 12/27/89 LABORATORY NUMBER 903601

Based on these analytical results, this water is contaminated with chlorinated solvents which have been widely used (both industrially and in home-use products) for many years. One chlorinated solvent, vinyl chloride, is known to cause cancer in humans. Many other chlorinated solvents have been shown to cause cancer in laboratory animals. However, none of these chemicals is known to cause cancer in humans.

Some chlorinated solvents have not been linked to cancer. For these chemicals, acceptable intake levels are much higher and are based on other health effects.

The U. S. Environmental Protection Agency has set maximum contaminant levels (MCL) for a number of chlorinated solvents. The MCL is the amount of a chemical that is considered acceptable in public drinking water supplies. The maximum contaminant level is not binding for users of private supply wells, but is a useful guideline.

Chemical	Maximum Contaminant Level (ppb)	This Well (ppb)
trichloroethylene	5 ppb	38.5 ppb
tetrachloroethene	5 ppb (proposed)	51.9 ppb
cis-1,2-dichloroethylene	70 ppb (proposed)	4.2 ppb
1,1,1-trichloroethane	200 ppb	trace (<1 ppb)

( ) This water is acceptable for all uses due to the very low levels present.
( ) Resample in about _____ month(s). (PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).)

(✓) This water is significantly contaminated and should not be used for drinking or cooking. Prolonged bathing/showering should be avoided.

( ) This water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

Comments: Significant chlorinated solvent contamination is evident. Several compounds have been identified with two compounds showing levels well above EPA MCL's for public drinking water supplies. Continued use of this water for drinking or cooking may result in an increased lifetime cancer risk over time. Resample in 4 months.

For further information, contact Dr. Ted Taylor or Dr. Ken Rudo, Environmental Epidemiology Branch, (919) 733-3410.

DHS T476 (Revised 5/89)
Environmental Epidemiology Branch

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

Laboratory No. 903601 PURGEABLE COMPOUNDS Date of Analysis 12/12/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	1K
Methylene Chloride	U
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	1K
2,2-Dichloropropane	U
(Cis) 1,2-Dichloroethylene	4.2
Chloroform	1.0T
(BCM) Bromochloromethane	U
✓1,1,1-Trichloroethane	trace
1,1-Dichloropropene	U
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	38.5
1,2-Dichloropropane	U
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	51.9
1,3-Dichloropropane	U
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

Name of Owner, Patient or Supply: Bradly res. (Private well)

Address: Old Fort

County: McDowell

Report to: WC Knox

Address: WRO
Black Mtn 28711

Date Collected: 10-10-89

Collected By: WC Knox

Analysis Desired: VOC/SOC scan

* Submitted VOC set. LBx

~~PETROLEUM PRODUCTS~~

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
903038			

Date Received 10-11-89 KB

Date Reported 10-26-89

Date Extracted

Date Analyzed VOC-10/24/89 JM

Reported By: John L. Real

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Ke
Director

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

Laboratory No. 903038 PURGEABLE COMPOUNDS Date of Analysis 10/24/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans) 1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	3.9
Chloroform	1K (T)
(BCM) Bromochloromethane	U
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	15.1
1,2-Dichloropropane	U
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	44.7
1,3-Dichloropropane	U
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

DIVISION OF ENVIRONMENTAL MANAGEMENT

GROUNDWATER SECTION

November 1, 1989

M E M O R A N D U M

TO: Hydrogeological Regional Supervisors

FROM: Bill Jeter

SUBJECT: Toxicological Evaluation of Analytical Results of Private Water Supply Wells

Attached are copies of analysis reports of samples collected by the Division of Environmental Management from drinking water wells and evaluation forms which have been prepared by Dr. Ted Taylor, Toxicologist, of the Environmental Epidemiology Section.

Information presented in the evaluation forms should be transmitted to the well owner. The well owners should direct their questions concerning the evaluation to the Environmental Epidemiology Section at the telephone number given at the bottom of the form.

If you have questions or need additional information, please let me know.

Attachments

cc: Linda Sewall

tej

RECEIVED
NOV 3 - 1989
Groundwater Section
Asheville Regional Office

file Unit
Merchant

North Carolina Department of Human Resources
Division of Health Service
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation For
Chlorinated Solvents

McDowell

DATE: 10/31/89 LABORATORY NUMBER 903038

Based on these analytical results, this water is contaminated with chlorinated solvents which have been widely used (both industrially and in home-use products) for many years. One chlorinated solvent, vinyl chloride, is known to cause cancer in humans. Many other chlorinated solvents have been shown to cause cancer in laboratory animals. However, none of these chemicals is known to cause cancer in humans.

Some chlorinated solvents have not been linked to cancer. For these chemicals, acceptable intake levels are much higher and are based on other health effects.

RECEIVED
NOV 3 1989
GROUNDWATER SECTION
RALEIGH, NC

The U. S. Environmental Protection Agency has set maximum contaminant levels (MCL) for a number of chlorinated solvents. The MCL is the amount of a chemical that is considered acceptable in public drinking water supplies. The maximum contaminant level is not binding for users of private supply wells, but is a useful guideline.

Chemical	Maximum Contaminant Level (ppb)	This Well (ppb)
trichloroethylene	5 ppb	15.1 ppb
tetrachloroethylene	5 ppb (proposed)	44.7 ppb

( ) This water is acceptable for all uses due to the very low levels present.
( ) Resample in about _____ month(s). (PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).)

(✓) This water is significantly contaminated and should not be used for drinking or cooking. Prolonged bathing/showering should be avoided.

( ) This water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

Comments: Use of this water for drinking or cooking may lead to an additional increased health risk over time.

For further information, contact Dr. Ted Taylor or Dr. Ken Rudo, Environmental Epidemiology Branch, (919) 733-3410.

DHS T476 (Revised 5/89)
Environmental Epidemiology Branch

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

* Submitted VOC set. LBx

Name of Owner, Patient or Supply: Bradly res. (Private well)
Address: Old Fort
County: McDowell
Report to: WC Knox
Address: WRO
Black Mtn 28711
Date Collected: 10-10-89
Collected By: WC Knox
Analysis Desired: VOC/SOC scan

~~PETROLEUM PRODUCTS~~

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
903038			

Date Received 10-11-89 KB
Date Reported 10-26-89
Date Extracted
Date Analyzed VOC-10/24/89 JM
Reported By: John R. Real

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Ke
Director

file Unit Merchant

McDowell

North Carolina Department of Human Resources
Division of Health Service
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation For
Chlorinated Solvents

DATE: 10/31/89 LABORATORY NUMBER 963038

Based on these analytical results, this water is contaminated with chlorinated solvents which have been widely used (both industrially and in home-use products) for many years. One chlorinated solvent, vinyl chloride, is known to cause cancer in humans. Many other chlorinated solvents have been shown to cause cancer in laboratory animals. However, none of these chemicals is known to cause cancer in humans.

Some chlorinated solvents have not been linked to cancer. For these chemicals, acceptable intake levels are much higher and are based on other health effects.

RECEIVED
NOV 3 1989
GROUNDWATER SECTION
RALEIGH, NC

The U. S. Environmental Protection Agency has set maximum contaminant levels (MCL) for a number of chlorinated solvents. The MCL is the amount of a chemical that is considered acceptable in public drinking water supplies. The maximum contaminant level is not binding for users of private supply wells, but is a useful guideline.

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tetrachloroethylene	5 ppb (proposed)	44.7 ppb

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( ) Resample in about _____ month(s). (PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).)

(✓) This water is significantly contaminated and should not be used for drinking or cooking. Prolonged bathing/showering should be avoided.

( ) This water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

Comments: Use of this water for drinking or cooking may lead to an additional increased health risk over time.

For further information, contact Dr. Ted Taylor or Dr. Ken Rudo, Environmental Epidemiology Branch, (919) 733-3410.

DHS T476 (Revised 5/89)
Environmental Epidemiology Branch

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

Laboratory No. 903038 PURGEABLE COMPOUNDS Date of Analysis 10/24/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	3.9
Chloroform	1K (T)
(BCM) Bromochloromethane	U
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	15.1
1,2-Dichloropropane	U
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	44.7
1,3-Dichloropropane	U
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

SEP 1989

Name of Owner, Patient or Supply: Old Fort, Town of
Address: 01-56-025
County: McDowell
Report to: W.C. Knox
Address: WRO
Black Mtn 28711
Date Collected: 9-6-89
Collected By: W.C. Knox
Analysis Desired: VOC/SOC

VOC Analyzed

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
902651		Well # 2	
902652		Well # 5	
902653		Well # 9	
902654		Well # 10	
902655		Harris (Private well)	
			SEE ATTACHED SHEET(S)

Date Received 9-8-89 LB
Date Reported 9-14-89
Date Extracted
Date Analyzed VOC 9/13/89 JM
No Lab Blk Submitted LB
Reported By: John L. Neal

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

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

Laboratory No. 902651 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	
Chloroform	
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	
1,2-Dichloropropane	
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	
1,3-Dichloropropane	
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	✓

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	✓

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-0 (1/89 Laboratory)

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

Laboratory No. 902652 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	u
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans) 1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	
Chloroform	
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	
1,2-Dichloropropane	
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	
1,3-Dichloropropane	
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	u
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-0 (1/89 Laboratory)

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

Laboratory No. 902653 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	
Chloroform	
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	
1,2-Dichloropropane	
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	
1,3-Dichloropropane	
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-0 (1/89 Laboratory)

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

Laboratory No. 902654 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l	COMPOUND	µg/l
Dichlorodifluoromethane	U	Chlorobenzene	U
Chloromethane		Ethylbenzene	
✓Vinyl Chloride		1,1,1,2-Tetrachloroethane	
Bromomethane		p-Xylene	
Chloroethane		m-Xylene	
Trichlorofluoromethane		o-Xylene	
✓1,1-Dichloroethylene		Styrene	
Methylene Chloride		Bromoform	
tert-Butyl Methyl Ether		Isopropylbenzene	
(Trans) 1,2-Dichloroethylene		1,1,2,2-Tetrachloroethane	
Isopropyl ether		Bromobenzene	
1,1-Dichloroethane		n-Propylbenzene	
2,2-Dichloropropane		1,2,3-Trichloropropane	
(Cis) 1,2-Dichloroethylene		2-Chlorotoluene	
Chloroform		1,3,5-Trimethylbenzene	
(BCM) Bromochloromethane		4-Chlorotoluene	
✓1,1,1-Trichloroethane		(Tert) Butyl Benzene	
1,1-Dichloropropene		Pentachloroethane	
✓Carbon Tetrachloride		1,2,4-Trimethylbenzene	
✓Benzene		(Sec) Butyl Benzene	
✓1,2-Dichloroethane		p-Isopropyltoluene	
✓Trichloroethylene		1,3-Dichlorobenzene	
1,2-Dichloropropane		✓1,4-Dichlorobenzene	
Bromodichloromethane		n-Butylbenzene	
Dibromomethane		1,2-Dichlorobenzene	
Toluene		(Bis) 2 Chloroisopropyl Ether	
1,1,2-Trichloroethane		1,2-Dibromo-3 Chloropropane	
Tetrachloroethene		1,2,4-Trichlorobenzene	
1,3-Dichloropropane		Hexachlorobutadiene	
Dibromochloromethane		Naphthalene	
1,2-Dibromoethane (EDB)		1,2,3-Trichlorobenzene	
1-Chlorohexane			

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

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

Laboratory No. 902655 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	u
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	9.1
Chloroform	u
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	39.0
1,2-Dichloropropane	u
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	126.6
1,3-Dichloropropane	u
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	u
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

North Carolina Department of Human Resources
Division of Health Services
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation
General

DATE: 9/29/89 LABORATORY NUMBER 902651 902653 902652 902654

(✓) Based on these analytical results, this water should be considered safe for normal usage.

( ) Chemical analysis did not show any contamination. Water should be resampled if odor or taste persists.

( ) The water should not be used for drinking or cooking purposes, avoid prolonged bathing/showering.

( ) Based on these analytical results, this water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

( ) The laboratory results are not conclusive, please resample:

PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).

( ) Comments:

For further information, contact Dr. Ken Rudo or Dr. Ted Taylor, Environmental Epidemiology Branch, (919) 733-3410.

DHS T474 (Revised 5/89)
Environmental Epidemiology Branch

North Caro. .la Department of Human Resources
Division of Health Service
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation For
Chlorinated Solvents

4 McDowell

RECEIVED
OCT 12 1989
GROUNDWATER SECTION
RALEIGH, NC

DATE: 9/29/89 LABORATORY NUMBER 98[illegible]

Based on these analytical results, this water is contaminated with chlorinated solvents which have been widely used (both industrially and in home-use products) for many years. One chlorinated solvent, vinyl chloride, is known to cause cancer in humans. Many other chlorinated solvents have been shown to cause cancer in laboratory animals. However, none of these chemicals is known to cause cancer in humans.

Some chlorinated solvents have not been linked to cancer. For these chemicals, acceptable intake levels are much higher and are based on other health effects.

The U. S. Environmental Protection Agency has set maximum contaminant levels (MCL) for a number of chlorinated solvents. The MCL is the amount of a chemical that is considered acceptable in public drinking water supplies. The maximum contaminant level is not binding for users of private supply wells, but is a useful guideline.

Chemical	Maximum Contaminant Level (ppb)	This Well (ppb)
trichloroethylene	5ppb	39 ppb
tetrachloroethylene	5ppb (proposed)	126.6ppb

( ) This water is acceptable for all uses due to the very low levels present.
( ) Resample in about _____ month(s). (PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).)

(✓) This water is significantly contaminated and should not be used for drinking or cooking. Prolonged bathing/showering should be avoided.

( ) This water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

Comments: Continued consumption may result in an increased health risk over time. Resample in 4 months.

For further information, contact Dr. Ted Taylor or Dr. Ken Rudo, Environmental Epidemiology Branch, (919) 733-3410.

DHS T476 (Revised 5/89)
Environmental Epidemiology Branch

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

SEP 1989

Name of Owner, Patient
Supply: Old Fort, Town of
Address: 01-56-025
County: McDowell
Report to: W.C. Knox
Address: WRO
Black Mtn 28711
Date Collected: 9-6-89
Collected By: W.C. Knox
Analysis Desired: VOC/SOC

VOC analyses

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
902651		Well #2	
902652		Well #5	
902653		Well #9	
902654		Well #10	
902655		Harris (Privatewell)	
			SEE ATTACHED SHEET(S)

Date Received 9-8-89 LB
Date Reported 9-14-89
Date Extracted
Date Analyzed VOC 9/13/89 JM
No Lab Blk Submitted LB
Reported By: John L. Neal

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

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

Laboratory No. 902651 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	
Chloroform	
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	
1,2-Dichloropropane	
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	
1,3-Dichloropropane	
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	✓

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	✓

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-0 (1/89 Laboratory)

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

Laboratory No. 902652 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	u
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans) 1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	
Chloroform	
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	
1,2-Dichloropropane	
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	
1,3-Dichloropropane	
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	u
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-0 (1/89 Laboratory)

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

Laboratory No. 902653 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	
Chloroform	
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	
1,2-Dichloropropane	
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	
1,3-Dichloropropane	
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

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

Laboratory No. 902654 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	↓
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans) 1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	
Chloroform	
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	
1,2-Dichloropropane	
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	
1,3-Dichloropropane	
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	↓

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	↓
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	↓

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

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

Laboratory No. 902655 PURGEABLE COMPOUNDS Date of Analysis 9/13/89

COMPOUND	µg/l
Dichlorodifluoromethane	u
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	
Methylene Chloride	
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	9.1
Chloroform	u
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	39.0
1,2-Dichloropropane	u
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	126.6
1,3-Dichloropropane	u
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	u
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

North Caro. .la Department of Human Resources
Division of Health Service
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation For
Chlorinated Solvents

4 McDowell

RECEIVED
OCT 12 1989
GROUNDWATER SECTION
RALEIGH, NC

DATE: 9/29/89 LABORATORY NUMBER 98[illegible]

Based on these analytical results, this water is contaminated with chlorinated solvents which have been widely used (both industrially and in home-use products) for many years. One chlorinated solvent, vinyl chloride, is known to cause cancer in humans. Many other chlorinated solvents have been shown to cause cancer in laboratory animals. However, none of these chemicals is known to cause cancer in humans.

Some chlorinated solvents have not been linked to cancer. For these chemicals, acceptable intake levels are much higher and are based on other health effects.

The U. S. Environmental Protection Agency has set maximum contaminant levels (MCL) for a number of chlorinated solvents. The MCL is the amount of a chemical that is considered acceptable in public drinking water supplies. The maximum contaminant level is not binding for users of private supply wells, but is a useful guideline.

Chemical	Maximum Contaminant Level (ppb)	This Well (ppb)
trichloroethylene	5ppb	39 ppb
tetrachloroethylene	5ppb (proposed)	126.6ppb

( ) This water is acceptable for all uses due to the very low levels present.
( ) Resample in about _____ month(s). (PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).)

(✓) This water is significantly contaminated and should not be used for drinking or cooking. Prolonged bathing/showering should be avoided.

( ) This water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

Comments: Continued consumption may result in an increased health risk over time. Resample in 4 months.

For further information, contact Dr. Ted Taylor or Dr. Ken Rudo, Environmental Epidemiology Branch, (919) 733-3410.

DHS T476 (Revised 5/89)
Environmental Epidemiology Branch

North Carolina Department of Human Resources
Division of Health Services
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation
General

DATE: 9/29/89 LABORATORY NUMBER 902651 902653 902652 902654

(✓) Based on these analytical results, this water should be considered safe for normal usage.

( ) Chemical analysis did not show any contamination. Water should be resampled if odor or taste persists.

( ) The water should not be used for drinking or cooking purposes, avoid prolonged bathing/showering.

( ) Based on these analytical results, this water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

( ) The laboratory results are not conclusive, please resample:

PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).

( ) Comments:

For further information, contact Dr. Ken Rudo or Dr. Ted Taylor, Environmental Epidemiology Branch, (919) 733-3410.

DHS T474 (Revised 5/89)
Environmental Epidemiology Branch

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

SEP 1989 RECEIVED Division of Health Services Environmental Epidemiology Branch

BNA

~~PETROLEUM PRODUCTS~~

Name of Owner, Patient or Supply: Old Fort, Town of

Address: 01-56-025

County: McDowell

Report to: WC Knox

Address: WRD
Black Mtn 28711

Date Collected: 9-6-89

Collected By: WC Knox

Analysis Desired: VOC/SOC - Extractables

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
902648		Well # 2-A	SEE ATTACHED SHEET(S)

Date Received 9-8-89 XB

Date Extracted 9-20-89 AA, MW

Date Reported 9-25-89

Date Analyzed VOC 9/15/89 AM; BNA 9-21-89 BQ

Reported By: John L. Neal

DHS Form 2364 Revised (5/89)
Laboratory

North Carolina Department of Human Resources
Division of Health Service
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation For
Chlorinated Solvents

McDowell

RECEIVED
OCT 12 1989
GROUNDWATER SECTION
RALEIGH, NC

DATE: 9/29/89 LABORATORY NUMBER 902648

Based on these analytical results, this water is contaminated with chlorinated solvents which have been widely used (both industrially and in home-use products) for many years. One chlorinated solvent, vinyl chloride, is known to cause cancer in humans. Many other chlorinated solvents have been shown to cause cancer in laboratory animals. However, none of these chemicals is known to cause cancer in humans.

Some chlorinated solvents have not been linked to cancer. For these chemicals, acceptable intake levels are much higher and are based on other health effects.

The U. S. Environmental Protection Agency has set maximum contaminant levels (MCL) for a number of chlorinated solvents. The MCL is the amount of a chemical that is considered acceptable in public drinking water supplies. The maximum contaminant level is not binding for users of private supply wells, but is a useful guideline.

Chemical	Maximum Contaminant Level (ppb)	This Well (ppb)
trichloroethylene	5 ppb	730.9 ppb
tetrachloroethylene	5 ppb (proposed)	448.4 ppb
cis-1,2-dichloroethylene	70 ppb (proposed)	79.1 ppb

( ) This water is acceptable for all uses due to the very low levels present.
  ( ) Resample in about _____ month(s). (PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).)

( ) This water is significantly contaminated and should not be used for drinking or cooking. Prolonged bathing/showering should be avoided.

(✓) This water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

Comments: Water is extensively contaminated. The use of this water for any reason may lead to an increased health risk over time. Resample in 6 months.

For further information, contact Dr. Ted Taylor or Dr. Ken Rudo, Environmental Epidemiology Branch, (919) 733-3410.

DHS T476 (Revised 5/89)
Environmental Epidemiology Branch

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

Laboratory No: 902648 PURGEABLE COMPOUNDS Date of Analysis 9/15/89

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	2.6
Methylene Chloride	U
tert-Butyl Methyl Ether	
(Trans)1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
(Cis) 1,2-Dichloroethylene	79.1
Chloroform	U
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	730.9 J
1,2-Dichloropropane	U
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethene	448.4 J
1,3-Dichloropropane	U
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	
p-Xylene	
m-Xylene	
o-Xylene	
Styrene	
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
(Tert) Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
(Sec) Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
(Bis) 2 Chloroisopropyl Ether	
1,2-Dibromo-3 Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (1/89 Laboratory)

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

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	902648					
	FIELD #						
COMPOUND	TYPE	(/)	( )	( )	( )	( )	( )
	UNITS	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
-nitrosodimethylamine	10/330	U					
(2-chloroethyl)ether							
lorophenol							
enol							
-dichlorobenzene							
-dichlorobenzene							
2-dichlorobenzene							
is(2-chloroisopropyl)ether							
achloroethane							
-nitroso-di-n-propylamine							
itrobenzene							
horone							
trophenol							
4-dimethylphenol							
(2-chloroethoxy)methane							
-dichlorophenol							
2,4-trichlorobenzene							
phthalene							
chlorobutadiene							
-chloro-m-cresol							
xachlorocyclopentadiene							
6-trichlorophenol							
loronaphthalene							
enaphthylene							
thyl phthalate							
dinitrotoluene							
enaphthene							
4-dinitrophenol	50/1650						
dinitrotoluene	10/330						
itrophenol	50/1650						
uorene	10/330						
lorophenylphenylether							
hyl phthalate							
6-dinitro-o-cresol	50/1650						
enylamine							
enzene							
bromophenylphenylether	10/330						
xachlorobenzene	10/330						
achlorophenol	50/1650						
enanthrene	10/330						
thracene							
tyl phthalate							
ranthene							

MDL
H_2O/SOIL

- Estimated value.
- Actual value is known to be less than value given.
- Actual value is known to be greater than value given.
- Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
- Not analyzed.
- Tentative identification.
- On NRDC List of Priority Pollutants.

Division of Health Services
3068-0 (4/86 Laboratory)

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

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES	LAB NO	902648					
	FIELD #						
COMPOUND	TYPE	(1)	( )	( )	( )	( )	( )
	UNITS	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
pyrene	10/330	u					
benzidine	50/1650						
butyl benzyl phthalate	10/330						
benz(a)anthracene							
chrysene							
3,3-dichlorobenzidine	50/1650						
bis(2-ethylhexyl)phthalate	10/330						
di-n-octyl phthalate	10/330						
benzo(b)fluoranthene	50/1650						
benzo(k)fluoranthene							
benzo(a)pyrene							
indeno(1,2,3-cd)pyrene							
dibenzo(a,h)anthracene							
benzo(g,h,i)perylene							
aniline	50/1650	u					
benzoic acid							
benzyl alcohol							
4-chloroaniline							
dibenzofuran	10/330						
2-methylnaphthalene							
2-methylphenol							
4-methylphenol							
2-nitroaniline	50/1650						
3-nitroaniline							
4-nitroaniline							
2,4,5-trichlorophenol							

MDL
H_2O/501L

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

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

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

FEB 1989
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WRO
Division of
Health Services

Environmental Sciences Analysis Report

VOC Analysis

~~PETROLEUM PRODUCTS~~

Name of Owner, Patient or Supply: OLD FORT

Address:

County: McDowell Co.

Report to: W. C. Knox

Address: WRO
Black Mtn. 28711

Date Collected: 1-31-89

Collected By: W. C. Knox

Analysis Desired: VOC scan

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
900250		Piercy res. Private well	668-4915
900251		Rhodes res. private well	668-4101
900252		World of Appliances private well	main St.
		SEE ATTACHED SHEET(S)	

Date Received 2-2-89 MW

Date Reported 2-9-89

Date Extracted

Date Analyzed 2/2/89 4 pm

Reported By: John L. Neal

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

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

ORGANIC CHEMICAL ANALYSIS

Date of Analysis 2/2/89

PURGEABLE COMPOUNDS	MDL	Lab No.	900250	900251	900252		
		Field #					
		Type	(/)	(/)	(/)	( )	( )
COMPOUND		Units	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
Dichlorodifluoromethane	1	ppb	u	u	u		
Chloromethane							
√Vinyl Chloride							
Bromomethane							
Chloroethane							
Trichlorofluoromethane							
√1,1-Dichloroethylene							
Methylene Chloride							
tert-Butyl Methyl Ether							
(Trans)1,2-Dichloroethylene							
Isopropyl ether							
1,1-Dichloroethane							
2,2-Dichloropropane							
(Cis) 1,2-Dichloroethylene							
Chloroform							
(BCM) Bromochloromethane							
√1,1,1-Trichloroethane							
1,1-Dichloropropene							
√Carbon Tetrachloride							
√Benzene							
√1,2-Dichloroethane							
√Trichloroethylene							
1,2-Dichloropropane							
Bromodichloromethane							
Dibromomethane							
Toluene							
1,1,2-Trichloroethane							
Tetrachloroethene							
1,3-Dichloropropane							
Dibromochloromethane							
1,2-Dibromoethane (EDB)							
1-Chlorohexane	↓	↓	↓	↓	↓		

COMMENTS:

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
MDL - Minimum Detection Limit for water (EPA Method 502.2), µg/l.
√ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (4/88 Laboratory)

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

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	MDL	Lab No.	900250	900251	900252		
		Field #					
		Type	(1)	(1)	(1)	( )	( )
COMPOUND		Units	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
Chlorobenzene	1	ppb	u	u	u		
Ethylbenzene							
1,1,1,2-Tetrachloroethane							
p-Xylene							
m-Xylene							
o-Xylene							
Styrene							
Bromoform							
Isopropylbenzene							
1,1,2,2-Tetrachloroethane							
Bromobenzene							
n-Propylbenzene							
1,2,3-Trichloropropane							
2-Chlorotoluene							
1,3,5-Trimethylbenzene							
4-Chlorotoluene							
(Tert) Butyl Benzene							
Pentachloroethane							
1,2,4-Trimethylbenzene							
(Sec) Butyl Benzene							
p-Isopropyltoluene							
1,3-Dichlorobenzene							
✓1,4-Dichlorobenzene							
n-Butylbenzene							
1,2-Dichlorobenzene							
(Bis) 2 Chloroisopropyl Ether							
1,2-Dibromo-3 Chloropropane							
1,2,4-Trichlorobenzene							
Hexachlorobutadiene							
Naphthalene							
1,2,3-Trichlorobenzene	✓	✓	✓	✓	✓		

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
MDL - Minimum Detection Limit for water (EPA Method 502.2), µg/l.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (4/88 Laboratory)

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

Name of Owner, Patient or Supply: OLD FORT

Address:

County: McDowell Co.

Report to: W. C. Knox

Address: WRO
Black Mtn. 28711

Date Collected: 1-31-89

Collected By: W. C. Knox

Analysis Desired: VOC scan

VOC Analysis

PETROLEUM PRODUCTS

FEB 1989 RECEIVED Division of Health Services Environmental Epidemiology Branch

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
900250		Piercy res. Private well	
900251		Rhodes res. private well	
900252		World of Appliances private well	
		SEE ATTACHED SHEET(S)	

Date Received 2-2-89 MLL

Date Reported 2-9-89

Date Extracted

Date Analyzed 2/2/89 gpm

Reported By: John L. Neal

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

North Carolina Department of Human Resources
Division of Health Services
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation
General

McDowell

DATE: 2/22/89 LABORATORY NUMBER 900250, 900251, 900252

(X) Based on these analytical results, this water should be considered safe for normal usage.

( ) Chemical analysis did not show any contamination. Water should be resampled if odor or taste persists.

( ) The water should not be used for drinking or cooking purposes, avoid prolonged bathing/showering.

( ) Based on these analytical results, this water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

( ) The laboratory results are not conclusive, please resample:

PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).

( ) Comments:

RECEIVED
FEB 28 1989
GROUNDWATER SECTION
RALEIGH, NC

For further information, contact Dr. Jenifer Heath or Dr. Ted Taylor, Environmental Epidemiology Branch, (919) 733-3410.

DHS T474 (8/88)
Environmental Epidemiology Branch

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

ORGANIC CHEMICAL ANALYSIS

Date of Analysis 2/2/89

PURGEABLE COMPOUNDS	MDL	Lab No.	900250	900251	900252		
		Field #					
		Type	( )	( )	( )	( )	( )
COMPOUND		Units	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
Dichlorodifluoromethane	1	ppb	u	u	u		
Chloromethane							
✓Vinyl Chloride							
Bromomethane							
Chloroethane							
Trichlorofluoromethane							
✓1,1-Dichloroethylene							
Methylene Chloride							
tert-Butyl Methyl Ether							
(Trans)1,2-Dichloroethylene							
Isopropyl ether							
1,1-Dichloroethane							
2,2-Dichloropropane							
(Cis) 1,2-Dichloroethylene							
Chloroform							
(BCM) Bromochloromethane							
✓1,1,1-Trichloroethane							
1,1-Dichloropropene							
✓Carbon Tetrachloride							
✓Benzene							
✓1,2-Dichloroethane							
✓Trichloroethylene							
1,2-Dichloropropane							
Bromodichloromethane							
Dibromomethane							
Toluene							
1,1,2-Trichloroethane							
Tetrachloroethene							
1,3-Dichloropropane							
Dibromochloromethane							
1,2-Dibromoethane (EDB)							
1-Chlorohexane	↓	↓	↓	↓	↓		

COMMENTS:

E - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
[illegible] - Material was analyzed for but not detected.
[illegible] - Not analyzed.
T - Tentative identification.
MDL - Minimum Detection Limit for water (EPA Method 502.2), µg/l.
✓ - Regulated VOC
[illegible] - Trihalomethane

N.C. Division of Health Services
[illegible] 3068-0 (4/88 Laboratory)

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

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	MDL	Lab No.	900250	900251	900252		
		Field #					
		Type	(1)	(1)	(1)	( )	( )
COMPOUND		Units	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
Chlorobenzene	1	ppb	u	u	u		
Ethylbenzene							
1,1,1,2-Tetrachloroethane							
p-Xylene							
m-Xylene							
o-Xylene							
Styrene							
Bromoform							
Isopropylbenzene							
1,1,2,2-Tetrachloroethane							
Bromobenzene							
n-Propylbenzene							
1,2,3-Trichloropropane							
2-Chlorotoluene							
1,3,5-Trimethylbenzene							
4-Chlorotoluene							
(Tert) Butyl Benzene							
Pentachloroethane							
1,2,4-Trimethylbenzene							
(Sec) Butyl Benzene							
p-Isopropyltoluene							
1,3-Dichlorobenzene							
√1,4-Dichlorobenzene							
n-Butylbenzene							
1,2-Dichlorobenzene							
(Bis) 2 Chloroisopropyl Ether							
1,2-Dibromo-3 Chloropropane							
1,2,4-Trichlorobenzene							
Hexachlorobutadiene							
Naphthalene							
1,2,3-Trichlorobenzene	↓	↓	↓	↓	↓		

J - Estimated value.
< - Actual value is known to be less than value given.
> - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
T/ - Tentative identification.
MDL - Minimum Detection Limit for water (EPA Method 502.2), µg/l.
√ - Regulated VOC
* - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (4/88 Laboratory)

North Carolina Department of Human Resources
Division of Health Services
Environmental Epidemiology Branch
Drinking Water Health Risk Evaluation
General

McDowell

DATE: 2/22/89 LABORATORY NUMBER 900250, 900251, 900252

(X) Based on these analytical results, this water should be considered safe for normal usage.

( ) Chemical analysis did not show any contamination. Water should be resampled if odor or taste persists.

( ) The water should not be used for drinking or cooking purposes, avoid prolonged bathing/showering.

( ) Based on these analytical results, this water is highly contaminated and should not be used for drinking, cooking, or bathing/showering.

( ) The laboratory results are not conclusive, please resample:

PLEASE INDICATE ON LAB SHEET THAT IT IS A RESAMPLE AND PROVIDE PREVIOUS SAMPLE NUMBER(S).

( ) Comments:

RECEIVED
FEB 28 1989
GROUNDWATER SECTION
RALEIGH, NC

For further information, contact Dr. Jenifer Heath or Dr. Ted Taylor, Environmental Epidemiology Branch, (919) 733-3410.

DHS T474 (8/88)
Environmental Epidemiology Branch

cc: B. Peter
C. Abernathy
J. Hache
R. Powell
L. Aymer
2/17/89

Nort. Carolina Department of Human Re. Jrces
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

FEB 1989
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Division of
Health Services

Environmental Sciences Analysis Report

Name of Owner, Patient or Supply: OLD FORT, Town of

Address:

County: McDowell

Report to: W. C. Knox

Address: WRO
Black Mtn. 28711

Date Collected: 1-31-89

Collected By: W. C. Knox

Analysis Desired: VOC Scan

VOC Analysis

RECEIVED
FEB 16 1989
Groundwater Section
Asheville Regional Office

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
900253		Well #2	SEE ATTACHED SHEET(S)
900254		Well #2-A	
900255		Well #5	
900256		Well #9	
900257		Well #10	
		SEE ATTACHED SHEET(S)	

Date Received 2-2-89 AM

Date Reported 2-9-89

Date Extracted

Date Analyzed 2/2/89 pm

Reported By: John L. Neal

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

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

ORGANIC CHEMICAL ANALYSIS — Date of Analysis 2/2/89

PURGEABLE COMPOUNDS	MDL	Lab No.	900253	900254	900255	900256	900257
		Field #					
		Type	(1)	(1)	(1)	(1)	(1)
COMPOUND		Units	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
Dichlorodifluoromethane	1	ppb	u	u	u	u	u
Chloromethane							
✓Vinyl Chloride							
Bromomethane							
Chloroethane							
Trichlorofluoromethane							
✓1,1-Dichloroethylene				4.6			
Methylene Chloride				u			
tert-Butyl Methyl Ether							
(Trans)1,2-Dichloroethylene							
Isopropyl ether							
1,1-Dichloroethane							
2,2-Dichloropropane							
(Cis) 1,2-Dichloroethylene				13.8			
Chloroform				2.6 T	trace		
(BCM) Bromochloromethane				u	u		
✓1,1,1-Trichloroethane				1.1			
1,1-Dichloropropene				u			
✓Carbon Tetrachloride				1 K			
✓Benzene				u			
✓1,2-Dichloroethane							
✓Trichloroethylene				168.1	trace	trace	
1,2-Dichloropropane				u	u	u	
Bromodichloromethane							
Dibromomethane							
Toluene							
1,1,2-Trichloroethane							
Tetrachloroethene				90.8	trace	trace	
1,3-Dichloropropane				u	u	u	
Dibromochloromethane							
1,2-Dibromoethane (EDB)							
1-Chlorohexane							

COMMENTS:

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
MDL - Minimum Detection Limit for water (EPA Method 502.2), µg/l.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (4/88 Laboratory)

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

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	MDL		2	2-A	5	9	10
		Lab No.	900253	900254	900255	900256	900257
		Field #					
		Type	(1)	(1)	(1)	(1)	(1)
COMPOUND		Units	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
Chlorobenzene	1	ppb	U	U	U	U	U
Ethylbenzene							
1,1,1,2-Tetrachloroethane							
p-Xylene							
m-Xylene							
o-Xylene							
Styrene							
Bromoform							
Isopropylbenzene							
1,1,2,2-Tetrachloroethane							
Bromobenzene							
n-Propylbenzene							
1,2,3-Trichloropropane							
2-Chlorotoluene							
1,3,5-Trimethylbenzene							
4-Chlorotoluene							
(Tert) Butyl Benzene							
Pentachloroethane							
1,2,4-Trimethylbenzene							
(Sec) Butyl Benzene							
p-Isopropyltoluene							
1,3-Dichlorobenzene							
✓1,4-Dichlorobenzene							
n-Butylbenzene							
1,2-Dichlorobenzene							
(Bis) 2 Chloroisopropyl Ether							
1,2-Dibromo-3 Chloropropane							
1,2,4-Trichlorobenzene							
Hexachlorobutadiene							
Naphthalene							
1,2,3-Trichlorobenzene	↓	↓	↓	↓	↓	↓	↓

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected.
NA - Not analyzed.
1/ - Tentative identification.
MDL - Minimum Detection Limit for water (EPA Method 502.2), µg/l.
✓ - Regulated VOC
T - Trihalomethane

N.C. Division of Health Services
DHS 3068-O (4/88 Laboratory)

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

Name of Owner, Patient or Supply: Town of Old Fort Well #2-A - Raw

Address:

County: McDowell

Report to: W C Knox

Address: WRO
Black Mtn

Date Collected: 12-22-87 12:10 PM

Collected By: W C Knox

Analysis Desired: soc/voc scan

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
703492			

Date Received 12-23-87 @ 10:15 am Date Reported 1-6-88

Date Extracted Date Analyzed 12-28-87 AM

Reported By: John R Neal

2-VOC ✓
1-2 limb ✓

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

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

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	FIELD #	well #5	well #2	well #9	well #10 Raw	well #[illegible]-A Raw	
COMPOUND	TYPE	(/)	(/)	(/)	(/)	(/)	( )
	UNITS	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
chloromethane	10	U	U	U	U	U	
bromomethane	10						
dichlorodifluoromethane	20						
vinyl chloride	10						
chloroethane	10						
methylene chloride	5						
trichlorofluoromethane	20						
ethene, 1,1-dichloro	5					<5	
ethane, 1,1-dichloro-						U	
1,2-cis--dichloroethene						19	
chloroform						<5	
ethane, 1,2-dichloro-						U	
ethane, 1,1,1-trichloro-							
carbontetrachloride							
bromodichloromethane							
propane, 1,2-dichloro-							
1,3-trans-dichloropropene							
trichloroethylene						191	
chlorodibromomethane						U	
benzene							
ethane, 1,1,2-trichloro-							
1,3-cis-dichloropropene							
2-chloroethyl vinyl ether	10						
bromoform	5						
ethane, 1,1,2,2-tetrachloro-							
ethene, tetrachloro-						~75	
toluene						U	
chlorobenzene							
ethylbenzene							
acetone	10						
2-butanone	10						
carbondisulfide	5						
2-hexanone	10						
4-methyl-2-pentanone	10						
styrene	5						
vinyl acetate	10						
xylenes (total)	5						
	MDL						
	µg/L						

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. = MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

N.C. Division of Health Services

DHS 3068-O (4/86 Laboratory)

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

JAN 1988 RECEIVED WRO Division of Health Services

Environmental Sciences Analysis Report

01-56-025

~~SOC~~ / VOC

✓Pest., Herb & ✓VOC

Name of Owner, Patient or Supply: Old Fort, Town of

Address: Well #2A

County: McDowell

Report to: W. C. Knox

Address: DHS-WRO
Black Mountain, NC 28711

704-669-3361

Date Collected: 12/1/87 1:15 PM

Collected By: W. C. Knox

Analysis Desired: SOC/VOC Scan

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
703283		2,4-D	<0.001 mg/l
		2,4,5-TP	<0.001 mg/l
		Endrin	<0.0001 mg/l
		Lindane	<0.0004 mg/l
		Methoxychlor	<0.001 mg/l
		Toxaphene	<0.002 mg/l
		VOCs - see attached sheet	

Date Received 12-02-87 TMM

Date Extracted Pest 12-10-87 TMM Herb 12-16-87 JH

Date Reported 1-13-88

Date Analyzed JCH 12-2-87 JM PEST 12-11-87 VLP PT 12-21-87 Herb 1-6-88

Reported By: John R. Nee

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

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

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	76:3285					
	FIELD #						
COMPOUND	TYPE	(/)	( )	( )	( )	( )	( )
	UNITS	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
chloromethane	10	4					
bromomethane	10						
dichlorodifluoromethane	10						
vinyl chloride	10						
chloroethane	10						
methylene chloride	5						
trichlorofluoromethane	20						
ethene, 1,1-dichloro	5						
ethane, 1,1-dichloro-							
1,2 -dichloroethene		22					
chloroform		4					
ethane, 1,2-dichloro-							
ethane, 1,1,1-trichloro-							
carbontetrachloride							
bromodichloromethane							
propane, 1,2-dichloro-							
1,3-trans-dichloropropene							
trichloroethylene		62					
chlorodibromomethane		4					
benzene							
ethane, 1,1,2-trichloro-							
1,3-cis-dichloropropene							
2-chloroethyl vinyl ether	10						
bromoform	5						
ethane, 1,1,2,2-tetrachloro-							
ethene, tetrachloro-		48					
toluene		4					
chlorobenzene							
ethylbenzene							
acetone	10	4					
2-butanone	10						
carbondisulfide	5						
2-hexanone	10						
4-methyl-2-pentanone	10						
styrene	5						
vinyl acetate	10						
xylenes (total)	5						
	MDL						
	µg/l						

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. = MDL
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.

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

North Carolina Department of Human Resources
Division of Health Services
Laboratory Section
P.O. Box 28047, Raleigh, N.C. 27611

Environmental Sciences Analysis Report

Name of Owner, Patient
or Supply: Town of Old Fort Well #2-A - Raw
Address:
County: McDowell
Report to: W C Knox
Address: WRO
Black Mtn
Date Collected: 12-22-87 12:10 PM
Collected By: WC Knox
Analysis Desired: soc/voc scan

Laboratory Number	Sample Number	Sample Description or Remarks	Results In
703492			

Date Received 12-28-87 @ 10:15 am
Date Reported 1-6-88
Date Extracted
Date Analyzed 12-28-87 JM
Reported By: John P. Neal

-VOC ✓
1-2 lamb ✓

DHS Form 2364 Revised (1/87)
Laboratory

Mildred A. Kerbaugh
Director

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

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	703458	703459	703460	703491	703492	
			#2	#9	#10	#2-A	
	FIELD #	Well #5	Well #2	Well #9	Well #10 Raw	Well #2-A Raw	
COMPOUND	TYPE	(/)	(/)	(/)	(/)	(/)	( )
	UNITS	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
chloromethane	10	U	U	U	U	U	
bromomethane	10						
dichlorodifluoromethane	10						
vinyl chloride	10						
chloroethane	10						
methylene chloride	5						
trichlorofluoromethane	10						
ethene, 1,1-dichloro	5					<5	
ethane, 1,1-dichloro-						U	
1,2-cis--dichloroethene						19 J	
chloroform						<5	
ethane, 1,2-dichloro-						U	
ethane, 1,1,1-trichloro-							
carbontetrachloride							
bromodichloromethane							
propane, 1,2-dichloro-							
1,3-trans-dichloropropene							
trichloroethylene						19 J	
chlorodibromomethane						-U-	
benzene							
ethane, 1,1,2-trichloro-							
1,3-cis-dichloropropene							
2-chloroethyl vinyl ether	10						
bromoform	5						
ethane, 1,1,2,2-tetrachloro-							
ethene, tetrachloro-						~75	
oluene						U	
hlorobenzene							
thylbenzene							
cetone	10						
-butanone	10						
arbondisulfide	5						
-hexanone	10						
-methyl-2-pentanone	10						
tyrene	5						
inyl acetate	10						
xylenes (total)	5						
	MDL						
	µg/L						

- Estimated value.
- Actual value is known to be less than value given.
- Actual value is known to be greater than value given.
- Material was analyzed for but not detected. The number is the Minimum Detection Limit. - MDL
- Not analyzed.
- Tentative identification.
- On NRDC List of Priority Pollutants.

.C. Division of Health Services

IS 3068-O (4/86 Laboratory)

Working Draft of Proposed Laboratory Evaluation Form

( ) Based on these analytical results, this water should be considered safe for normal usage.

( ) Chemical analysis did not show any contamination. Because of odor, water should be resampled if odor persists.

( ) Based on these analytical results, this water is contaminated with a petroleum product that may be gasoline, fuel oil, kerosene, or other.

(X) The water should not be used for drinking or cooking purposes, avoid prolonged bathing.

( ) Based on these analytical results, this water is highly contaminated and should not be used for drinking, cooking or bathing.

( ) The laboratory results are not conclusive, please resample for:

Microbiological analysis ( )

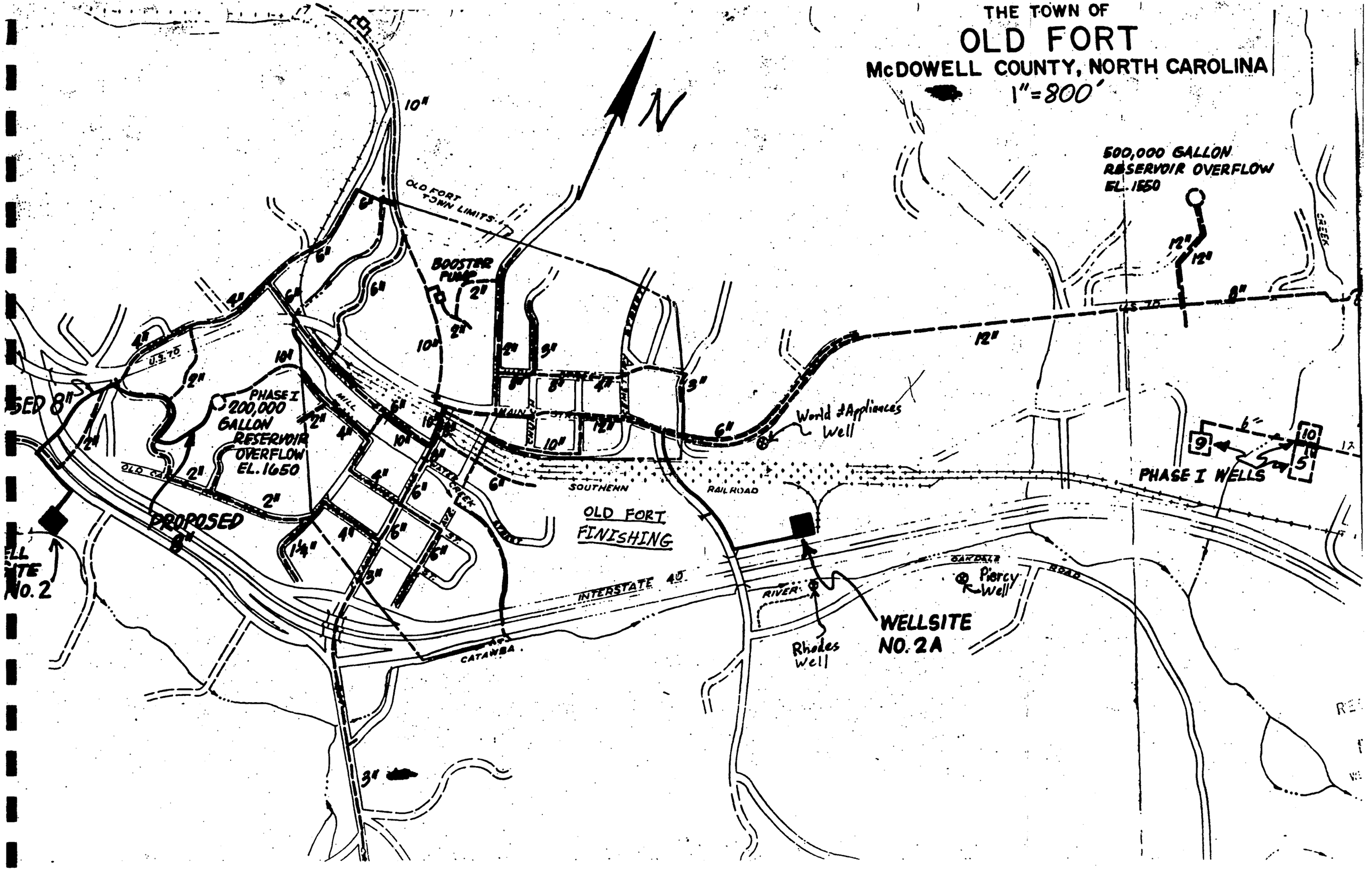
Chemical analysis ( )

( ) Laboratory number OLD FORT, McDOWELL Co. 703492

( ) Comments Chlorinated solvents at levels greater than proposed drinking water standards ??

( ) Please indicate on lab sheet that it is a resample

For further information, contact the Environmental Epidemiology Branch, (919) 733-3410.


THE TOWN OF
OLD FORT
McDOWELL COUNTY, NORTH CAROLINA
1"=800'
N
500,000 GALLON
RESERVOIR OVERFLOW
EL. 1650
OLD FORT
TOWN LIMITS
BOOSTER
PUMP
U.S. 70
PHASE I
200,000
GALLON
RESERVOIR
OVERFLOW
EL. 1650
PROPOSED
MILL
MAIN
STREET
CAMPBELL
VALLEY
World Appliances
Well
SOUTHERN
RAILROAD
OLD FORT
FINISHING
PHASE I WELLS
INTERSTATE 40
CATAWBA
RIVER
OAKDALE
ROAD
Piercy
Well
Rhodes
Well
WELLSITE
NO. 2A
WELL
SITE
No. 2

REFERENCE 1

2006 Annual Groundwater Monitoring Report

Site Name and Location:	Old Fort Industrial Park (Former United Merchants and Manufacturers Facility) One Water Street Old Fort, North Carolina
Groundwater Incident Number:	3575
Date of Report:	January 16, 2007
Site Priority Ranking:	150 B
Property Owner:	Old Fort Industrial Park, LLC 225 By-Pass 72 NW, Suite C Greenwood, SC 23649 Contact: Ms. Renee' Simchon Telephone: (864) 388-0202
Consultant:	TEC Environmental, P.C. P.O. Box 216 Waynesville, NC 28786 Telephone: (828) 454-0465
Date Release Discovered:	November 1987
Estimated Quantity of Release:	Unknown
Source of Release:	Former drum burial area / former waste disposal practices
Latitude:	35° 37′ 43″ North
Longitude:	82° 10′ 23″ West

RECEIVED
JAN 18 2007
Asheville Regional Office
Aquifer Protection

Signature and Seal of Certifying Professional Engineer:

I, David H. Traylor, a Professional Engineer for TEC Environmental, P.C., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

David H. Traylor, P.E. #24363

NORTH CAROLINA PROFESSIONAL SEAL 24363 ENGINEER DAVID H. TRAYLOR

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Appendix

Appendix A: December 2006 Laboratory Analytical Report

Section 1: Introduction

TEC Environmental, P.C. was contracted by Old Fort Industrial Park, LLC to perform the 2006 annual groundwater monitoring event at Old Fort Industrial Park in Old Fort, McDowell County, North Carolina (see Figure 1 for site location). This site is the former United Merchants and Manufacturers facility (Groundwater Incident No. 3575). This report documents the results of the annual groundwater sampling event completed in December 2006.

Project Background

Old Fort Industrial Park was formerly owned and operated by United Merchants and Manufacturers, Inc. as a textile dying and finishing facility called Old Fort Finishing Plant. In November 1987, chlorinated solvent groundwater contamination was discovered at the facility, which was suspected to be from a drum burial area and former waste disposal practices at Old Fort Finishing Plant. In March 1988, United Merchants and Manufacturers implemented a phased investigation to identify potential waste disposal locations and assess the extent of groundwater contamination. A groundwater monitoring well network was installed, and potential waste disposal locations were excavated. Groundwater remediation was implemented by pumping of the impacted on-site production well (Process Well on Figure 2), which was formerly used for process water at the facility. Quarterly groundwater monitoring events were conducted at the site by United Merchants and Manufacturers from 1989 through 1996. Old Fort Industrial Park, LLC began completing annual groundwater monitoring events in 1999 that continue to date.

There are currently nine groundwater monitoring wells at the site, as shown on Figure 2. The North Carolina Department of Environment and Natural Resources (NCDENR) requires annual monitoring of wells MW-1, MW-4, MW-6, MW-7, and the Process Well to evaluate the progress of groundwater remediation. The Process Well is no longer continuously pumped since process water is no longer needed at the facility. The Process Well has not been regularly pumped since September 2000.

Two additional wells were also sampled during December 2006 as requested by NCDENR to evaluate the potential source of increasing tetrachloroethene (PCE) and trichloroethene (TCE) concentrations in monitoring well MW-7. MW-2 and MW-12 were added to the December 2006 sampling event for this purpose.

Section 2: December 2006 Field Activities

Field activities were conducted at the Old Fort Industrial Park site on December 21, 2006. The static depth to groundwater was measured in each of the nine monitoring wells at the site using an electronic water level tape. The depths to groundwater were measured from the top of each well casing, and are listed in Table 1. The water level tape was decontaminated prior to each measurement to prevent cross-contamination of wells.

Groundwater samples were collected from six monitoring wells (MW-1, MW-2, MW-4, MW-6, MW-7, and MW-12) and the Process Well. The samples were collected in accordance with the procedures specified in the most recent *Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater* (July 2000). Each monitoring well was purged of a minimum of three well volumes of groundwater prior to sample collection using a disposable bailer. A new disposable bailer with new cotton twine lanyard was used for purging and sampling each monitoring well to prevent cross-contamination. The sample from the Process Well was collected directly from the artesian flow at the wellhead.

Each sample was collected in the appropriate pre-preserved sample containers provided by the laboratory. The samples were stored on ice and were shipped by overnight courier to TestAmerica's Nashville, Tennessee laboratory. Each sample was submitted for laboratory analysis of volatile organic compounds (VOCs) by Standard Method 6210D. A copy of the chain-of-custody record is included in Appendix A.

Section 3: Results and Interpretations

Groundwater Elevation Data

Groundwater elevations were calculated from the depths to water measured at the site on December 21, 2006, and are listed in Table 1. Historical groundwater elevations for this site are summarized in Table 2.

Figure 2 presents a groundwater elevation contour map constructed from the groundwater elevations measured in December 2006. Figure 2 indicates a general groundwater flow direction to the east-southeast toward the Catawba River over most of the site. Groundwater flow beneath the southernmost part of the site may be influenced to the south by the presence of Mill Creek along the southwestern property boundary.

Groundwater Sampling Results

Results of the December 2006 groundwater analyses are summarized in Table 3, and are discussed below. A copy of the laboratory analytical report is included in Appendix A.

VOCs were detected in four wells (MW-2, MW-6, MW-7, and the Process Well) sampled in December 2006 at concentrations exceeding the North Carolina groundwater standards established by 15A NCAC 2L .0202 (2L standards). Constituents exceeding the 2L standards were tetrachloroethene (PCE), trichloroethene (TCE), and vinyl choride. The following bullets summarize the December 2006 analytical data for individual wells at the site:

- **MW-1:** Carbon disulfide (3.01 µg/L) was the only compound analyzed that was detected in MW-1. No compounds analyzed exceeded the 2L standards in MW-1 for the seventh consecutive sampling event, dating back to April 2001. Prior to April 2001, PCE had been detected in MW-1 at concentrations ranging from 1 to 7.4 µg/L. Historical analytical results for MW-1 are summarized in Table 4 and are shown on a time series plot in Figure 4.

- **MW-2:** Carbon disulfide (5.67 µg/L), chlorobenzene (2.58 µg/L), cis-1,2-dichloroethene (12.2 µg/L), toluene (3.02 µg/L), and vinyl chloride (1.84 µg/L) were detected in MW-2. However, only the concentration of vinyl chloride exceeded 2L standards. No recent historical analytical results are available for comparison for MW-2 since this well is not normally part of the annual sampling program.

- **MW-4:** Carbon disulfide (0.98 µg/L) was the only compound analyzed that was detected in MW-4. No compounds analyzed exceeded the 2L standards in MW-4 for the sixth consecutive sampling event, dating back to December 2001. Prior to December 2001, PCE and TCE had been detected in MW-4 at relatively low concentrations of 10

µg/L or less. Historical analytical results for MW-4 are summarized in Table 4 and are shown on a time series plot in Figure 5.

- **MW-6:** Chloroform (0.53 µg/L) and PCE (7.55 µg/L) were detected in MW-6. Only the concentration of PCE exceeded the 2L standards. The PCE concentration in MW-6 has decreased to the current level from a high of 6,001 µg/L in January 1994. TCE has not been detected in MW-6 since October 1999, and 1,2-dichloroethene has not been detected since March 1996. Historical analytical results for MW-6 are summarized in Table 4 and are shown on a time series plot in Figure 6.

- **MW-7:** Carbon disulfide (1.96 µg/L), PCE (113 µg/L), TCE (15.8 µg/L), and cis-1,2-dichloroethene (41.2 µg/L) were detected in MW-7. The concentrations of PCE and TCE were above the 2L standards. Concentrations in MW-7 continued the increasing trend that has been displayed over the past five annual sampling events after the well was relatively free of contamination from 1995 through 2001. Historical analytical results for MW-7 are summarized in Table 4 and are shown on a time series plot in Figure 7.

- **MW-12:** No compounds analyzed were detected in MW-12. No recent historical analytical results are available for comparison for MW-12 since this well is not normally part of the annual sampling program.

- **Process Well:** PCE (20.8 µg/L), TCE (1.7 µg/L), and cis-1,2-dichloroethene (2.21 µg/L) were detected in the Process Well. Only the concentration of PCE exceeded the 2L standards. PCE concentrations in the Process Well have historically fluctuated from a low as < 1 µg/L to as high as 53 µg/L. Prior to December 2006, TCE had not been detected in the Process Well since October 1999, and 1,2-dichloroethene had not been detected since March 1996. Historical analytical results for the Process Well are summarized in Table 4 and are shown on a time series plot in Figure 8.

Remediation Status

Groundwater remediation at the site was previously performed by pumping of the Process Well, which was formerly used to provide process water for the finishing operation at the facility. The Process Well was consistently operated, with pumping of approximately 400,000 to 500,000 gallons per day, until September 2000. The Process Well has not been regularly pumped since Excel Finishing, Inc., a former tenant of Old Fort Industrial Park, ceased operations at the site in September 2000.

No groundwater level drawdown was observed in the vicinity of the Process well in December 2006. Historical groundwater elevations (Table 2) indicate that when the Process Well was in operation, a large cone of depression was created that encompassed much of the facility. Now that the Process Well is no longer in use, groundwater flow at the site has resumed a southeasterly flow direction, generally toward the Catawba River.

Section 4: Conclusions and Recommendations

Conclusions

The following bullets present the conclusions drawn from the December 2006 annual groundwater sampling event:

- Groundwater elevation data collected during the sampling event indicates that groundwater flow direction is generally to the east-southeast toward the Catawba River over most of the property, with influence to the south toward Mill Creek in the southernmost part of the site.

- Laboratory analyses of the groundwater samples detected PCE, TCE, and vinyl chloride at concentrations above the 2L standards. Concentrations of PCE in excess of the 2L standard were detected in MW-6, MW-7, and the Process Well. The concentration of TCE in MW-7 exceeded the 2L standard, as did the concentration of vinyl chloride in MW-2.

- VOC concentrations in MW-1, MW-4, and MW-6 were consistent with recent sampling events, and are generally at or near historically low values. VOC concentrations in MW-7 have displayed an increasing trend over the past five annual sampling events. VOC concentrations in the Process Well have also shown an increasing trend over the last three annual sampling events.

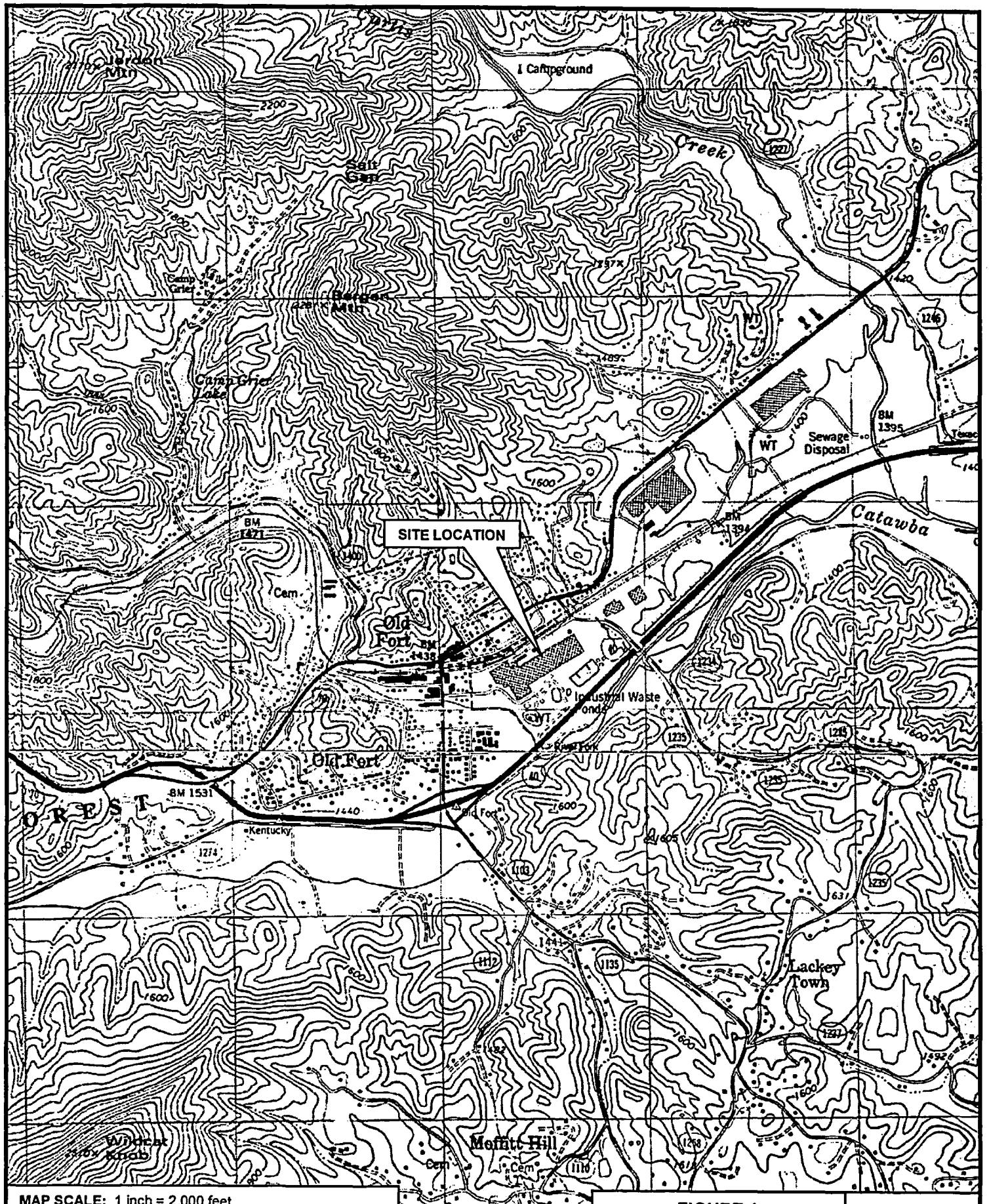
- MW-2 and MW-12 were sampled in addition to the usual wells sampled during the annual monitoring event in order to evaluate the possible source of increasing PCE and TCE concentrations in MW-7. Neither PCE nor TCE was detected in MW-2 or MW-12, which indicates that there is not a widespread solvent plume on the eastern portion of the property, and that the contamination appears limited to the vicinity of MW-7.

- The Process Well is no longer pumped to recover contaminated groundwater at the site. The well has not been pumped regularly since September 2000 because process water is no longer needed at the facility.

Recommendations

TEC Environmental recommends continuing annual monitoring and reporting at this site since PCE, TCE, and vinyl chloride are still present in the groundwater at concentrations above the 2L standards. MW-2 is recommended to be added to the sampling program to monitor concentrations of vinyl chloride. Resumption of pumping from the Process Well may also be considered if concentrations in MW-7 and the Process Well continue to increase.

FIGURES



MAP SCALE: 1 inch = 2,000 feet

MAP SOURCE:
USGS Old Fort (1982) and Moffitt Hill (1982) Quadrangles
7.5 Minute Series Topographic

FIGURE 1
SITE LOCATION MAP
Old Fort Industrial Park
Old Fort, North Carolina

TEC
Environmental, P.C.

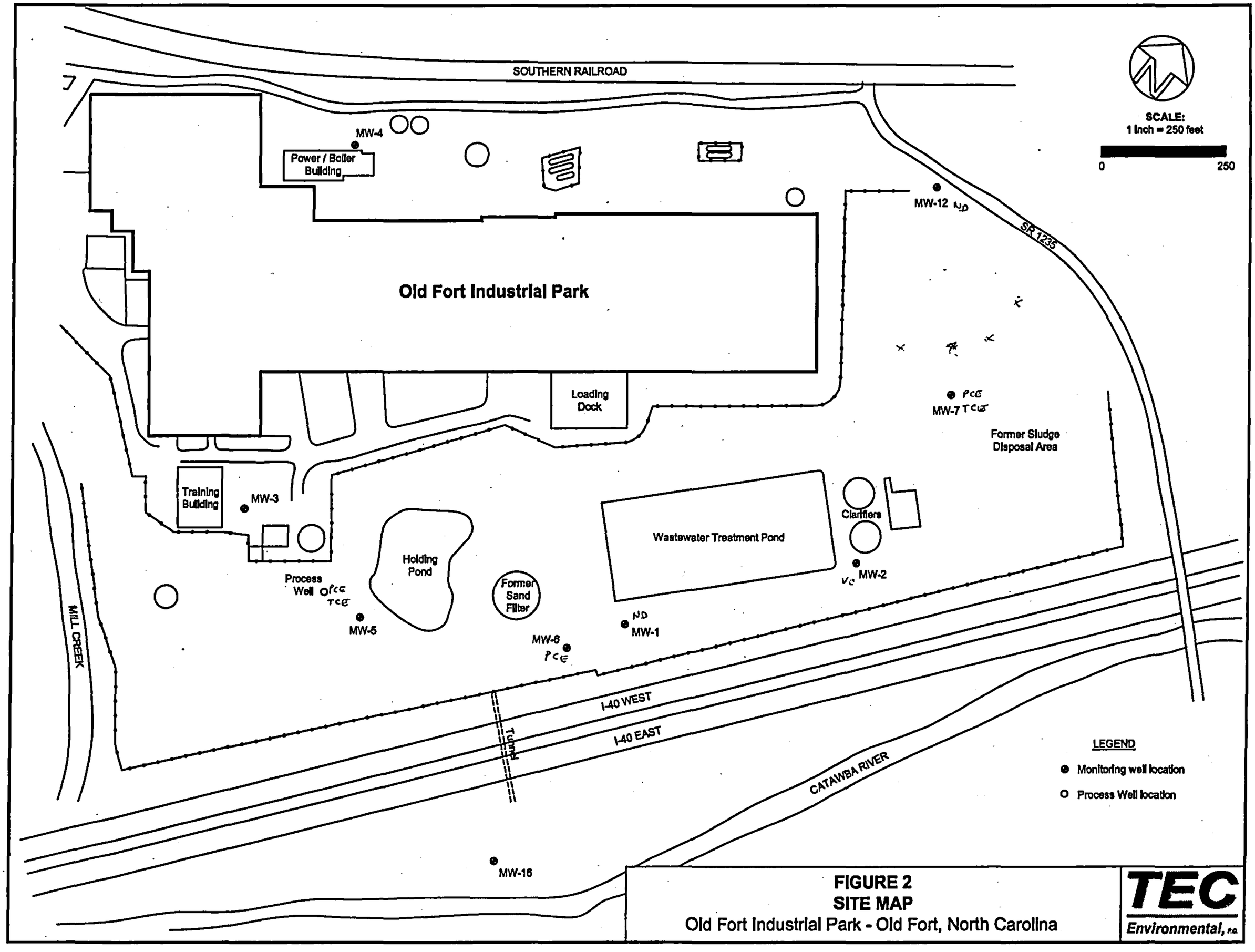


FIGURE 2
SITE MAP
Old Fort Industrial Park - Old Fort, North Carolina

TEC Environmental, Inc.

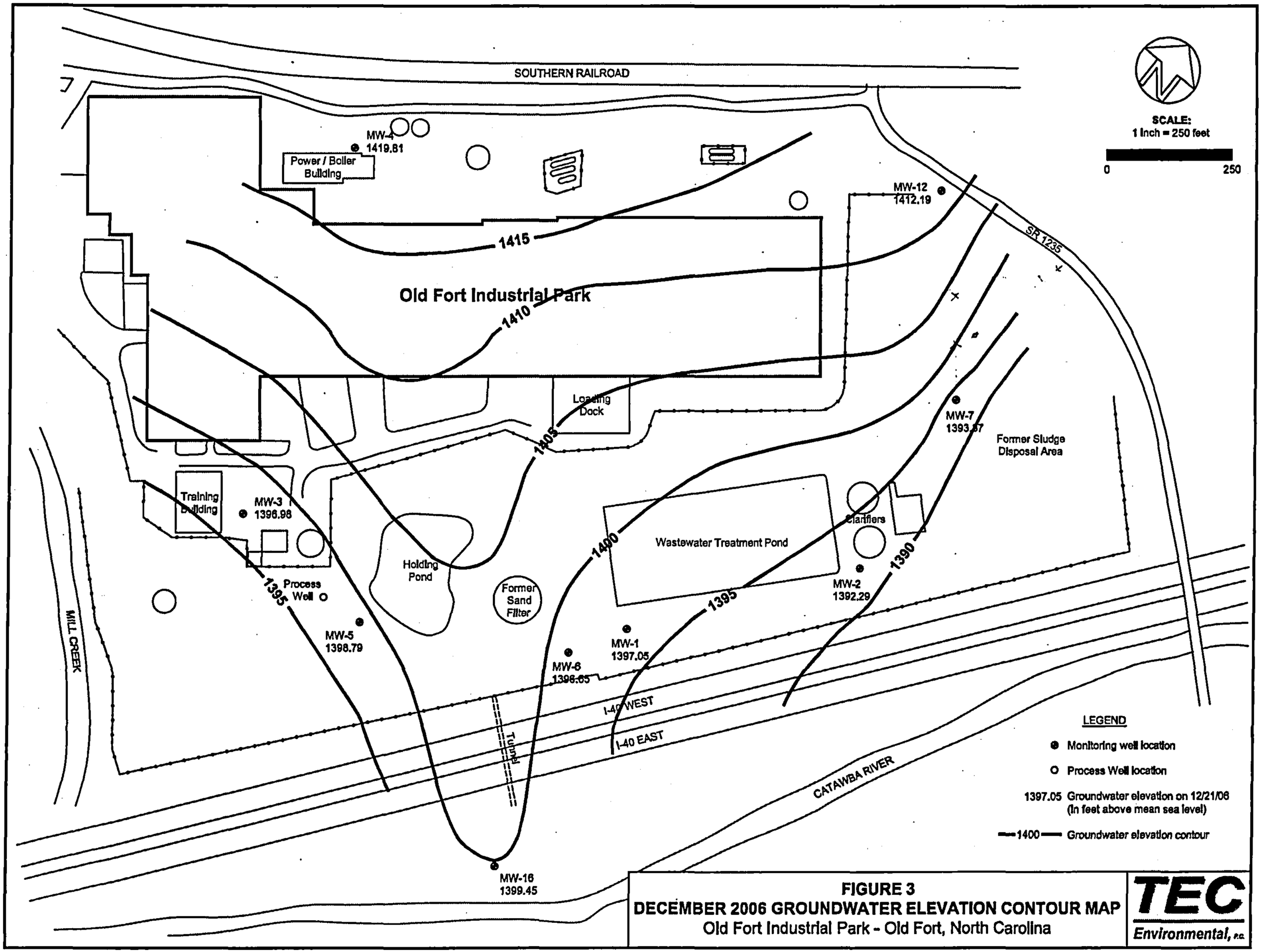


FIGURE 3
DECEMBER 2006 GROUNDWATER ELEVATION CONTOUR MAP
Old Fort Industrial Park - Old Fort, North Carolina

TEC Environmental, P.C.

Figure 4
Groundwater Concentrations vs. Time in MW-1
Old Fort Industrial Park - Old Fort, North Carolina

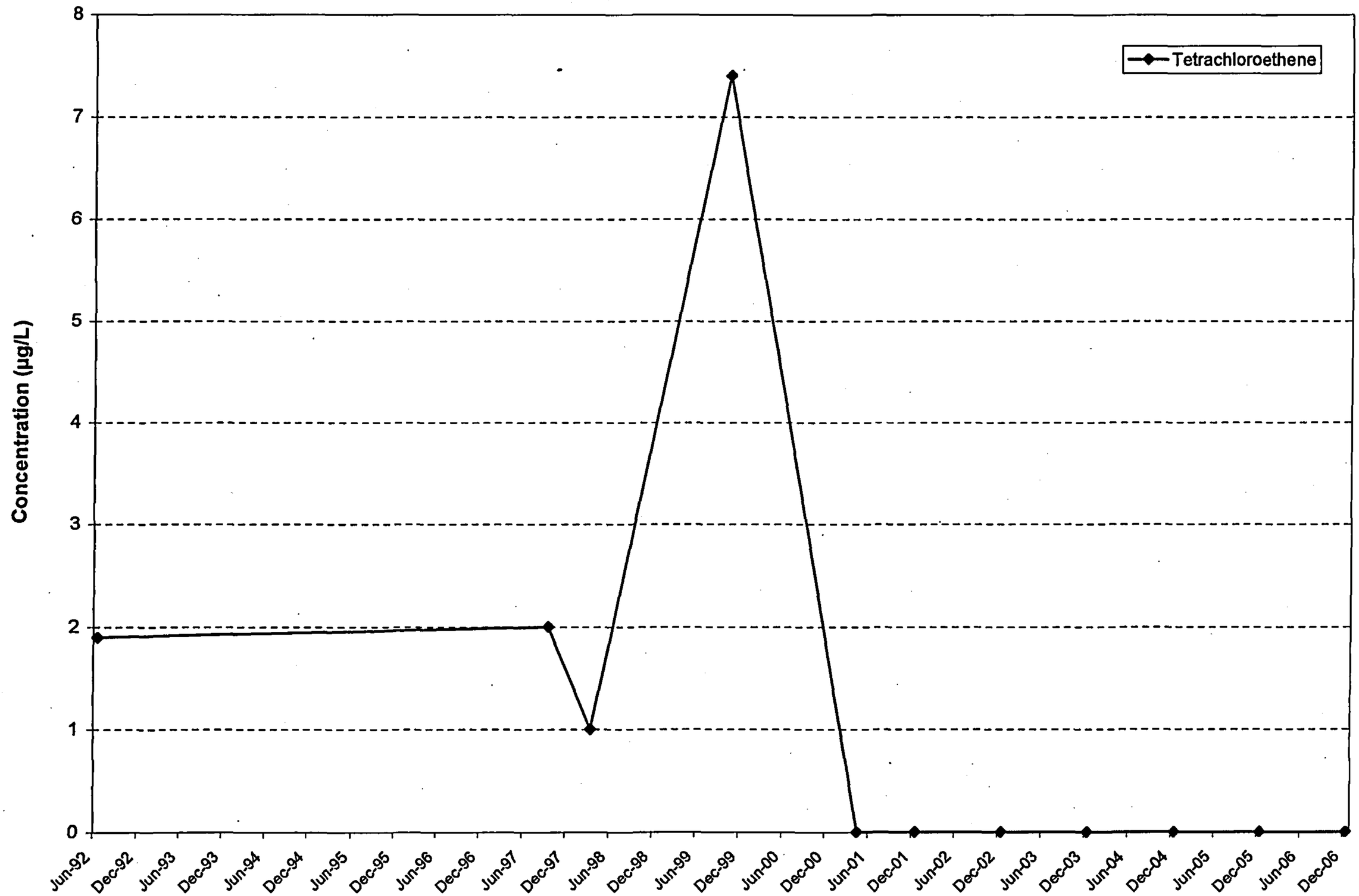


Figure 5
Groundwater Concentrations vs. Time in MW-4
Old Fort Industrial Park - Old Fort, North Carolina

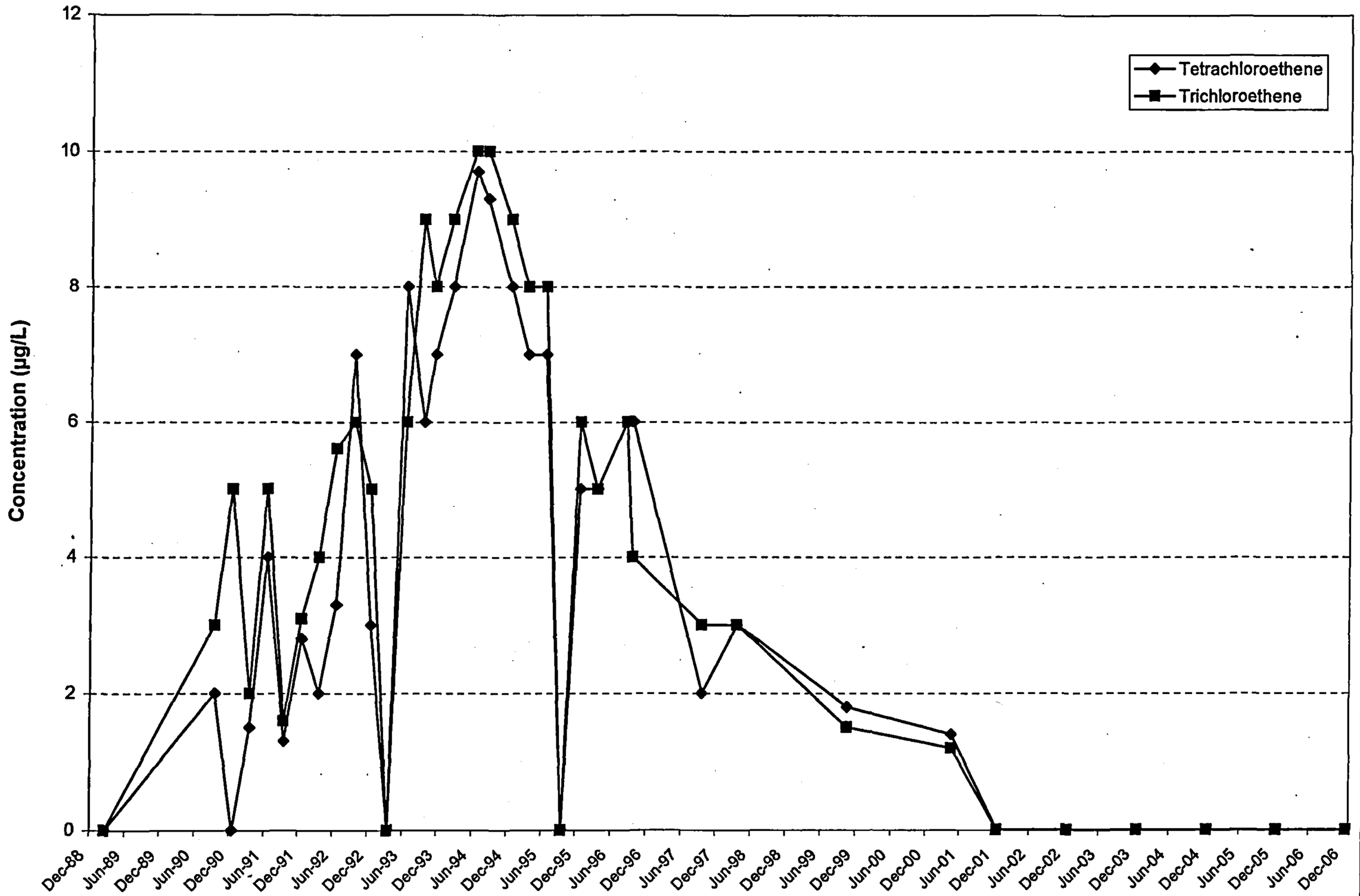


Figure 6
Groundwater Concentrations vs. Time in MW-6
Old Fort Industrial Park - Old Fort, North Carolina

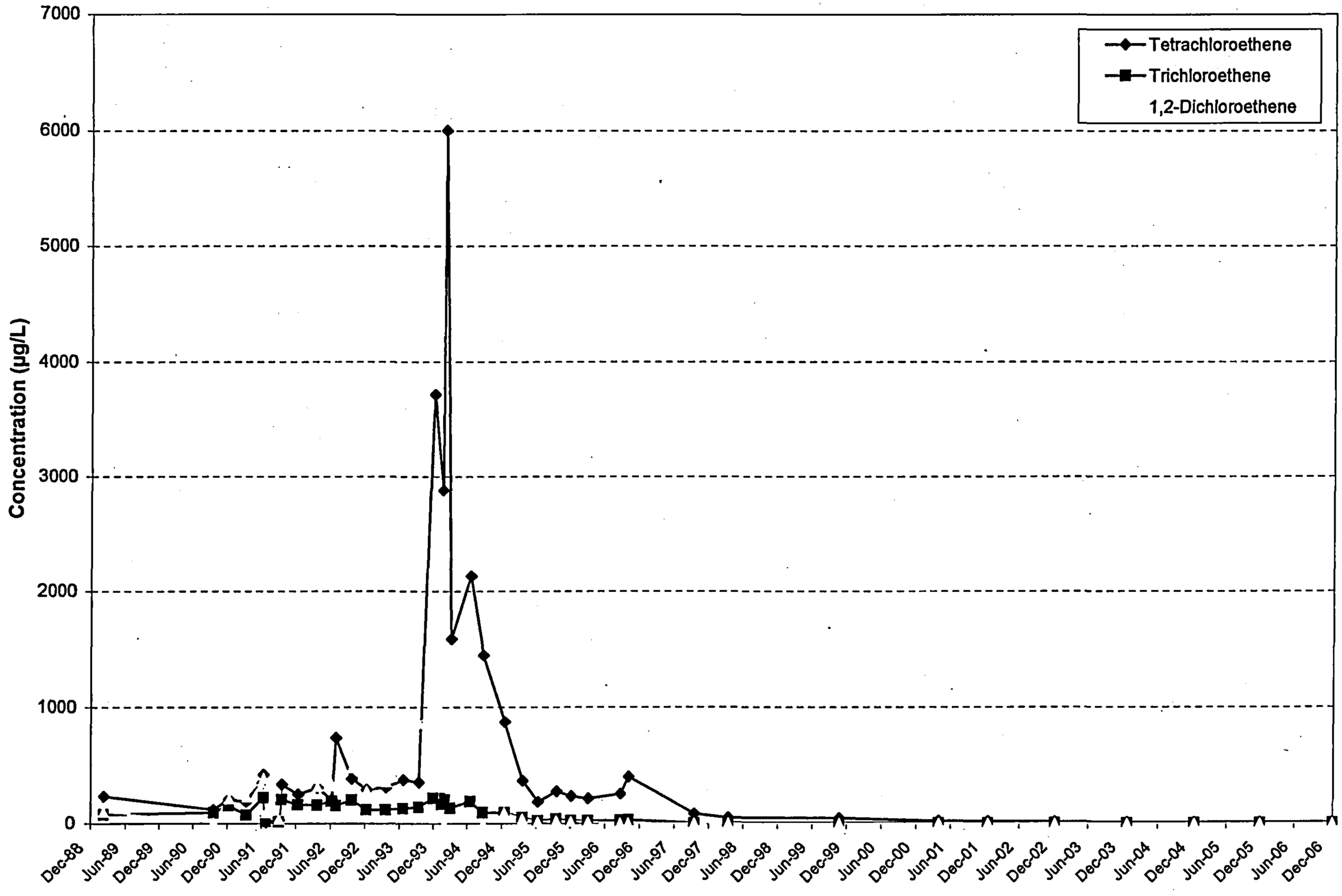


Figure 7
Groundwater Concentrations vs. Time in MW-7
Old Fort Industrial Park - Old Fort, North Carolina

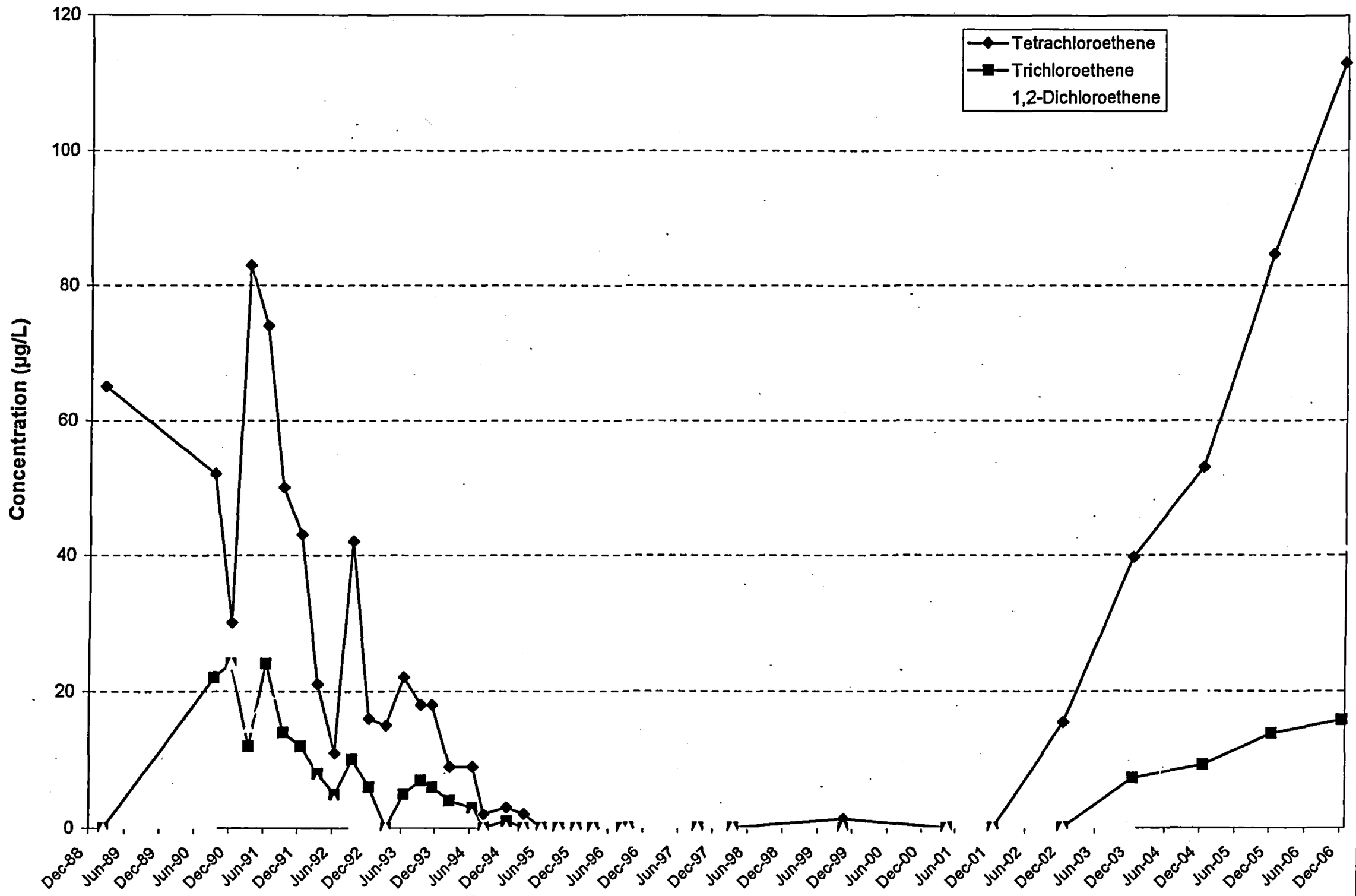
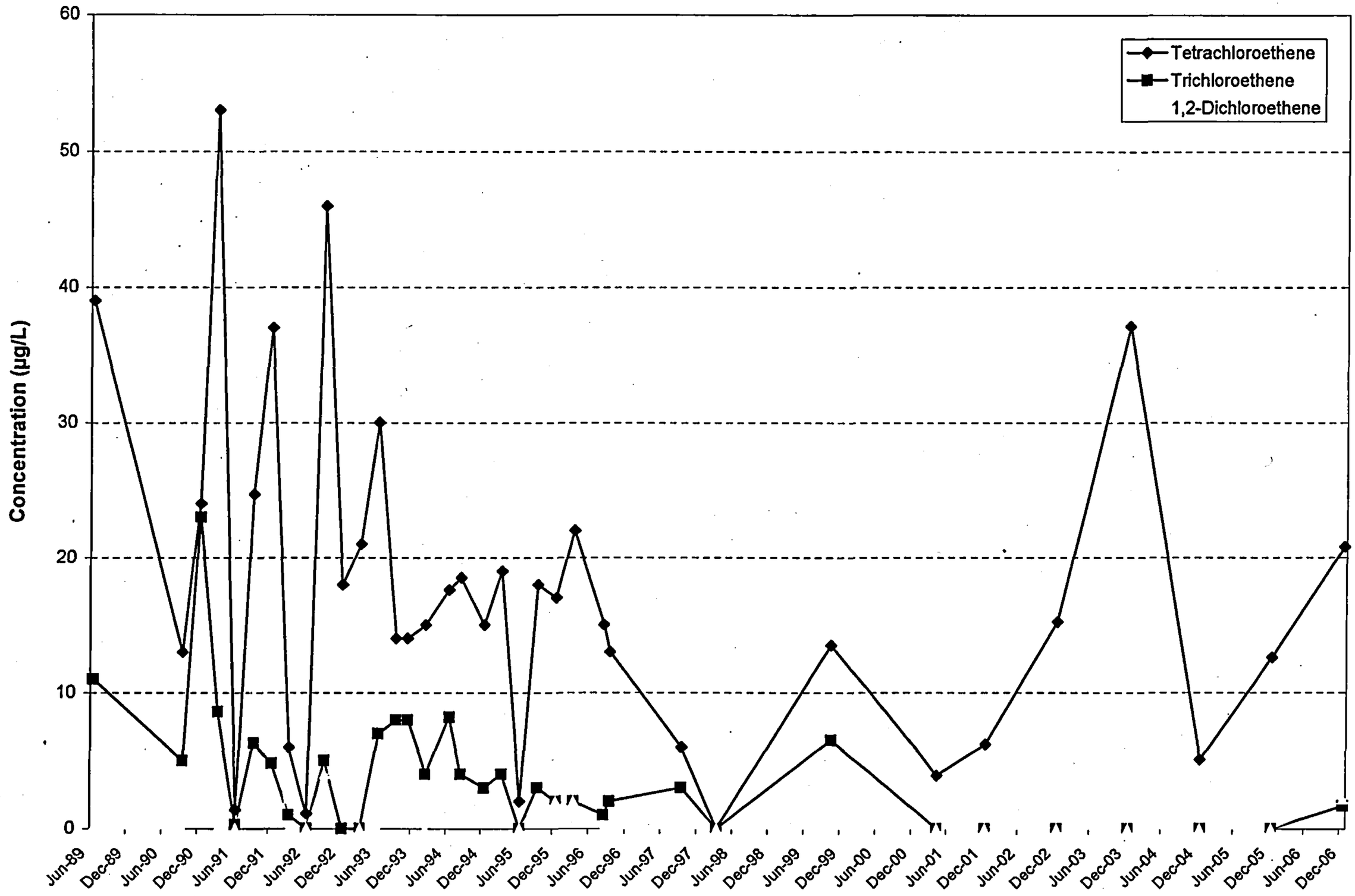


Figure 8
Groundwater Concentrations vs. Time in the Process Well
Old Fort Industrial Park - Old Fort, North Carolina



TABLES

Table 1
Well Construction Information and December 2006 Groundwater Elevations
Old Fort Industrial Park - Old Fort, North Carolina
Groundwater Incident No. 3575

Well Number	Well Diameter (inches)	Total Depth (feet BLS)[1]	Top of Casing Elevation (feet AMSL)[2]	12/21/06 Depth to Water (feet BTOC)[3]	12/21/06 Groundwater Elevation (feet AMSL)[2]
MW-1	2	16	1405.54	8.49	1397.05
MW-2	2	14	1405.10	12.81	1392.29
MW-3	2	43.5	1432.09	35.11	1396.98
MW-4	2	45	1431.26	11.45	1419.81
MW-5	2	63	1412.49	13.70	1398.79
MW-6	2	47	1405.11	8.46	1396.65
MW-7	2	31	1400.53	7.16	1393.37
MW-12	2	49	1423.58	11.39	1412.19
MW-16	2	21	1412.99	13.54	1399.45

Notes:
1. feet BLS = feet below land surface
2. feet AMSL = feet above mean sea level
3. feet BTOC = feet below top of casing
4. All monitoring wells are above-grade completions.

Table 2
Historical Groundwater Elevations
Old Fort Industrial Park - Old Fort, North Carolina
Groundwater Incident No. 3575

Date	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-12	MW-16
03/16/89	1397.1	1394.5	1396.1	1419.2	1398.0	1397.9	1395.3		
05/31/89								1412.1	1399.0
06/14/89	1397.4	1393.9	1397.1	1419.7	1398.8	1397.3	1394.6	1411.4	1397.8
11/01/89	1398.5	1394.8	1399.6	1421.9	1401.2	1399.1	1396.2	1413.5	1401.0
03/05/90	1397.9	1395.4	1401.2	1421.8	1401.5	1398.4	1396.7	1413.4	1399.7
09/20/90	1388.5*	1392.1*	1385.6*	1417.3	1370.8	1384.1	1394.5	1409.6	1399.0
12/10/90	1388.5*	1392.1*	1385.6*	1416.4	1374.0	1383.0	1390.8	1409.2	1398.8
03/13/91	1388.5*	1392.1*	1385.6*	1418.0	1366.8	1375.7	1391.5	1410.6	1399.3
06/11/91	1388.5*	1392.1*	1385.6*	1416.7	1370.3	1373.9	1390.3	1409.1	1398.9
06/25/91						1387.6**			
09/04/91	1388.5*	1392.1*	1385.6*	1417.9	1363.7	1371.9	1390.8	1410.1	1398.6
09/17/91						1384.0**			
12/10/91	1388.5*	1392.1*	1385.6*	1418.8	1363.0	1367.1	1389.5	1407.5	1394.6
03/09/92	1388.5*	1392.1*	1385.6*	1415.5	1361.7	1358.1*	1391.2		
03/23/92						1377.4**			
06/08/92	1388.5*	1392.1*	1385.6*	1415.3	1375.5	1375.4	1390.4	1409.0	1398.7
06/29/92	1389.6**					1390.5**			
09/08/92	1389.6*	1392.1*	1385.6*	1414.9	1362.0	1358.1*	1388.1	1406.8	1393.4
09/21/92						1376.6**			
12/08/92	1389.6*	1392.1*	1385.6*	1417.2	1362.2	1371.3	1391.1	1409.4	1398.4
03/08/93	1389.6*	1392.1*	1385.6*	1416.8	1347.5*	1358.1*	1390.3	1409.2	
03/23/93						1383.6**	1391.0**		
06/15/93	1389.6*	1392.1*	1385.6*	1415.2	1361.4	1358.1*	1388.6	1407.4	1398.3
06/24/93						1376.0**			
09/14/93	1389.6*	1392.1*	1385.6*	1411.3	1363.0	1360.1	1389.0	1404.4	1397.5
11/08/93	1389.6*	1392.1*	1385.6*	1409.8	1362.2	1358.1*	1388.7	1403.2	1398.2
12/02/93						1382.5**			
02/22/94	1389.6*	1392.1*	1385.6*	1414.9	1364.3	1358.1*	1390.7		
03/04/94						1380.5**			
06/07/94	1389.6*	1392.1*	1385.6*	1412.9	1366.1	1358.1*	1389.4	1405.7	1397.9
06/17/94	1389.6**	1392.1**	1385.6**			1374.3**			
08/16/94	1389.6*	1392.1*	1385.6*	1419.3	1365.8	1358.1*	1387.4	1404.4	1398.1
08/26/94	1389.6**	1392.1**	1385.6**			1376.0*			
12/05/94	1389.6*	1392.1*	1385.6*	1413.6	1370.5	1358.1*	1389.2	1406.1	1399.4
12/15/94	1389.6**	1392.1**	1385.6**			1376.3**			
03/24/95	1389.6*	1392.1*	1385.6*	1416.1	1366.7	1374.7	1390.9	1408.4	1399.4
03/31/95	1389.6**	1392.1**	1385.6**						
06/12/95	1389.6*	1392.1*	1385.6*	1415.8	1369.7	1361.7	1390.4	1407.5	1399.5
06/21/95	1389.6**	1392.1**	1385.6**						
09/18/95	1389.6*	1392.1*	1385.6*	1417.5	1365.5	1372.8	1390.2	1408.7	1399.3
09/28/95	1389.6**	1392.1**	1385.6**						
12/04/95	1389.6*	1392.1*	1385.6*	1415.3	1364.9	1364.1	1389.2	1407.6	1399.1
12/06/95	1389.6**	1392.1**	1385.6**						
03/04/96	1389.6*	1392.1*	1385.6*	1416.6	1360.9	1372.2	1389.8	1408.7	1399.1
03/14/96	1389.6**	1392.1**	1385.6**						
08/13/96	1389.6*	1392.1*	1385.6*	1414.2	1359.5	1358.1*	1388.2	1405.2	1399.3
08/22/96	1389.6**	1392.1**	1385.6**			1370.2**			
09/24/96	1389.6*	1392.1*	1385.6*	1415.4	1359.3	1358.1*	1389.3	1403.2	1399.0
10/04/96	1389.6**	1392.1**	1385.6**			1372.5**			
09/17/97	1394.1	1392.1*	1385.6*	1415.2	1391.1	1392.6	1391.3	1408.3	1389.9
03/16/98	1397.9	1392.1*	1388.5	1421.3	1399.4	1397.9	1396.1	1413.4	1399.9
10/26/99	1392.97	1392.1*	1385.6*	1415.6	1385.87	1397.32	1391.03	1408.75	1398.42
04/04/01	1396.81	1395.14	1393.20	1418.94	1399.82	1397.31	1394.38	1412.14	1399.67
12/20/01	1395.42	1393.79	1394.09	1417.13	1398.74	1395.83	1392.99	1411.17	1399.02
12/12/02	1396.89		1395.46	1420.87	1398.82	1397.24	1394.38	1412.48	1400.60
12/29/03	1396.12	1393.84	1388.54	1420.35	1390.97	1395.42	1393.72	1412.44	1399.14
12/16/04	1398.14	1393.18	1397.91	1421.43	1399.93	1397.70	1394.54	1413.47	1399.77
12/02/05	1397.66	1392.85	1396.91	1421.03	1399.50	1397.17	1394.22	1412.98	1399.65
12/21/06	1397.05	1392.29	1396.98	1419.81	1398.79	1396.65	1393.37	1412.19	1399.45

Notes:
1. * - Indicates that the well was dry. The number shown is the elevation of the bottom of the well.
2. ** - Indicates a water level measured after the Process Well was shut down.

Table 3
December 2006 Groundwater Analytical Results
Old Fort Industrial Park - Old Fort, North Carolina
Groundwater Incident No. 3575

Constituent	Units	MW-1	MW-2	MW-4	MW-6	MW-7	MW-12	Process Well	2L Standard[5]
Carbon disulfide	µg/L	3.01	5.67	0.98	< 0.50	1.96	< 0.50	< 0.50	700
Chlorobenzene	µg/L	< 0.50	2.58	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	50
Chloroform	µg/L	< 0.50	< 0.50	< 0.50	0.53	< 0.50	< 0.50	< 0.50	70
cis-1,2-Dichloroethene	µg/L	< 0.50	12.2	< 0.50	< 0.50	41.2	< 0.50	2.21	70
Tetrachloroethene (PCE)	µg/L	< 0.50	< 0.50	< 0.50	**7.55**	**113**	< 0.50	**20.8**	**0.7**
Toluene	µg/L	< 0.50	3.02	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1,000
Trichloroethene (TCE)	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	**15.8**	< 0.50	1.70	**2.8**
Vinyl chloride	µg/L	< 0.50	**1.84**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.015**

Notes:

1. All samples were collected on December 21, 2006.
2. All samples were analyzed for volatile organic compounds by Standard Method 6210D.
3. Only constituents detected were included in this table. A copy of the complete laboratory analytical report is located in Appendix A.
4. < - Indicates that the constituent was analyzed but not detected. The number shown is the laboratory reporting limit.
5. 2L Standard refers to the groundwater standards and interim standards established by 15A NCAC 2L .0202.
6. Bold values indicate concentrations that exceed the 2L standards.

Table 4
Historical Groundwater Analytical Data
Old Fort Industrial Park - Old Fort, North Carolina
Groundwater Incident No. 3575

Sample Date	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	1,2-Dichloro-ethene (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloroform (µg/L)	1,1,1-Trichloro-ethane (µg/L)	1,1-Dichloro-ethene (µg/L)
MW-1							
06/29/92	1.9	ND	ND	ND	ND	ND	ND
09/17/97	2	ND	ND	ND	1.2	ND	ND
03/16/98	1	ND	ND	ND	ND	ND	ND
10/26/99	7.4	ND	ND	ND	ND	ND	ND
04/04/01	ND	ND	ND	ND	ND	ND	ND
12/20/01	ND	ND	ND	ND	ND	ND	ND
12/12/02	ND	ND	ND	ND	ND	ND	ND
12/29/03	ND	ND	ND	ND	ND	ND	ND
12/16/04	ND	ND	ND	ND	ND	ND	ND
12/02/05	ND	ND	ND	ND	ND	ND	ND
12/21/06	ND	ND	ND	ND	ND	ND	ND
MW-4							
02/09/89	ND	ND	ND	ND	ND	ND	ND
09/20/90	2	3	ND	ND	ND	6	ND
12/11/90	ND	5	ND	ND	ND	ND	ND
03/13/91	1.5	2	ND	ND	ND	ND	ND
06/12/91	4	5	ND	ND	ND	ND	ND
09/04/91	1.3	1.6	ND	ND	ND	ND	ND
12/11/91	2.8	3.1	ND	ND	ND	ND	ND
03/09/92	2	4	ND	ND	ND	ND	ND
06/08/92	3.3	5.6	ND	ND	ND	ND	ND
09/08/92	7	6	ND	ND	ND	ND	ND
12/09/92	3	5	ND	ND	ND	ND	ND
03/08/93	ND	ND	ND	ND	ND	ND	ND
06/15/93	8	6	ND	ND	ND	ND	ND
09/14/93	6	9	ND	ND	3	ND	ND
11/08/93	7	8	ND	ND	ND	ND	ND
02/22/94	8	9	ND	ND	ND	ND	ND
06/07/94	9.7	10	ND	ND	ND	ND	ND
08/16/94	9.3	10	ND	ND	ND	ND	ND
12/05/94	8	9	ND	ND	ND	ND	ND
03/24/95	7	8	ND	ND	ND	ND	ND
06/12/95	7	8	ND	ND	ND	ND	ND
09/18/95	ND	ND	ND	ND	ND	ND	ND
12/04/95	5	6	ND	ND	ND	ND	ND
03/04/96	5	5	ND	ND	ND	ND	ND
08/13/96	6	6	ND	ND	ND	ND	ND
09/24/96	6	4	ND	ND	ND	ND	ND
09/17/97	2	3	ND	ND	ND	ND	ND
03/16/98	3	3	ND	ND	ND	ND	ND
10/26/99	1.8	1.5	ND	ND	ND	ND	ND
04/04/01	1.4	1.2	ND	ND	ND	ND	ND
12/20/01	ND	ND	ND	ND	ND	ND	ND
12/12/02	ND	ND	ND	ND	ND	ND	ND
12/29/03	ND	ND	ND	ND	ND	ND	ND
12/16/04	ND	ND	ND	ND	ND	ND	ND
12/02/05	ND	ND	ND	ND	ND	ND	ND
12/21/06	ND	ND	ND	ND	ND	ND	ND

Table 4
Historical Groundwater Analytical Data
Old Fort Industrial Park - Old Fort, North Carolina
Groundwater Incident No. 3575

Sample Date	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	1,2-Dichloro-ethene (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloroform (µg/L)	1,1,1-Trichloro-ethane (µg/L)	1,1-Dichloro-ethene (µg/L)
MW-6							
02/09/89	235	77	100	ND	ND	ND	ND
09/20/90	118	93	5	ND	ND	ND	ND
12/11/90	205	155	215	ND	ND	ND	ND
03/13/91	184	71	229	ND	ND	ND	ND
06/12/91	420	220	390	ND	ND	ND	ND
06/26/91	9.9	17.5	93.5	ND	ND	ND	0.2
09/04/91	28	14	36	ND	ND	ND	ND
09/17/91	335	204	441	ND	ND	ND	ND
12/11/91	250	160	468	ND	ND	ND	ND
03/23/92	305	158	318	ND	ND	ND	ND
06/08/92	206	188	339	ND	ND	ND	ND
06/29/92	733	152	323	ND	ND	ND	ND
09/21/92	385	201	482	ND	ND	ND	ND
12/09/92	289	118	282	ND	ND	ND	ND
03/23/93	310	118	358	ND	ND	ND	ND
06/24/93	374	128	611	ND	ND	ND	ND
09/14/93	356	140	859	ND	ND	ND	ND
12/02/93	3710	219	1003	ND	ND	ND	ND
01/18/94	2882	165	695	ND	ND	ND	ND
01/28/94	6001	212	ND	ND	ND	ND	ND
03/04/94	1590	134	304	ND	ND	ND	ND
06/17/94	2130	188	595	ND	ND	ND	ND
08/26/94	1450	93	ND	ND	ND	ND	ND
12/15/94	872	91	91	ND	ND	ND	ND
03/24/95	366	47	39	ND	ND	ND	ND
06/12/95	184	20	13	ND	ND	ND	ND
09/18/95	276	35	19	ND	ND	ND	ND
12/04/95	234	22	17	ND	ND	ND	ND
03/04/96	214	22	13	ND	1	ND	ND
08/22/96	255	24	ND	ND	ND	ND	ND
10/04/96	399	27	ND	ND	ND	ND	ND
09/17/97	81	ND	ND	ND	ND	ND	ND
03/16/98	49	ND	ND	ND	ND	ND	ND
10/26/99	44.4	3.1	ND	ND	ND	ND	ND
04/04/01	20.2	ND	ND	ND	ND	ND	ND
12/20/01	14.6	ND	ND	ND	ND	ND	ND
12/12/02	13.1	ND	ND	ND	ND	ND	ND
12/29/03	9.2	ND	ND	ND	ND	ND	ND
12/16/04	9.4	ND	ND	ND	ND	ND	ND
12/02/05	7.71	ND	ND	ND	0.54	ND	ND
12/21/06	7.55	ND	ND	ND	ND	ND	ND

Table 4
Historical Groundwater Analytical Data
Old Fort Industrial Park - Old Fort, North Carolina
Groundwater Incident No. 3575

Sample Date	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	1,2-Dichloro-ethene (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloroform (µg/L)	1,1,1-Trichloro-ethane (µg/L)	1,1-Dichloro-ethene (µg/L)
MW-7							
02/09/89	65	ND	ND	ND	ND	ND	ND
09/20/90	52	22	ND	ND	ND	ND	ND
12/11/90	30	24	24	ND	ND	ND	ND
03/13/91	83	12	14.7	ND	ND	ND	ND
06/12/91	74	24	20	ND	ND	ND	ND
09/04/91	50	14	18	ND	ND	ND	ND
12/11/91	43	12	18	ND	ND	ND	ND
03/09/92	21	8	7	ND	ND	ND	ND
06/08/92	11	5	4	ND	ND	ND	ND
09/08/92	42	10	ND	ND	ND	ND	ND
12/09/92	16	6	ND	ND	ND	ND	ND
03/08/93	15	ND	ND	12	4	83	ND
06/15/93	22	5	3	ND	ND	ND	3
09/14/93	18	7	5	ND	ND	ND	ND
11/08/93	18	6	4	ND	ND	ND	ND
02/22/94	9	4	2	ND	ND	ND	ND
06/07/94	9	3	2	ND	ND	ND	ND
08/16/94	2	ND	ND	ND	ND	ND	ND
12/05/94	3	1	ND	ND	ND	ND	ND
03/24/95	2	ND	ND	ND	ND	ND	ND
06/12/95	ND	ND	ND	ND	ND	ND	ND
09/18/95	ND	ND	ND	ND	ND	ND	ND
12/04/95	ND	ND	ND	ND	ND	ND	ND
03/04/96	ND	ND	ND	ND	ND	ND	ND
08/13/96	ND	ND	ND	ND	ND	ND	ND
09/24/96	ND	ND	ND	ND	ND	ND	ND
09/17/97	ND	ND	ND	ND	ND	ND	ND
03/16/98	ND	ND	ND	ND	ND	ND	ND
10/26/99	1.3	ND	ND	ND	ND	ND	ND
04/04/01	ND	ND	ND	ND	ND	ND	ND
12/20/01	ND	ND	ND	ND	ND	ND	ND
12/12/02	15.4	ND	ND	ND	ND	ND	ND
12/29/03	39.6	7.3	ND	ND	ND	ND	ND
12/16/04	53	9.3	20.5	ND	ND	ND	ND
12/02/05	84.7	13.8	37	ND	ND	ND	ND
12/21/06	113	15.8	41.2	ND	ND	ND	ND

Table 4
Historical Groundwater Analytical Data

Old Fort Industrial Park - Old Fort, North Carolina
Groundwater Incident No. 3575

Sample Date	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	1,2-Dichloro-ethene (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloroform (µg/L)	1,1,1-Trichloro-ethane (µg/L)	1,1-Dichloro-ethene (µg/L)
Process Well							
06/20/89	39	11	ND	ND	ND	ND	ND
09/20/90	13	5	ND	ND	ND	3	ND
12/11/90	24	23	9	ND	ND	ND	ND
03/13/91	53	8.6	ND	ND	0.8	ND	ND
06/26/91	1.4	0.3	ND	0.2	0.1	0.1	0.1
09/04/91	24.7	6.3	12.3	ND	ND	ND	ND
12/11/91	37	4.8	8.4	ND	ND	ND	ND
03/09/92	6	1	ND	ND	ND	ND	ND
06/08/92	1.1	ND	ND	ND	ND	ND	ND
09/08/92	46	5	4	ND	ND	ND	ND
12/09/92	18	ND	4	ND	ND	ND	ND
03/08/93	21	ND	ND	ND	ND	ND	ND
06/15/93	30	7	ND	ND	ND	ND	ND
09/14/93	14	8	3	ND	ND	ND	ND
11/08/93	14	8	2	ND	ND	ND	ND
02/22/94	15	4	ND	ND	ND	ND	ND
06/07/94	17.6	8.2	3.1	ND	ND	ND	ND
08/16/94	18.5	4	2.5	ND	ND	ND	ND
12/23/94	15	3	2	ND	ND	ND	ND
03/24/95	19	4	2	ND	ND	ND	ND
06/12/95	2	ND	ND	ND	ND	ND	ND
09/18/95	18	3	2	ND	ND	ND	ND
12/04/95	17	2	2	ND	ND	ND	ND
03/04/96	22	2	2	ND	ND	ND	ND
08/13/96	15	1	ND	ND	ND	ND	2
09/24/96	13	2	ND	ND	ND	ND	ND
09/17/97	6	3	ND	ND	ND	ND	ND
03/16/98	ND	ND	ND	ND	ND	ND	ND
10/26/99	13.5	6.5	ND	ND	ND	ND	ND
04/04/01	3.9	ND	ND	ND	ND	ND	ND
12/20/01	6.2	ND	ND	ND	ND	ND	ND
12/12/02	15.2	ND	ND	ND	ND	ND	ND
12/29/03	37.1	ND	ND	ND	ND	ND	ND
12/16/04	5.1	ND	ND	ND	ND	ND	ND
12/02/05	12.6	ND	ND	ND	ND	ND	ND
12/21/06	20.8	1.7	2.21	ND	ND	ND	ND

Note: ND indicates that the constituent was not detected above the laboratory reporting limit.

REFERENCE 2

Old Fort Revisited

Old Fort, North Carolina's place in Western North Carolina history is unique. This could be due to its geographic location at the foot of the Blue Ridge and being near the head of the Catawba River close to the Continental Divide. Although hundreds of years of human habitation existed in this area prior to the recorded period, my information will only relate to that which is a matter of record.

It would be virtually impossible to recount the history of Western North Carolina and not mention some of the brave and courageous (not to mention colorful) pioneer settlers of the time; among whom were some of our Burgin and Lytle ancestors. To do so, could be likened to that of discussing the production of honey and omitting the "worker" bee.

There is evidence that in 1566, Juan Pardo, a Spanish adventurer accompanied by thirty men, came to what is now Western North Carolina. He traveled from the South Carolina coast and his purpose was supposedly to acquire territory for Spain, but in reality, he had hoped to find precious metals.

When Juan Pardo had reached the headwaters of the Catawba River, he had his men build a log blockhouse. No doubt, he was intimidated by the formidable range of the Blue Ridge and hesitated before venturing into the home of the Cherokee Nation.

The next year, however, he took about half of his men and went west as far as to what is now Franklin, NC. From there, he started back to the South Carolina coast and was never heard of again. No one knows what became of his men, or what happened to the small fort they left behind.

Another hundred years passed before anything was again heard of this region. In 1690 James Moore, who was Secretary of the Colony of South Carolina, explored these hills and wrote that Indians told him a few Spaniards were mining about twenty miles away.

More and more settlers continued to come up the Catawba Valley. In 1763, the British and the Cherokee nation made a treaty agreeing that the British would settle no farther west of Old Fort than the crest of the Blue Ridge mountains.

Around 1770 Samuel Davidson purchased a boundary of land, which included the present site of Old Fort, consisting of 640 acres or one square mile. A stockade was raised upon a portion of this land, but by whom and for what specific purpose is still debated by some historians.

Some say Davidson built it for the use of the white settlers; others report that Captain Hugh Waddell constructed it with Colonial Militia left "to guard and range the country while General Rutherford led with an expedition against the Cherokee."

For 20 years, from 1756 to 1776, the settlement around the stockade was the western- most outpost of Colonial Civilization. The State of North Carolina then extended to the Mississippi River. It was during this period the first appearance of Benjamin Burgin on any North Carolina records was noted.

Pioneer Ben's Old Homeplace - Destroyed by fire in 1929

On November 18, 1772, a Marriage Bond for Benjamin Burgin's marriage to Leah Mann, is posted. It is this Benjamin Burgin descendants refer to as "Pioneer" Ben and his son Benjamin, Jr., as "Major" Ben.

Ben had worked as a blacksmith and carpenter in Maryland, but in North Carolina, he would operate a tannery. They used the tannin from the bark of the abundant local trees turning the equally abundant animal skins into leather, a commodity much needed on the frontier.

In the Spring of 1774, Samuel Davidson decided to move across the Blue Ridge and build a cabin near what is now Azalea. This was in violation of the treaty mentioned above. The indians would later take a bell from Davidson's grazing horse and use it to lure him to his death. His wife, baby, and servant girl fled back across the Continental Divide, down the mountain to Davidson's Fort and safety.

Pioneer Ben was part of the retaliatory raid that returned to find, and bury, Davidson's scalped body where he had fallen. They overtook the indians where they were camping on the trail in present Buncombe County and tradition is that the entire party of indians were either slain or fled to safety in the deep woods.

The extent of Pioneer Ben's participation in the Revolutionary War may never be known. Many of his descendants feel that Ben was one of the "Over-the-Mountain-Men" who marched to defeat the British at the battle of King's Mountain in 1780. There is no hard evidence or records to support this claim, because most of these records were destroyed when the courthouse was burned by Union soldiers in 1865.

In 1788 Ben was serving as Justice of the Peace, the following year he was a Deputy Sheriff of Burke County (now McDowell County). During the next decade he frequently would be referred to with the sobriquet "Esquire", which was used only for community leaders. Benjamin Burgin was again appointed a Justice of Peace in 1794, a position much more important than it is today. He was actually one of the judges of the county court, The Court of Pleas and Quarter Sessions.

In October, 1796 court session Ben Burgin and Joseph Young were appointed "judges of the upper election for elector". Therefore, Ben participated in the selection of members of the electoral college which elected the second president of the United States, John Adams.

Benjamin Burgin died April 5, 1823 and Leah Burgin died August 9, 1837. Based on the information in the Ben Burgin family Bible, he and Leah had eleven children.

In 1822, Merritt Burgin son of Pioneer Ben, gets elected to the North Carolina House of Representatives. Merritt had a distinguished career as a farmer, surveyor, military officer, jurist and legislator. He took an active interest in civic and political affairs and later served as State Senator 1827-1830, becoming the first member of the Burgin family to serve in both houses of the state legislature. Merritt did all this without the flamboyance or eccentricities of his brother Major Ben.

In 1824, Alney Burgin, son of Pioneer Ben, is also elected to the North Carolina House of representatives. He served 1824-25 and again from 1830-34. Like his brother Merritt, he also served as a State Senator 1842-43. Alney Burgin was considered to be a man of powerful influence in the community and government. His close friends included Davy Crockett, famous Tennessee pioneer and politician who died at The Alamo, and North Carolina Senator Samuel P Carson. Alney served as Carson's second at the infamous Vance-Carson Duel. Vance was killed and Carson moved to Texas to become the first Secretary of State of the Republic of Texas.

In 1842, McDowell County is formed from Rutherford and Burke Counties; and in 1843, James Burgin, son of Jesse Burgin, was presiding Justice when McDowell County Court held its first session (Court of Pleas and Quarter Sessions). At this time James was still living on "Byers Fork of Crooked Creek". Many of James' descendants still live on Crooked Creek. James married Leah Burgin, daughter of Pioneer Ben.

In 1844, Major Benjamin Burgin, son of Pioneer Ben, gets elected as State Rep. and serves in 1844 & 1845. Like the other members of his family, Ben was very active in political and civic affairs. He served several times as Justice of Peace and Clerk of the Court. He was also considered to be a man of indomitable faith, admired by many and questioned by others. How staunch a man was he? Ben refused to drink with Governor Graham while serving as a member of the legislature. He was 96 years old when he was killed by one of his favorite horses.

I feel that it is important to mention at this juncture, that the four Burgin men just described, all served their country during the War of 1812 and each of them was a comissioned officer. Merritt would later reach the rank of Colonel in the 8th North Carolina Militia Regiment in 1815. Alney was referred to as "General Alney", but there are no military records indicating this rank. James was a Lieutenant, and of course, "Major Ben" attained the rank of Major.

Circa 1855-56, Logan Burgin, son of Major Ben was named by the Board of Directors of the Western North Carolina Railroad as a member of the McDowell County Committee to set up books and receive stock in the W.N.C.R.R. for the purpose of building the railroad in McDowell County.

By 1860, the Western Carolina Railway has finally reached Old Fort. The winding circuitous route of the track through the western hills to the top of the mountains at Ridgecrest was necessary due to the lack of earthmoving machinery and by the need to keep the grade easy enough for a steam engine to pull a train of heavily loaded cars.

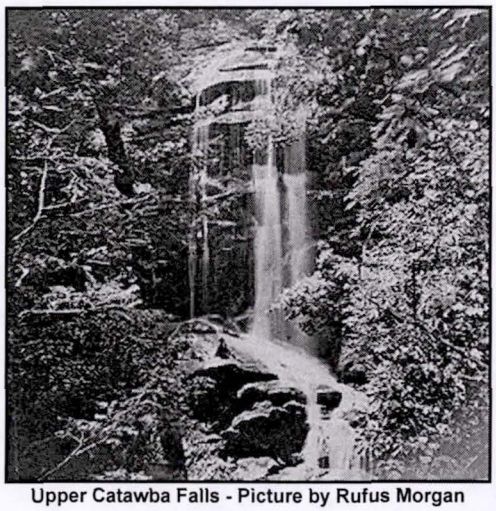
McDowell County was scarcely 20 years old and had just begun to function in the family of North Carolina counties when the Civil War intervened. Records show that at least 22 of Pioneer Ben's descendants or descendant's spouses served in this war. Captain Thomas Young Lytle (husband of Elizabeth Ann Burgin) who lived on Crooked Creek, was credited with having fired the first shot of the War Between the States.

During the ensuing four years of conflict (1861-1865) the economy of McDowell County, as in other counties in the state, is severely taxed. At the end of the war her people were in dire straits. The County never fully recovered from paralyzing lethargy following the Civil War. There was not a home in Old Fort that had not been adversely affected.

In 1871 the 2,200-acre plantation of G.S.F. Davidson sold for thirty thousand dollars to the Catawba Vale Land Association, two years after the Western North Carolina railroad had reached Old Fort. "The Town of Catawba Vale is quite large on paper, but is small on the ground," writes one of the speculators in a letter to a friend up north.

In 1872, the town was chartered by the General Assembly. The dream of a fast growing village is shattered, however, when the work on the railroad ceases because money had been embezzled. The sale of land stopped; no new settlers arrived; and the railroad shops were located in Spencer instead of "Catawba Vale. In 1873, the name of "Old Fort" was given to the town by the legislature and speculators who had hoped to have held office left town.

In 1873, Alfred Morgan, Agent for the railroad writes, *"Old Fort, the present terminus for the Western North Carolina Railroad, derives its name from an old fort which was built to protect the early settlers from the indians. It is the most romantic and beautiful spot, being just at the entrance of the mountains proper.*


Upper Catawba Falls - Picture by Rufus Morgan

The Upper and Lower Catawba Falls are within a few miles of this place. Point Tunnel is about a mile from Old Fort on the road to Ashville, and is the only one of a series that have been begun on this road.

From here, can also be had, a distant view of the Black Mountains, celebrated as being the highest in the United States, east of the Missippi River"

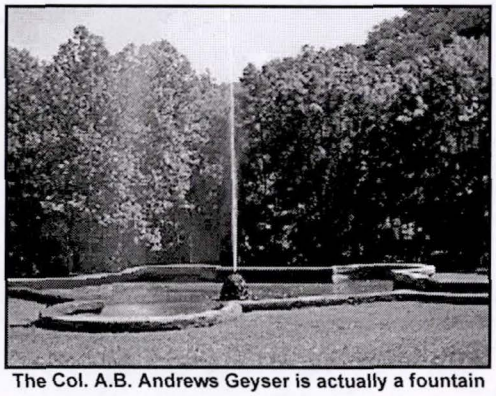
From 1876 to 1879, Henry's Station, three miles west of Old Fort, is the terminal from which passengers are transported by stagecoach, and freight, by wagon to and from Asheville.

In March 1879, the railroad enters Buncombe County through the Swannanoa Tunnel and reaches Asheville in 1880. Seven hand-dug tunnels, nine miles of track, and eleven years later, the new railroad has finally reached Asheville.

Three hundred lives were lost building the Western Carolina Railroad; nonetheless, the coming of the railroad means economic, intellectual, and industrial opportunities for the "mountain people". The busy little town of Old Fort becomes the home of a resort hotel and a manmade geyser, a tourist attraction powered by a nearby spring.

During the Winter of 1887, Joseph Benjamin Burgin, son of Alney, organized the "Texas train". Joe Ben (J.B.) who worked for the Western Carolina Railroad for many years - made the arrangements for a group of twenty townsfolk along with their children, to make the trip to the "new land of opportunity" via rail.

1900 - 1902, William M. Burgin, grandson of Merritt, is the sheriff of McDowell County.


The Col. A.B. Andrews Geyser is actually a fountain

The hotel was destroyed by fire in 1903, but in 1911 a wealthy New Yorker saved the geyser.

He bought the land around it, moved it across the creek, redesigned it and named it in honor of Col. A.B. Andrews, engineer and the first president of the Western North Carolina Railroad.

Today, the geyser belongs to the town. There is a generous amount of shade and several tables are provided for picnics.

In 1904, The Union Tanning Company built a tanning and extract plant in Old Fort and for many years, the huge industry dominated the economy of Old Fort. Men not actually employed in the processing of leather made a living cutting and hauling "acid-wood and tan bark" A flume filled with rapidly running water floated wood from the headwaters of Curtis Creek to the tannery wood yard. A narrow gauge railroad ran from the Catawba Falls area to the wood yard also. Southern Railway cars loaded with South American raw hides "with flesh still on them" came to the sidings.

The smell of the hides and the stench of the processing leather fouled the air in every direction for several miles. Travelers vowed they could tell when they were nearing Old Fort, but the citizens were grateful for the steady payroll even though the working hours were from six to six. The wooden building of the United Leather Company was struck by lightning during a summer storm in 1930. It burned and was never rebuilt.

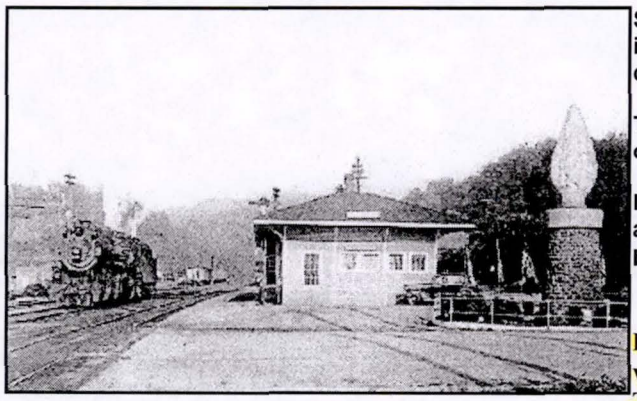
Circa 1905, Mary Greenlee Burgin, g-grand daughter of Merritt Burgin, begins a teaching career that that spans 50 years in a one-room school building. She taught the first grade at Old Fort for 39 years. Teaching was her life; she remained unmarried and never had children of her own. "Miss Mary" was loved and respected by all.

On the morning of July 14th 1916, A tropical storm passed over Charleston, SC., causing some local damage, and moving northwestward, expended its full force on all the water- sheds in western North Carolina. Torrential rain from the storm of July 5th and 6th had already saturated the soil and filled the stream banks full. All previous 24-hour records of rainfall in the United States were exceeded.

The run off from the saturated soil was very rapid, streams rose high above all previous flood records; resulting in the deaths of about eighty people and in property damage estimated by the U.S. Weather Bureau at about $22,000,000. The Southern Railway Company's losses were said to have been well over $1,250,000.

In 1927, Old Fort High School is consolidated with other smaller schools in the area and transportation via school bus is available for the first time. The school burned in 1934 and some children temporarily attended school in down-town churches. A new high school was completed in 1936.

Old Fort was the site of many of skirmishes between the early settlers and the native Americans. Much of the fighting actually took place on the banks of Mill Creek, which runs through the center of town. To symbolize the peace agreement between the two, a landmark was erected at the depot in the 1930's.



Standing in front of the Old Fort Depot is a 30-foot tall arrowhead, hand chiseled in granite.

The landmark was unveiled to a crowd of more than 6,000 people in the 1930s.

It was to serve as a symbol of the peace achieved in the previous century between pioneers and the Indians.

In 1947, Old Fort Finishing Company was built on the site where the Union Tanning Company once stood. Old Fort Finishing was huge --16 acres under one roof! At their peak, they employed 1,000 people and were processing up to 2 million yards of textile fabrics daily. Owned by United Merchants and Manufacturing Company, the plant soon became a vital part of Old Fort's economy.

In the early 1980's, the booming Textile Industry, began to falter. Foreign imports and the two-price cotton system began to take their toll and by 1984, sixty-one textile plants in North and South Carolina had shut down. The industry overall had shrunk by 19,500 workers.

On July 31, 1984, Old Fort Finishing halted production, thus eliminating the jobs of the remaining 492 employees and sending shock waves through this small town. A harsh silence now hangs over the huge cavernous plant that operated over a five decade period. (the machinery has since been removed) Needless to say, its closure had a disaterous effect on the town's economy.

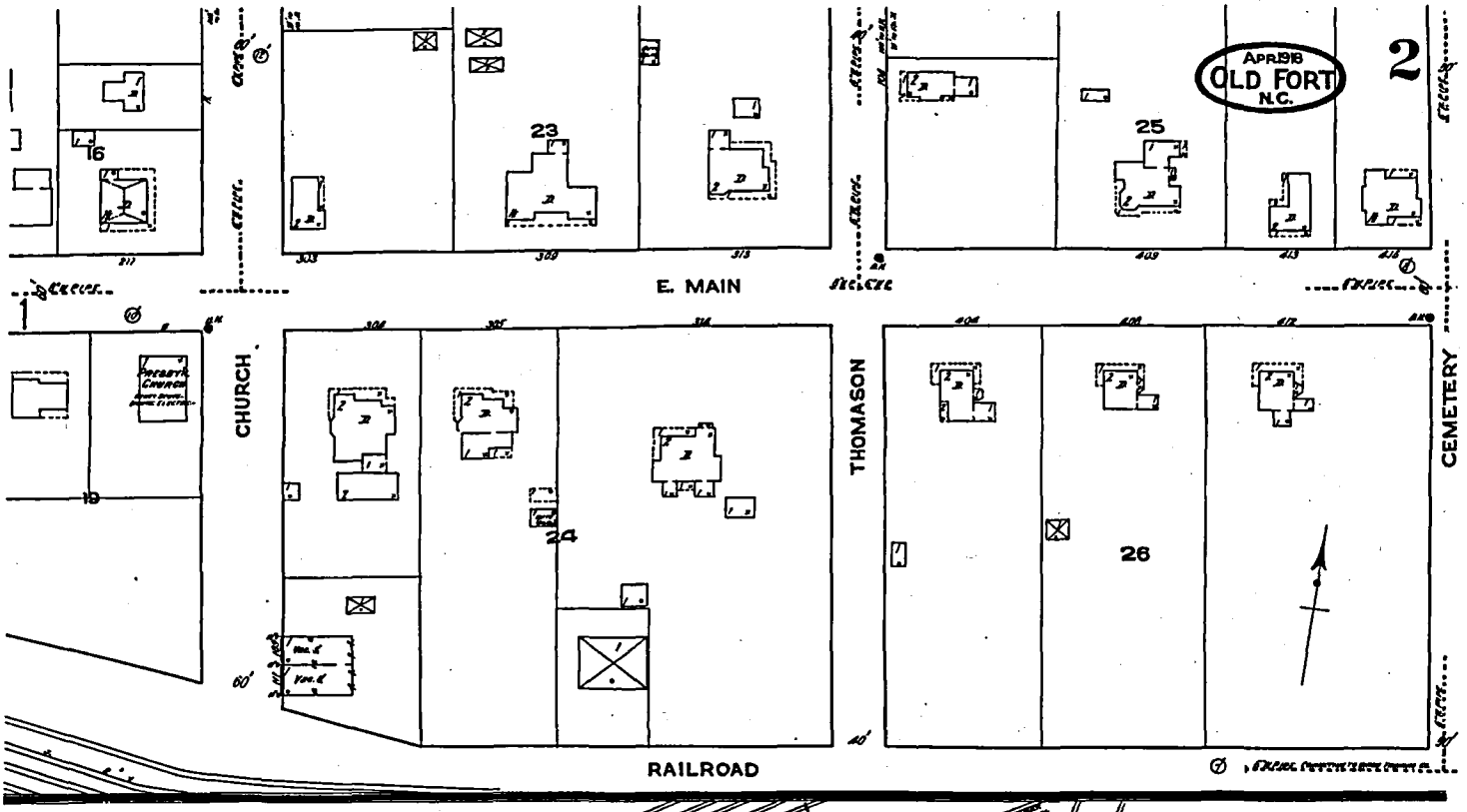
Not with-standing the aforesaid adversities; travelers have always found a welcoming and hospitable stop in this small historic community, for over two centuries. Old Fort is located in McDowell County and had an estimated population of 826 on July 1, 1998. This was an increase of 94 over the 1990 census.

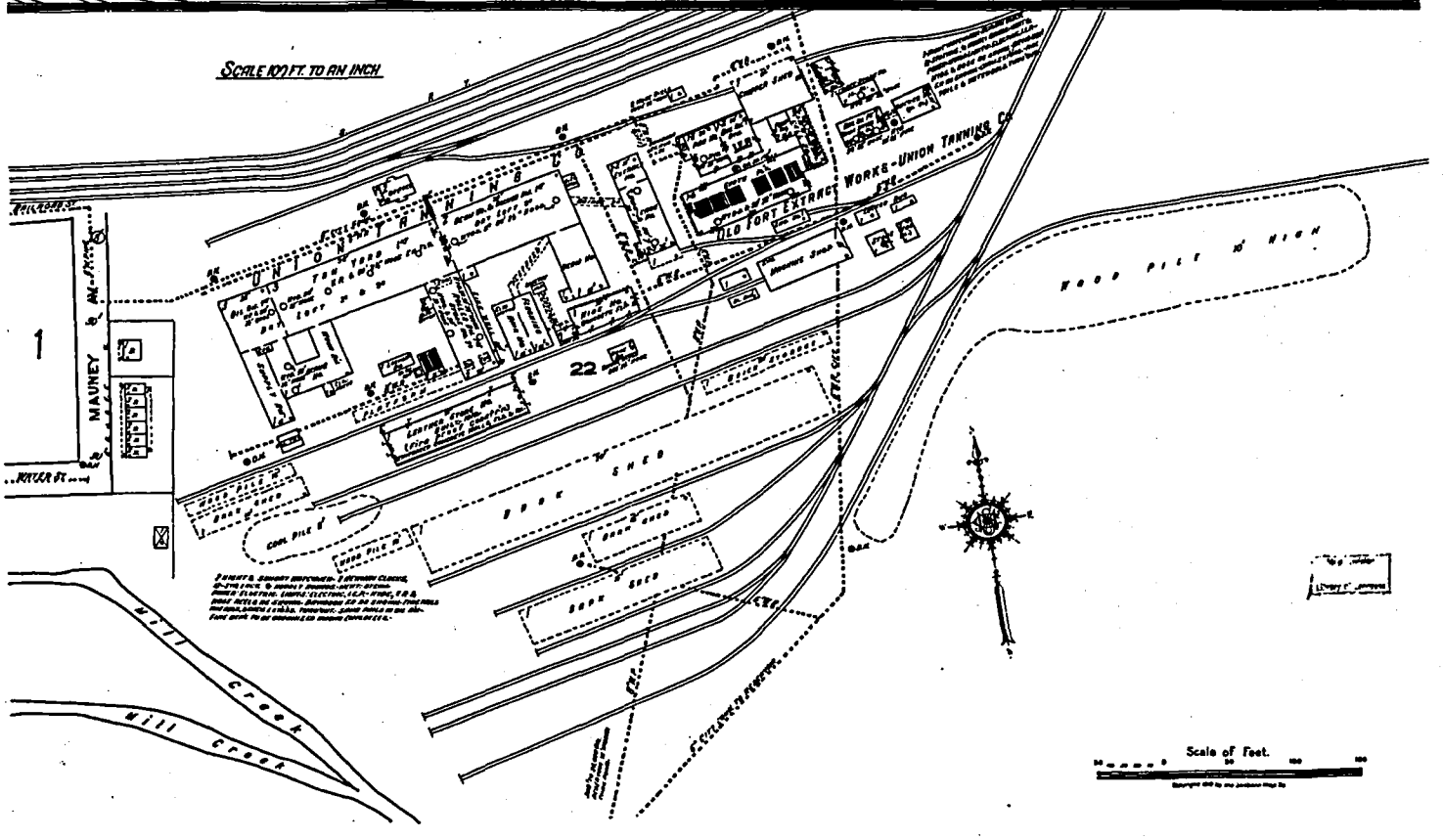
McDowell County population: 35,681 (1990); 42,151 (2000)
Land area 442 square miles
County seat: Marion

Source: Old Fort Chamber of Comm., "Echoes in the Mist" Peggy Silvers, "Burgins Back to Devon" Ramond Burgin, Carter & Lovyne Burgin, www.mcdowellcounty.org, Bill Peterson (Washington Post) & Binkie Adams.

Back

REFERENCE 3


APR 1918
OLD FORT
N.C.
2
1
16
23
25
E. MAIN
CHURCH
THOMASON
CEMETERY
24
26
19
RAILROAD


SCALE 100 FT. TO AN INCH
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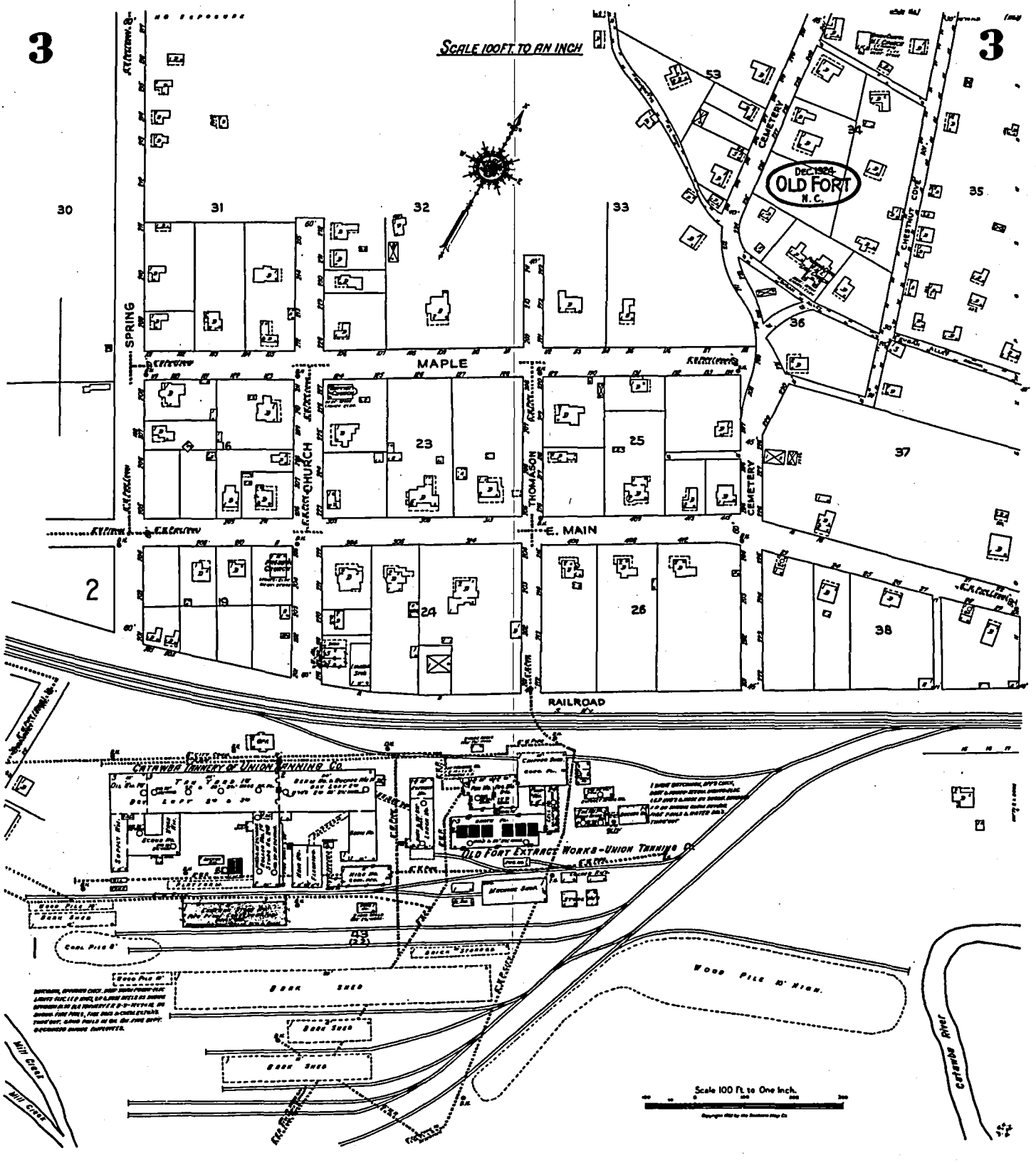
MAUNEY
22
WORKS-UNION TANNING CO.
OLD FORT EXTRACT
WOOD PILE 10' HIGH
COAL PILE
BARK SHED
MILL CREEK
Scale of Feet.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SCALE 100 FT. TO AN INCH
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SPRING
MAPLE
CHURCH
THOMASON
CEMETERY
E. MAIN
CEMETERY
CHESTNUT COVE
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OLD FORT
N.C.
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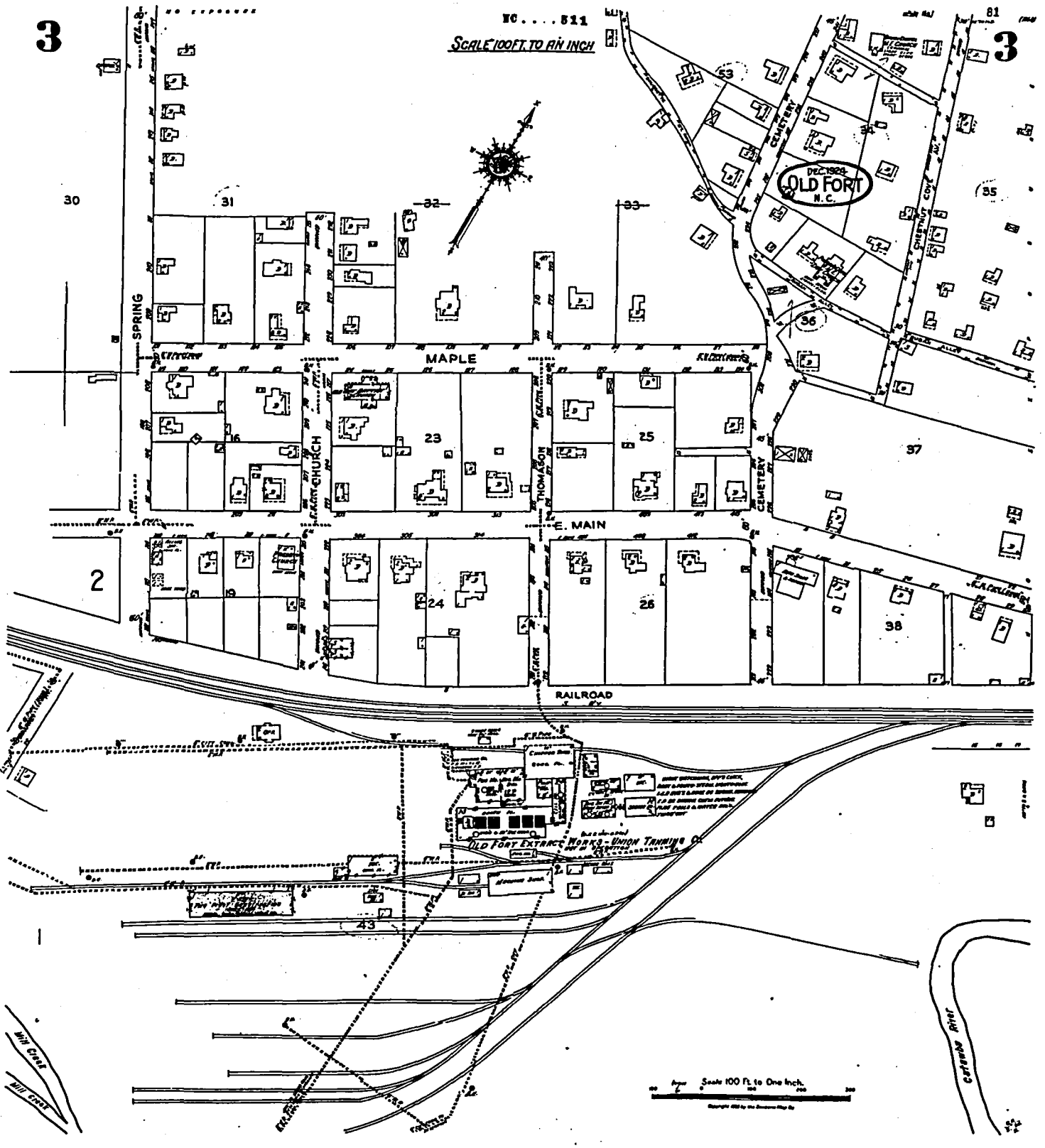
CATAWBA TANNERY OF UNION TANNING CO.
OLD FORT EXTRACT WORKS - UNION TANNING CO.
BARK SHED
BARK SHED
BARK SHED
WOOD PILE 10' HIGH.
MILL CREEK
MILL CREEK
CATAWBA RIVER
Scale 100 Ft. to One Inch.


3
NC....511
SCALE 100 FT. TO AN INCH
3
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31
32
33
53
54
81
35
36
37
38
16
23
24
25
26
43
2
SPRING
MAPLE
CHURCH
THOMASON
CEMETERY
E. MAIN
RAILROAD
CHESTNUT COVE
DEC. 1924
OLD FORT
N.C.
OLD FORT EXTRACT WORKS - UNION TANNING CO.
Mill Creek
Mill Creek
Catawba River
Scale 100 Ft. to One Inch.

REFERENCE 4

1976 Directory of Manufacturing Firms

HOLLIFIELD HOSIERY MILLS
P O Box 698
131 Greenlee Rd
Marion 28752 12/75
Willie Hollifield Owner
Mountain Region Established 1964
Phone (704)652-7770 Emp. C
2252 Mens hosiery
• 22 Cotton yarn
• 22 Elastic & nylon sewing
• 28 Orlon

JAMES R L & SONS INC
P O Box 1009
Marion 28752 6/75
R James Pres
Karumit (Export)
Mountain Region Established 1924
Phone (704)652-3626 Emp. D
2252 Mens hosiery
• 22 Cotton yarn

MARION MACHINE CO
P O Box 1169
Marion 28752 2/76
Joe Mcneille Pres
Mountain Region Established 1943
Phone (704)652-6141 Emp. D
3532 Mine & mill machinery
• 33 Hot rolled steel
• 33 Steel castings
• 35 Machine parts
• 33 Round steel stock

MARION MFG CO
700 Baldwin Ave
Marion 28752 7/75
R W Twitty Pres
Leonard Birtwistle (Export)
Mountain Region Established 1909
Phone (704)652-3010 Emp. H
2221 Synthetic woven fabrics
2281 Synthetic & cotton yarns
• 22 Synthetic yarns and cotton
• 22 Synthetic staple

MARION PACKING & SLAUGHTERING CO
P O Box 303
Greenlee Rd
Marion 28752 7/75
James S Hollifield Owner
Mountain Region Established 1957
Phone (704)652-5833 Emp. A
2011 Meats processed (custom)
2011 Wholesale meats
• 20 Cattle

MARSHALL LUMBER CO
Marion 28752 2/76
Mountain Region
Phone (704)652-3525 Emp. B
2421 Lumber hardwood

MCCURRY HOSIERY MILLS
P O Box 166
117 Railroad St
Marion 28752 7/75
Howard Mccurry Plant Manager
Piedmont Region Established 1965
Phone (704)697-8601 Emp. C
22522 Mens hosiery
• 22 Yarn

PLEASANT GARDENS MACHINE INC
Rt 4 Box 441
Marion 28752 2/76
Lawrence Queen Owner
Mountain Region
Phone (704)724-4630 Emp. B
3599 Job shop

WALL, W W CO INC
P O Box 1188
Hwy 226 S
Marion 28752 12/75
H Dean Wall President
Mountain Region Established 1961
Phone (704)652-7838 Emp. D
2253 Childrens knit wear
• 22 Cotton to 50/50 knit fabrics

WASHINGTON GROUP INC, THE
Rutherford Road
Marion 28752 7/75
Horace M Adams Manager
Mr Shilliday (Export)
§ P O Box 1015 X 1015
Winston Salem NC
Mountain Region Established 1960
Phone (704)697-9811 Emp. F
2322 Sweatshirt production
2321 T shirts

WOODLAWN LBR CO INC
P O Box 188
Marion 28752 2/76
Max Hollifield President
Mountain Region Established 1958
Phone (704)756-4524 Emp. C
2432 Veneer
2421 Lumber hardwood
• 24 Logs

OLD FORT

COLLINS & AIKMAN CORP
Box 471
Old Fort 28762 2/76
F Mckinney Plt Mgr
§ P O Box 1599
Charlotte
Mountain Region Established 1965
Phone (704)668-7601 Emp. G
2262 Textile finishing
• 22 Auto carpet roll goods
• 22 Fabricating components

‡ ETHAN ALLEN INC BAUMRITTER DIVISIO
Danbury CT
Pine Valley Div Ethan Allen
Box 639
Hwy 70 E
Old Fort 28762 6/75
Robert Schneble Gen Mgr
Mountain Region Established 1970
Phone (704)668-7686 Emp. H
2511 Bedroom & dining rm furn
• 24 Lumber
• 28 Finishes
• 26 Packaging

PARKER HOSIERY CO INC
P O Box 699
Catawba Ave
Old Fort 28762 12/75
F W Parker Jr Pres
Mountain Region Established 1946
Phone (704)668-7628 Emp. F
2252 Mens and childrens hosiery
• 22 Synthetic yarn
• 28 Dye stuffs
• 26 Corrugated cartons

PISGAH YARN & DYEING CO
P O Box 606
Old Fort 28762 9/75
Harold J Lonon Pres
Mountain Region Established 1971
Phone (919)668-7667 Emp. D
2269 Dyeing yarns
• 22 Yarn
• 28 Chemicals
• 28 Dyes

SOUTHERN IND INC
P O Box 295
Old Fort 28762 1/76
William G Mcconnel Plant Mgr
Mountain Region Established 1951
Phone (704)668-7878 Emp. C
2655 Paper tubes
• 32 Silicote
• 26 Paper board
30 Latex

‡ UNITED MERCHANTS & MFG INC
New York
Cohama Knitting Mills Inc
P O Box 278
Old Fort 28762 7/75
A C Hogan Plant Manager
§ 1407 Broadway
New York NY
Mountain Region Established 1947
Phone (704)668-7622 Emp. E
2256 Tricot & raschel weft insert knit
• 22 Synthetic yarn

‡ UNITED MERCHANTS & MFG INC
New York
Old Fort Finishing Plant E
Water St
Old Fort 28762 1/76
W Eston Ross Vice Pres
Mountain Region Established 1947
Phone (704)668-7611 Emp. H
2269 Dye and finish cloth
• 28 Dye and chemicals
• 28 Finishes
• 22 Fabric

MECKLENBURG

CHARLOTTE

‡ A B C INDUSTRIES INC
Paterson NJ
A B C Machinery
P O Box 509
724 Interstate 85
Charlotte 28216 12/75
Fred Davis Gen Mgr
Piedmont Region Established 1955
Phone (704)394-4161 Emp. D
35522 Textile printing equip
35522 Print cylinder bases
3569 Special machery for misc ind
35993 Misc machine parts
• 33 Steel flats bars & tube
• 36 Elec motors & etc
• 34 Gears sprocks roller chain

A D M INDUSTRIES INC
P O Box 1767
2311 Tryon St
Charlotte 28232 2/76
Rex Simpson Pres
§ 150 Chelsea Rd
Elkhart IN
Piedmont Region Established 1968
Phone (704)333-1111 Emp. D
3444 Heating ducts for mobile homes
• 30 Plastic extrusions
• 34 Drapery hardware
• 24 Doors

‡ A M E ZION CHURCH
Washington DC
A M E Zion Publishing House E
401 E Second St
P O Box 508
Charlotte 28201 2/76
Lem Long Jr Gen Mgr
Piedmont Region Established 1896
Phone (704)334-9596 Emp. C
275 Printing

A M P INC
6400 Old Dowd Road
Charlotte 28214 12/75
Floyd Ensley Plant Mgr
§ P O Box 3608
Harrisburg PA
Piedmont Region
Phone (704)394-2386 Emp. E
30795 Industrial plastics products

ABERNETHY LUMBER COMPANY
P O Box 5294
Charlotte 28206 2/76
J A Abernethy-Pres
Piedmont Region
Phone (704)332-3972 Emp. C
24212 Lumber
• 24 Timber

‡ ACE PAPER CO, THE
Secaucus NJ
Apco Inc
5900 Old Mt Holly Rd
Charlotte 28208 2/76
Collis Moore
Piedmont Region Established 1961
Phone (704)392-3552 Emp. C
2651 Paper board die cut insert forms
• 26 Bleached sulphate board
• 26 Paperboard

ACME SOUTHERN INC E
P O Box 11264
4900 South Blvd
Charlotte 28209 12/75
John V Eichorn-Pres
Piedmont Region
Phone (704)523-1452 Emp. D
2841 Various textile specialties
• 28 Dyes & textile chemicals
Facilities for contract work:
Research
Testing
Technical consulting

ADMIRATION HOSIERY MILLS INC E
P O Box 3692
4210 Yancey Road
Charlotte 28203 2/76
Abraham Kaplan, Sec
Piedmont Region
Phone (704)525-3162 Emp. G
2251 Ladies nylon hosiery
• 22 Yarn
• 26 Boxes labels & insects
• 22 Finishing
• 39 Needles
• 35 Machinery repairs

AERO DYNE MFG INC
4000 Yancey Road
Charlotte 28210 12/75
Clifford Culpepper Jr Pres
Piedmont Region Established 196
Phone (704)525-8647 Emp. C
3564 Air pollution equip
3564 Grease extractor
3564 Make up air system
3564 Fume & range hood exhaust systems
3564 Heat recovery equipment
• 33 Stainless steel
• 34 Gas burners coils
• 36 Motors
• 36 Drives
• 33 Galvanized metal

‡ AERONCA INC
Torrance CA
Kem Wove Div
P O Box 7144
100 Brookford St
Charlotte 28217 2/76
J F Culpepper Gen Mgr
Piedmont Region Established 19
Phone (704)588-0080 Emp. D
2299 Nonwoven fabrics
• 22 Fiber
• 22 Bond

‡ AERONCA INC
Torrance CA
Microtron Corp
P O Box 15335
100 Brookford St
Charlotte 28210 3/76
T J Crowley
Piedmont Region Established 19
Phone (704)588-0703 Emp. D
3564 Air filtration products
• 22 Non-woven filter material
• 33 Sheet metal & wire

AIR FLOW METAL PRODUCTS
5003 Wilkinson Boulevard
Charlotte 28208 6/76
H E Trammell-Pres
Piedmont Region Established 19
Phone (704)399-1585 Emp. C
34492 Metal buildings & awnings
• 33 Metal

AIR IND & RESEARCH
P O Box 15213
200 Peachtree Road
Charlotte 28210 2/76
A F Wilson Jr Pres
§ P O Drawer 15213
Charlotte NC
Piedmont Region Established 19
Phone (704)523-3758 Emp. D
34441 Sheetmetal heat vent air cond
• 33 Galvanized sheets
• 33 Bars and angles
• 32 Fiberglass duct liner
• 34 Registers grilles diffusers

AIR VAC INC
118 West 30th St
Charlotte 28206 2/76
J Bruce Foster-Mgr
Piedmont Region Established 1
Phone (704)377-2762 Emp. B
3714 Repair brake parts
• 37 Repair parts

AIRCO WELDING PRODUCTS
P O Box 3543
2300 S Blvd
Charlotte 28203 2/76
Russell R Lucas, Reg Sales Mgr
Piedmont Region
Phone (704)333-1157 Emp. C
2813 Industrial gases

REFERENCE 5

Local News

Printer-Friendly Version
Email this Story

288 jobs coming to Old Fort

By MIKE CONLEY
nconley@mcdowellnews.com
Wednesday, November 21, 2007

McDowell County can give thanks today for 288 new jobs in Old Fort.

State and county officials announced Wednesday that PRC Industries will run its operations out of the former Old Fort Finishing plant. PRC Industries, headquartered in St. James, N.Y., remanufactures household products such as power tools and vacuum cleaners. The company plans to expand its operations and employ 288 people at the Old Fort facility over the next five years. The workers will earn an average manufacturing wage of $28,379.

The state's Economic Investment Committee approved Wednesday a $1.7 million Jobs Development Investment Grant (JDIG) for the project. The McDowell County Commissioners also held a public hearing last week and approved an incentives package of $580,000 over four years to the company, which will be used to renovate the Old Fort Finishing building.

Commission Chairman Andy Webb said he appreciated the N.C. Department of Commerce's hard work on this project and the approval of the $1.7 million grant.

"The jobs will be a real boost for the local economy and in particular will assist the Old Fort community," he said. "Old Fort needs a shot in the arm."

County Manager Chuck Abernathy, who is also the economic development director, said the company intends to be in production here within 60 days.

PRC Industries has contracts with companies such as Hoover and Maytag. PRC Industries receives household products that are returned during the warranty period. The company then reworks the components, repackages the product and the refurbished merchandise is sold at discount retail stores and on Amazon.com.

Like the products it refurbishes, the company will give the former Old Fort Finishing complex a new life, too. The 600,000-square-foot plant has several small businesses operating out of there but has been largely empty since United Merchants shut down in the early 1980s. PRC Industries has agreed to work with the tenants who are there now, said Webb.

The company intends to renovate and paint the Old Fort Finishing building and modernize the facility. Abernathy said the company could open up a retail outlet store at the site.

"I am very excited with this news," said Mayor Garland Norton. "This is definitely a step in the right direction for Old Fort."

Norton said he too appreciated the Department of Commerce's staff and county officials involved with the project.

At Wednesday's announcement, Webb talked about the possibility of PRC Industries needing a railroad spur in the near future.

Headquartered in St. James, N.Y., PRC Industries began nearly 20 years ago under the vision of founder and CEO Arthur Krantz. Already a success in the closeout business, Krantz began work to develop a broader, more efficient means of recycling durable consumer goods. PRC has a 100,000-square-foot plant dedicated to the efficient and effective processing of returned products, according to the firm's Web site.

The company places a great emphasis on recycling and keeping used stuff from going to landfills.

"It is the total package that North Carolina has to offer that truly motivated us to choose this state for our relocation and expansion," said Ray Jonaitis, senior vice president with PRC Industries. "From the McDowell County folks to the state officials of North Carolina, we always felt welcomed and that we could be successful in North Carolina. North Carolina's proactive stance on recycling was another factor that resonated with who we are as a company. Finally, it's all about the people of North Carolina who will help make all of us successful."

Jonaitis added the McDowell Economic Development Association, Abernathy and state officials formed "a win-win partnership."

"Our vision of the future is one of a great workforce that will help us with our mission of creating a premier, green remanufacturing/recycling company," he said.

Abernathy said this is only the second time McDowell got a Jobs Development Investment Grant from the N.C. Department of Commerce for a new industry. The first one was for Cobia Boats.

Abernathy added he especially appreciated the efforts of Cindy Messer, a field representative for the Department of Commerce. Messer gave birth to a daughter last week.

"She worked on this project while pregnant and just did an outstanding job under the stress of pregnancy," said Abernathy.

Community College President Bryan Wilson traveled along with a local delegation to the company's headquarters and was instrumental in representing McDowell Technical Community College.

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REFERENCE 6

WASTEWATER TREATMENT PLANT CLOSEOUT
UNITED MERCHANTS AND MANUFACTURERS, INC.
OLD FORT, NORTH CAROLINA

DRAFT

DAVIS & FLOYD, INC.

WASTEWATER TREATMENT PLANT CLOSEOUT

UNITED MERCHANTS AND MANUFACTURERS, INC.

OLD FORT, NORTH CAROLINA

NOVEMBER, 1987
JOB NO. 6328-1

PREPARED BY

DAVIS & FLOYD, INC.

GREENWOOD, SOUTH CAROLINA

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Froehling & Robertson, Inc. Report

1.0 PURPOSE

The purpose of this report is to present a plan by which the wastewater treatment plant at United Merchants and Manufacturers, Inc., Old Fort, North Carolina can be closed.

2.0 BACKGROUND

The United Merchants and Manufacturers, Inc., Old Fort Finishing, is located on the southeast side of Old Fort, North Carolina. The wastewater treatment plant for Old Fort Finishing is located on the southside of the plant property adjacent to, an generally north of, Interstate highway 40.

Manufacturing activities have been discontinued at Old Fort Finishing. However, when operated the plant was active in the dying and finishing of textile materials.

The wastewater treatment plant at Old Fort Finishing is a biological system and consists of units as follows:

1. Manufacturing influent heat reclamation unit
2. Manufacturing influent equalization basin
3. Aeration basin
4. Clarifier units (2)
5. Sludge return pumps (clarifier, 2 aeration basin or gravity thickener)
6. Effluent chlorine addition system
7. Sludge gravity thickener
8. Vacuum filter for sludge dewatering

When the manufacturing activity at the finishing plant was discontinued, various units at the wastewater treatment plant were decommissioned. These units were essentially cleaned of wastewater and in some cases filled with freshwater. All units of the wastewater treatment plant were addressed with the exception of the aeration basin. Since utilization of the wastewater treatment plant stopped the contents of the aeration basin have remained in place.

Recently, due to plans for site use, it has become appropriate to close out the wastewater treatment plant. Davis & Floyd, Inc., Greenwood, South Carolina was retained by United Merchants and requested to tabulate and/or generate information necessary to dispose of that contained in the wastewater treatment plant aeration basin and close out the wastewater treatment plant. This report was prepared as a result of the above request.

3.0 WASTEWATER TREATMENT PLANT INVESTIGATIONS

A number of investigations were undertaken to generate information to be utilized in wastewater treatment plant closeout. These investigations and/or activities were as follows:

A. A profile of sludge depth in the aeration basin was developed.

B. A sample of bottom sludge in the aeration basin was collected and analyzed for characteristics of hazardous waste in accordance with the EP Toxicity requirements presented in 40 CFR 261.24.

C. A sample of water (above the sludge) from the aeration basin was collected and analyzed for NPDES discharge parameters.

D. A sample of groundwater was collected from two monitoring wells located somewhat adjacent to the aeration basin of the wastewater treatment plant.

E. A soil consultant firm was employed to generate information on sight soils.

4.0 RESULTS OF INVESTIGATIONS

Various items of information were generated during the investigations conducted. The following is a summary presentation of information obtained:

A. Aeration Basin Bottom Sludge Profile - The aeration basin bottom sludge profile was conducted by figuratively dividing the aeration basin into sixteen approximately equal areas. The total depth of contents and sludge depth were measured in the center of each area through the use of a sludge judge. The approximate volume of water and sludge in the basin was calculated based on average depth of sludge/liquid and aeration basin dimensions.

The aeration basin bottom sludge deposit was determined to be an average of 1.899 feet deep. The sludge was analyzed and found to be 3.1% solids. Therefore, approximately 350,000 dry pounds of sludge is present on the basin bottom.

At normal operating levels the aeration basin volume is approximately 6 million gallons. This volume is based on basin dimensions of 450 feet length, 210 feet width and 8.5 feet depth. The sludge volume, 1.3 million gallons, was calculated based on 450 feet x 210 feet x 1.899 feet x 7.48 gallons/sq. ft.

B. Sludge EP Toxicity Analysis - An aeration basin bottom sample was obtained by compositing a portion of that retrieved from each bottom profile area. The sludge was analyzed for characteristics of hazardous waste in accordance with the requirements presented in 40 CFR 261.24. The results of this work are presented on Table 4-1 and in Appendix I.

A review of this information as compared to criteria presented in 40 CFR 261, indicates that this sludge would not, by this criteria, be considered hazardous.

C. As was stated earlier, a sample of aeration basin liquid was collected and analyzed for NPDES discharge parameters. The sample was collected on June 25, 1987. The results of this work are presented in Table 4-2 and in Appendix II.

D. Groundwater samples were collected from the groundwater monitoring wells located adjacent to the aeration basin at the wastewater treatment plant. The monitoring wells were observed to be constructed of two inch PVC with glued joints. The monitoring wells were sampled through the use of dedicated PVC bailers, which had been cleaned and prepared in accordance with protocols necessary for priority pollutant and/or hazardous substance list type sampling and analysis.

Table 4-1
Old Fort Finishing
Wastewater Treatment Plant
Aeration Basin Sludge
EP Tox Analysis

Parameter	Results
Arsenic	<0.05 mg/l
Barium	<0.10 mg/l
Cadmium	<0.005 mg/l
Chromium	<0.02 mg/l
Lead	<0.005 mg/l
Mercury	<0.0002 mg/l
Selenium	<0.005 mg/l
Silver	<0.02 mg/l
Endrin	<0.10 mg/l
Lindane	<0.05 mg/l
Methyoxychlor	<0.50 mg/l
Toxaphene	<1.00 mg/l
2,4-D	<0.10 mg/l
2,4,5-TP(Silvex)	<0.01 mg/l

TABLE 4-2
UNITED MERCHANTS
OLD FORT, NC
AERATION BASIN LIQUID
LIMIT/CHARACTERISTICS

PARAMETER	DISCHARGE LIMIT DAILY AVERAGE	AERATION BASIN LIQUID mg/l	lbs.-total*
Flow	2.6 MGD	4.0 MGD	NA
Temperature	NA	28 deg. c	NA
Dissolved Oxygen	NA	15.1	NA
pH	6-9 units	9.6 units	NA
Settleable Solids	<0.1 ml/l	<0.1 ml/l	NA
Chlorine Residual	0.5 mg/l	0	NA
Fecal Coliform	200/100 ml.	<10/100 ml	NA
BOD5	650 lbs/day	8	267
TSS	960 lbs/day	4	133
Lead	2 lbs/day	<0.005	<0.17
Mercury	0.1 lbs/day	<0.0002	<0.007
Nickel	4 lbs/day	<0.04	<1.33
Zinc	4 lbs/day	<0.01	<0.33
Chromium	2 lbs/day	<0.02	<0.67
Copper	2 lbs/day	<0.02	<0.67
Manganese	4 lbs/day	<0.05	<1.67
Ammonia Nitrogen	NA	<0.1	<0.33
COD	NA	52	1734

* Pounds total (lbs.-total) is based on concentrationes determined and a liquid volume of 4 million gallons

Prior to sampling the water in each monitoring well was measured, volume contained therein calculated and three times the volume contained evacuated. After well evacuation field analyses were performed and various sample fractions collected. The results of these analyses are presented in Appendix III.

E. Soils information was generated through work performed on the site by Froehling and Robertson, Inc. This work was presented in report dated October 20, 1987, which is contained herein as Appendix IV.

5.0 WASTEWATER TREATMENT PLANT CLOSEOUT PROCEDURES

During the closeout of the wastewater treatment plant all wastewater and/or sludge presently contained in the aeration basin of the wastewater treatment plant will be properly disposed of.

It is proposed that the water in the aeration basin be discharged through the plants NPDES discharge permit location. The discharge rate and quality will be conducive with the conditions of the discharge permit.

Further proposed is that the sludge layer on the bottom of the aeration basin, after the water has been removed (pumped off), be discharged to the land surface in the area located between the wastewater treatment plant aeration basin and the right-of-way for Interstate highway 40. The sludge application rate will be such that all sludge is contained on the plant site. Since this activity is for wastewater treatment plant closeout, the application of aeration basin sludge will only be for this occasion while the basin is being cleaned out.

Appendix I

Sludge EP TOX Data

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT NC
JOB NUMBER: 6146

SAMPLE DATE: 06-25-87
DATE RECEIVED: 06-26-87
REPORT DATE: 07-28-87

EP TOX

PARAMETER	872120
ARSENIC	<0.05
BARIUM	<0.10
CADMIUM	<0.005
CHROMIUM (TOTAL)	<0.02
LEAD	<0.005
MERCURY	<0.0002
SELENIUM	<0.005

SAMPLE 872120 IS AERATION BASIN SLUDGE

NOTES
1. ANALYSIS AS PER HAZARDOUS WASTE TOXIC EXTRACTION PROCEDURE (TEP).
2. RESULTS IN MG/L EXTRACT LEVEL UNLESS NOTED OTHERWISE.
3. FOR ANALYSES HAVING THE LESS THAT (<) NOTATION THE VALUE PRESENTED IS THE LOWER LIMIT OF DETECTION FOR THE METHOD AND/OR INSTRUMENT.

SAMPLED BY D. DETWILER

ANALYSIS BY GF,CD,MM,RL,MV,DF

APPROVED BY

JOHN H. McCORD, JR.

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT NC
JOB NUMBER: 6146

SAMPLE DATE: 06-25-87
DATE RECEIVED: 06-26-87
REPORT DATE: 07-29-87

EP TOX

PARAMETER	872120
SILVER	<0.02
ENDRIN	<0.10
LINDANE	<0.05
METHYOXYCHLOR	<0.50
TOXAPHENE	<1.00
2,4-D	<0.10
2,4,5-TP(SILVEX)	<0.01

SAMPLE 872120 IS AERATION BASIN SLUDGE

NOTES
1. ANALYSIS AS PER HAZARDOUS WASTE TOXIC EXTRACTION PROCEDURE (TEP).
2. FOR ANALYSES HAVING THE LESS THAT (<) NOTATION THE VALUE PRESENTED IS THE LOWER LIMIT OF DETECTION FOR THE METHOD AND/OR INSTRUMENT.
3. RESULTS IN UG/L EXTRACT LEVEL UNLESS NOTED OTHERWISE.

SAMPLED BY D. DETWILER

ANALYSIS BY GF,CD,MM,RL,MV,DP

APPROVED BY

JOHN H. McCORD, JR.

Appendix II

Aeration Basin Liquid Data

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT NC
JOB NUMBER: 6146

SAMPLE DATE: 06-25-87
DATE RECEIVED: 06-26-87
REPORT DATE: 07-28-87

PARAMETER	872119
pH	9.6
TEMPERATURE	28
CHLORINE-RESIDUAL	<0.05
COLIFORM(FECAL)	<10
OXYGEN-DISSOLVED	15.1
BOD-5	8
SOLIDS-SUSPENDED	4
CHEMICAL OXYGEN DEMAND	52
SOLIDS-TOTAL	362

SAMPLE 872119 IS WATER AERATION BASIN

NOTES
1. ALL ANALYSES ARE IN MG/L UNLESS OTHERWISE NOTED.
2. pH IS IN pH UNITS.
3. COLIFORM IS IN COLONIES/100 ML.
4. TEMPERATURE IS IN DEGREES C.
5. FOR ANALYSES HAVING THE LESS THAT (<) NOTATION THE VALUE PRESENTED IS THE LOWER LIMIT OF DETECTION FOR THE METHOD AND/OR INSTRUMENT.

SAMPLED BY D. DETWILER

ANALYSIS BY GF,CD,MM,RL,MV,DP

APPROVED BY John H. McCord, Jr.
JOHN H. McCORD, JR.

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT NC
JOB NUMBER: 6146

SAMPLE DATE: 06-25-87
DATE RECEIVED: 06-26-87
REPORT DATE: 07-28-87

PARAMETER	872119
NITROGEN-AMMONIA	<0.10
SOLIDS-SETTLEABLE	<0.1
MAGNESIUM	2.26
LEAD	<0.005
MERCURY	<0.0002
NICKEL	<0.04
ZINC	<0.010
COPPER	<0.02
CHROMIUM (TOTAL)	<0.02

SAMPLE 872119 IS WATER AERATION BASIN

NOTES
1. ALL ANALYSES ARE IN MG/L UNLESS OTHERWISE NOTED.
2. FOR ANALYSES HAVING THE LESS THAT (<) NOTATION THE VALUE PRESENTED IS THE LOWER LIMIT OF DETECTION FOR THE METHOD AND/OR INSTRUMENT.

SAMPLED BY D. DETWILER

ANALYSIS BY GF,CD,MM,RL,MV,DP

APPROVED BY JOHN H. McCORD, JR.

Appendix III

Groundwater Monitoring Well Data

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT SC
JOB NUMBER: 6328-1

SAMPLE DATE: 09-15-87
DATE RECEIVED: 09-15-87
REPORT DATE: 10-20-87

PARAMETER	87-099-1
GROUNDWATER ELEVATION	17.00
TEMPERATURE	18
pH	5.7
SPECIFIC CONDUCTANCE	185
CARBON-TOTAL ORGANIC	17.8
TOX	0.011

SAMPLE 87-099-1 IS MW-1 [redacted]

NOTES
1. ALL ANALYSES ARE IN MG/L UNLESS OTHERWISE NOTED.
2. GROUNDWATER ELEVATIONS ARE IN FEET FROM TOP OF PIPE TO WATER.
3. TEMPERATURE IS IN DEGREES C.
4. pH IS IN pH UNITS.
5. CONDUCTIVITY RESULTS ARE IN MICROMHOS/CENTIMETER.

SAMPLED BY S. DAVIS

ANALYSIS BY CD,JM,GF,DP,MV,RH,IH

APPROVED BY John H. McCord Jr.
JOHN H. McCORD, JR.

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT SC
JOB NUMBER: 6328-1

SAMPLE DATE: 09-15-87
DATE RECEIVED: 09-15-87
REPORT DATE: 10-20-87

PARAMETER	87-099-1
PHENOLS	<0.001
SULFATE	17.4
CHLORIDE	8.5
NITROGEN-NITRITE	<0.05
NITROGEN-NITRATE	0.49
ALKALINITY (AS CACO3)	53

SAMPLE 87-099-1 IS MW 1 [redacted].

NOTES
1. ALL ANALYSES ARE IN MG/L UNLESS OTHERWISE NOTED.
2. FOR ANALYSES HAVING THE LESS THAT (<) NOTATION THE VALUE PRESENTED IS THE LOWER LIMIT OF DETECTION FOR THE METHOD AND/OR INSTRUMENT.

SAMPLED BY S. DAVIS

ANALYSIS BY CD,JM,GF,DP,MV,RH,IH

APPROVED BY

JOHN H. McCORD, JR.

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT SC
JOB NUMBER: 6328-1

SAMPLE DATE: 09-15-87
DATE RECEIVED: 09-15-87
REPORT DATE: 10-20-87

PARAMETER	87-099-1
ALKALINITY-BICARBONATE	0
NITROGEN-KJELDAHL	0.95
NITROGEN-AMMONIA	0.19
PHOSPHORUS-TOTAL (AS P)	0.40
PHOSPHORUS-ORTHO (AS P)	0.03
SOLIDS-SUSPENDED	352

SAMPLE 87-099-1 IS MW-1.

NOTES
1. ALL ANALYSES ARE IN MG/L UNLESS OTHERWISE NOTED.
2. FOR ANALYSES HAVING THE LESS THAT (<) NOTATION THE VALUE PRESENTED IS THE LOWER LIMIT OF DETECTION FOR THE METHOD AND/OR INSTRUMENT.

SAMPLED BY S. DAVIS

ANALYSIS BY CD,JM,GF,DP,MV,RH,IH

APPROVED BY John H. McCord Jr.
JOHN H. McCORD, JR.

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT
VOLATILE ORGANICS

For: UNITED MERCHANTS
Location: OLD FORT, SC
Job No:6328
Sample ID: MW-1 #87-099-1

Sample Date: 09-15-87
Date Received: 09-15-87
Report Date: 10-20-87

PARAMETER	RESULTS UG/L	MRDL
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl Chloride	BDL	10
Chloroethane	BDL	10
Methylene Chloride	[redacted] 35	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
trans-1,2-Dichloroethene	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Bromodichloromethane	BDL	5
1,1,2,2 Tetrachloroethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Bromoform	BDL	5
Tetrachloroethene	BDL	5
Toluene	[redacted] 5	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
2-Chloroethyl Vinyl Ether	BDL	10

Notes:
1.MRDL is the minimum required detection limit.
2.BDL is below the detection limit.
3.Sample dilution factor 0.50.

Approved By: John H. McCord Jr.

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT
PESTICIDES & PCB's

For:UNITED MERCHANTS
Location:OLD FORT ,SC
Job No:6328

Sample Date: 09-15-87
Date Recieved: 09-15-87
Report Date: 10-20-87

Sample ID: MW-1 #87-099-1

PARAMETER	RESULTS ug/l	MRDL
alpha-BHC	[redacted] 10	0.05
beta-BHC	BDL	0.05
delta-BHC	BDL	0.05
gamma-BHC(lindane)	BDL	0.05
Heptachlor	BDL	0.05
Aldrin	BDL	0.05
Heptachlor Epoxide	BDL	0.05
Endosulfan I	BDL	0.05
Dieldrin	BDL	0.10
4,4'-DDE	BDL	0.10
Endrin	BDL	0.10
Endosulfan II	BDL	0.10
4,4'-DDD	BDL	0.10
Endosulfan Sulfate	BDL	0.10
4,4'-DDT	BDL	0.10
Methoxychlor	BDL	0.50
Endrin Ketone	BDL	0.10
Endrin Aldehyde	BDL	0.10
Chlordane	BDL	0.50
Toxaphene	BDL	1.00
Arochlor-1016	BDL	0.50
Arochlor-1221	BDL	0.50
Arochlor-1232	BDL	0.50
Arochlor-1242	BDL	0.50
Arochlor-1248	BDL	0.50
Arochlor-1254	BDL	1.00
Arochlor-1260	BDL	1.00

NOTES:
1.MRDL is the minimum required detection limit.
2.BDL is below the detection limit.

Approved by: John H. McCord Jr.
John H. McCord Jr.

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT SC
JOB NUMBER: 6328-1

SAMPLE DATE: 09-15-87
DATE RECEIVED: 09-15-87
REPORT DATE: 10-20-87

PARAMETER	87-099-2
GROUNDWATER ELEVATION	14.00
TEMPERATURE	19
pH	6.1
SPECIFIC CONDUCTANCE	800
SOLIDS-SUSPENDED	206

SAMPLE 87-099-2 IS MW2 [redacted]

NOTES
1. ALL ANALYSES ARE IN MG/L UNLESS OTHERWISE NOTED.
2. GROUNDWATER ELEVATIONS ARE IN FEET FROM TOP OF PIPE TO WATER.
3. TEMPERATURE IS IN DEGREES C.
4. pH IS IN pH UNITS.
5. CONDUCTIVITY RESULTS ARE IN MICROMHOS/CENTIMETER.

SAMPLED BY S. DAVIS

ANALYSIS BY CD,JM,GF,DP,MV,RH,IH

APPROVED BY

JOHN H. McCORD, JR.

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

JR: UNITED MERCHANTS & MANUFACT.
JCATION: OLD FORT SC
JB NUMBER: 6328

DATE RECEIVED: 8-4-87
REPORT DATE: 8-20-87

ARAMETER	872754
H	6.7
PECIFIC CONDUCTANCE	1200

AMPLE 872754 IS WELL #2

OTES
1. pH IS IN pH UNITS.
2. CONDUCTIVITY RESULTS ARE IN MICROMHOS/CENTIMETER.

SAMPLED BY CLIENT

ANALYSIS BY GRF

APPROVED BY John H. McCord Jr.
JOHN H. McCORD, JR.

NO. C870327

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT

FOR: UNITED MERCHANTS
LOCATION: OLD FORT NC
JOB NUMBER: 6328

SAMPLE DATE: 07-02-87
DATE RECEIVED: 07-06-87
REPORT DATE: 08-03-87

PARAMETER	872264
pH	6.5
SPECIFIC CONDUCTANCE	975
CARBON-TOTAL ORGANIC	22.0
TOX	0.013
PHENOLS	0.041
SULFATE	45.6
CHLORIDE	152

SAMPLE 872264 IS WELL #2

NOTES
1. ALL ANALYSES ARE IN MG/L UNLESS OTHERWISE NOTED.
2. pH IS IN pH UNITS.
3. CONDUCTIVITY RESULTS ARE IN MICROMHOS/CENTIMETER.

SAMPLED BY C.STEVENS

ANALYSIS BY CD,DF,JM,GF

APPROVED BY John H. McCord Jr.
JOHN H. McCORD, JR.

NO. C870376

Davis & Floyd, Inc.
CONSULTING ENGINEERS
POST OFFICE DRAWER 428
GREENWOOD, SOUTH CAROLINA 29648
803-229-5211

LABORATORY ANALYSIS REPORT
VOLATILE ORGANICS

For: UNITED MERCHANTS
Location: OLD FORT NC
Job No: 6328

Sample Date: 07-02-87
Date Received: 07-06-87
Report Date: 08-13-87

Sample ID: WELL #2 #872264

PARAMETER	RESULTS UG/L	MRDL
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl Chloride	BDL	10
Chloroethane	BDL	10
Methylene Chloride	1 J	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
trans-1,2-Dichloroethane	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
1,1,1-Trichloroethane	2 J	5
Carbon Tetrachloride	BDL	5
Bromodichloromethane	BDL	5
1,1,2,2 Tetrachloroethane	1 J	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Bromoform	BDL	5
Tetrachloroethene	4 J	5
Toluene	19	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Trichlorofluoromethane	1 J	5
2-Chloroethyl Vinyl Ether	BDL	10

Notes:
1. MRDL is the minimum required detection limit.
2. BDL is below the detection limit.
3. J is an estimated value below the required detection limit.
4. B signifies the target compound was also detected in the method blank.

Approved By: John H. McCord Jr.

REFERENCE 7

North Carolina Department of Human Resources
Western Regional Office • Black Mountain 28711

James G. Martin, Governor

David T. Flaherty, Secretary

January 19, 1988

Mr. William B. Early, Mayor
Town of Old Fort
Post Office Box 520
Old Fort, North Carolina 28762

RE: Water Supply System
Town of Old Fort
01-56-025, McDowell County

Dear Mr. Early:

We have received the analysis reports for water samples collected from Well 2A, which we discussed by telephone on December 30, 1987. The initial sample was collected on December 1, 1987 and a follow-up sample was collected on December 22, 1987. Both analyses indicated an excessive concentration of trichloroethylene at 0.062 mg/l and 0.191 mg/l, respectively. The maximum contaminant level for trichloroethylene is 0.005 mg/l, as published in the Federal Register, effective January 9, 1989. Analyses from the other four wells supplying the town indicated no contamination by volatile organic chemicals.

We advise that Well 2A no longer be utilized as a source of supply. The North Carolina Department of Natural Resources and Community Development, Division of Environmental Management, will conduct an investigation in an effort to determine the source of contamination. If discovered, clean-up efforts would likely be initiated by that Department.

We will visit with you soon to discuss this matter in more detail. If you have questions, please feel free to call on us.

Sincerely,

Wade C. Knox

Wade C. Knox
Environmental Engineer

WCK/cb

cc: W. E. Venrick
Don Link
Jeter Laws

RECEIVED
JAN 20 1988
Groundwater Section
Asheville Regional Office

Working Draft of Proposed Laboratory Evaluation Form

( ) Based on these analytical results, this water should be considered safe for normal usage.

( ) Chemical analysis did not show any contamination. Because of odor, water should be resampled if odor persists.

( ) Based on these analytical results, this water is contaminated with a petroleum product that may be gasoline, fuel oil, kerosene, or other.

(X) The water should not be used for drinking or cooking purposes, avoid prolonged bathing.

( ) Based on these analytical results, this water is highly contaminated and should not be used for drinking, cooking or bathing.

( ) The laboratory results are not conclusive, please resample for:

Microbiological analysis ( )

Chemical analysis ( )

( ) Laboratory number OLD FORT, McDOWELL Co. 703492

( ) Comments Chlorinated solvents at levels greater than proposed drinking water standards ??

( ) Please indicate on lab sheet that it is a resample

For further information, contact the Environmental Epidemiology Branch, (919) 733-3410.

REFERENCE 8

State of North Carolina
Department of Natural Resources and Community Development
Asheville Regional Office

James G. Martin, Governor
S. Thomas Rhodes, Secretary

DIVISION OF ENVIRONMENTAL MANAGEMENT
GROUNDWATER SECTION

David R. Spain
Regional Manager

January 22, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. A. L. Hashe
United Merchants & Manufacturers, Inc.
Post Office Box 2148
Greenville, North Carolina 29602

SUBJECT: Notice of Noncompliance
NCAC Title 15, Subchapter 2L
Classifications and Water Quality
Standards Applicable to the
Groundwaters of North Carolina
Groundwater Incident No. 3575
United Merchants & Manufacturers, Inc.
Old Fort Finishing
McDowell County, North Carolina

Dear Mr. Hashe:

Chapter 143, North Carolina General Statutes, authorizes and directs the Environmental Management Commission of the Department of Natural Resources and Community Development to protect and preserve the water and air resources of the State. The Division of Environmental Management has the delegated authority to enforce adopted pollution control rules and regulations.

Based upon sample results from monitor wells and a water supply well at your facilities located at Old Fort, North Carolina, the Division has reason to believe that you are responsible for activities resulting in noncompliance with North Carolina law.

Specific violations noted are as follows: On September 15, 1987, samples were taken from two monitor wells at Old Fort Finishing, owned by United Merchants & Manufacturers, Inc. The analytical results on these samples indicated the presence of methylene chloride, toluene, and alpha-BHC. On December 1 and 22, 1987, samples were also taken on water supply well (2A) utilized by the Town of Old Fort. These analyses indicated the presence of

trichloroethylene (trichloroethene), tetrachloroethene, 1,2-cis-dichloroethene, and trace amounts of 1,1-dichloroethene. The presence of these organic compounds establishes a violation of the "Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina", NCAC Title 15, Subchapter 2L .0202(b).

You are requested to submit a written response to this Notice describing your plans to achieve compliance with the above-cited laws or regulations within 30 days from receipt of this letter. This response shall include your plans to locate the source of the contamination and the horizontal and vertical extent of the contaminant plume.

Failure to respond within the time specified may result in issuance of a proposed penalty assessment by the Director under authority of General Statute 143-215.6 which provides that a civil penalty of not more than $10,000 may be assessed against any person who violates any classification, standard, limitation, or management practice established pursuant to General Statute 143-214.1 or 143-215.

Your response and/or questions should be directed to me at the Asheville Regional Office at (704) 251-6208.

Sincerely,

Donald R. Link

Donald R. Link, P.G.
Hydrogeological Regional Supervisor

DRL:sb

cc: Office of Legal Affairs
Douglass Dixon
The Honorable William B. Early
Bill Day
Darrell Herndon
Stan Atwood
Jim Reid

REFERENCE 9

Report

of

Preliminary Hydrologic Assessment

Old Fort Finishing Plant
Old Fort, North Carolina

Prepared for

United Merchants

June 1983

Prepared by

DAVIS & FLOYD, INC.
Greenwood, South Carolina

Atlanta Testing & Engineering
Duluth, Georgia

cc: D. Dixon 6/20/88

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BACKGROUND

United Merchants, Inc. owns and has operated the Old Fort Finishing Plant for the past 40 years. The plant, located just north of Interstate Highway 40 in Old Fort, North Carolina, ceased operation in 1984.

During the operation of the manufacturing plant, several on-site water wells were utilized as a source of process water for the plant. One of the wells installed by United Merchants is located at a 15-acre tract east of the manufacturing facility. This well is located near a warehouse building and was given to the City of Old Fort by United Merchants. This well has been used for the past several years as a water supply well for the City.

As a part of their routine sampling program, the State of North Carolina, Department of Natural Resources and Community Development, sampled the water supply well being used by the town on December 1 and 22, 1987. The results of the analysis on the samples collected from this well indicated the presence of several volatile organic compounds, which DNRCD felt to be a violation of the "Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina", NCAC Title 15, subchapter 2L.0202(b). As a result of these findings, United Merchants was requested to perform studies to determine the source of the contamination and the horizontal and vertical extent of the contaminant plume. This report presents the findings of Phase I of this investigation.

PURPOSE AND SCOPE

The proposed scope of work for groundwater investigations at the Old Fort Finishing Plant site were submitted to the North Carolina Department of Natural Resources and Community Development on March 15, 1988 and were subsequently approved. As indicated in the proposed scope, it was proposed that this overall investigation be conducted in phases to efficiently utilize resources available for completing the investigation. Phase I of the investigation was to attempt to identify potential sources of contamination, to characterize the site subsurface conditions, and to assist in locating additional monitoring wells that will be needed as a part of Phase II of the investigation.

The basic tasks of the Phase I investigation were as follows:

Task I Data acquisition and evaluation

Task II Groundwater characterization

Task III Site subsurface surveys

Task IV Phase I hydrogeologic assessment report

Task I and III are discussed in the report included in Appendix I, prepared by Atlanta Testing and Engineering. This report specifically addresses the site hydrogeologic conditions, subsurface geophysical surveys and presents a summary of the findings and recommendations of the Phase II work. The groundwater characterization portion of the study is discussed in the following section.

GROUNDWATER CHARACTERIZATION

A total of ten groundwater and surface water samples were collected from the Old Fort Finishing Plant site in an attempt to further characterize the groundwater and surface water surrounding the site. The laboratory analysis reports for these individual samples are contained in Appendix II of this report. The appendix also contains a map showing the location of the samples that were collected.

The laboratory identification of the individual wells differs from the identification numbers utilized during the hydrogeologic survey. The corresponding numbers between the two groups is discussed in the following paragraphs.

Samples were collected from the following locations:

Sample No. 1 is a sample from Well W-1. This well is located behind the filter house and is equipped with a submersible pump. The sample was collected within the filter house on the discharge line from the pump. This well is referred to as k1 in the Atlanta Testing & Engineering report.

Sample No. 2 is a duplicate sample from Well W-1.

Sample No. 3 is a sample from Well W-2. This well is located to the southwest of the filter house near Interstate 40.

Sample No. 4 is a sample from Well W-3. This well is located west of the filter house near the small shed.

Sample No. 5 is a sample from Well W-4. This well is located immediately adjacent to the west side of the training building, between the training building and Mill Creek.

Sample No. 6 is a sample from Well W-5. This well is located west of the training building outside of the fence, immediately adjacent to Mill Creek.

Sample No. 7 is a sample collected from Well W-7. This well is located next to the fence north of the Cahoma Mills warehouse near the Southern Railway tracks.

Sample No. 8 is a sample of the well utilized by the Town of Old Fort, located on the 15-acre tract east of the manufacturing facility. This well is referred to as k11 in the Atlanta Testing & Engineering report.

Sample No. 9 is a sample collected from Mill Creek near Well W-5.

Sample No. 10 was a sample collected from Branch Creek.

The results of the laboratory analysis indicated that no volatile organic compounds were detected in the surface waters around the plant represented by the samples from Mill Creek and Branch Creek.

The sample from the City well continues to show concentrations of several volatile organic compounds. Compounds detected in this well included 1,1,-dichloroethene; 1,2-dichloroethene; trichloroethene and tetrachloroethene.

Additionally volatile organic compounds were detected in Wells W-1, W-3, and W-4. A summary of the compounds detected in these wells is given in the following table.

Volatile Organic Compounds Detected
Old Fort Finishing Plant

	Concentrations, micrograms/liter				
Compound	W-1	W-3	W-4	City Well	Proposed G.W. Stds.
1,1-Dichloroethene	-	-	-	8	7
1,2-Dichloroethene	-	-	-	35	-
Trichloroethene	20	23	172	214	2.8
Tetrachloroethene	54	100	69	113	0.7

From this data, it is obvious that the concentrations of these organic compounds do exceed the proposed groundwater standards.

REPORT

OF

PRELIMINARY HYDROGEOLOGIC ASSESSMENT
UNITED MERCHANTS, INC.

OLD FORT FINISHING PLANT

OLD FORT, MCDOWELL COUNTY, NORTH CAROLINA

JOB NO. 8092, REPORT NO. 3598

JUNE 15, 1988

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INTRODUCTION

BACKGROUND

United Merchants, Inc. owns and has operated the Old Fort Finishing Plant for the past 40 years. The Plant, located just north of Interstate Highway 40 (I-40) in Old Fort, McDowell County, North Carolina, ceased operations in 1984. The site location is shown on Plate 1 in the Appendix.

The Plant occupies approximately 61 acres, consisting of plant production and material storage buildings, water and wastewater treatment facilities, parking areas, and cleared fields. United Merchants has additional property to the south and formerly owned property to the east of the Plant. To the south, there is a water intake structure on the Catawba River; this property is separated from the Plant area by I-40. East of State Road 1235, United Merchants formerly owned approximately 15 acres, which is now the property of a manufacturing facility, except for the southeastern corner of the property, which is now owned by the Town of Old Fort.

In January 1988, two water supply wells were sampled by Davis & Floyd, Inc. The wells, a plant process well and a city well, are located just south of the Plant's main building and east of State Road 1235 (at the railroad spur), respectively, as shown on Plate 2. The wells are located on an east-west line (parallel to I-40) approximately 2,700 feet apart. The analytical results indicated levels of trichloroethene and tetrachloroethene (perchloroethylene) were detected at levels above the draft North Carolina Water Quality Standards at both well locations. In December 1987, a sample from a shallow site monitor well (MW-1) was collected and analyzed by DNR&CD personnel. This location also indicated the two above organic constituents, at trace levels.

The source(s) and extent of contamination are unknown; potential sources at the site include old waste burial areas, sludge land farming areas, wastewater treatment pond leakage, sewer line leakage, and railroad (spur) storage and handling areas.

This study was conducted in accordance with Atlanta Testing & Engineering Proposal No. 88-110, dated March 10, 1988, which was approved by the North Carolina Department of Natural Resources and Community Development (DNR&CD), Asheville Regional Office in April 1988. The work was authorized by Mr. A.L. Hashe, Jr., Chief Engineer of United Merchants on April 28, 1988.

The assessment performed and described in this report was to evaluate potential source(s) of contamination, to characterize the site subsurface conditions, and to present a Phase II plan for hydrogeologic assessment.

PURPOSE AND SCOPE

The purpose of this report is to present the findings, conclusions, and recommendations resulting from the Preliminary Hydrogeologic Assessment. The scope of work addressed in this report includes the following:

PURPOSE AND SCOPE (CONTINUED)

1. Data Acquisition and Evaluation

   - Site maps
   - Water and monitoring well construction
   - Well logs
   - Water usage
   - Area and regional geologic literature review
   - Soil survey information
   - Plant waste material inventory
   - Wastewater characteristics

2. Surface Geophysical Surveys

   - Inductive electromagnetic survey
   - Apparent terrain conductivity survey
   - Electrical resistivity survey

3. Phase I Hydrogeologic Assessment Report

   - Data interpretation
   - Conclusions
   - Recommendations

SITE HYDROGEOLOGIC CONDITIONS

SITE CONDITIONS

The site is located in the Town of Old Fort and is bounded on the north by Southern Railway, to the south by I-40 and the Catawba River, to the west by Mill Creek, and to the east by State Road 1235. United Merchants, Inc. formerly owned an additional 15 acres east of State Road 1235, adjacent to I-40. This property has been included in the investigation since the referenced city well is located at the easternmost corner of this tract.

Topographically, the main building area lies on an upper terrace of the Catawba River valley. The southern portion of the plant site lies within the floodplain of the Catawba River, which flows generally west to east across regional rock structure. The site is drained on the west by Mill Creek and to the east by a wet weather ditch which slopes west toward State Road 1235 and then south to the Catawba River.

There are five rock wells at the plant site. Four of the wells are in the general vicinity of the training building; three wells are generally low yield and were not used in the past for supply. The plant supply well (k1, per NCDNR&CD grid designation) lies south of the main building area and has been reported to yield over 1,000 gallons per minute (gpm). The supply well was used to supplement the main water supply sourced from the Catawba River. Additionally, there are two shallow monitoring wells, located at the southern corners of the waste water treatment pond.

SITE CONDITIONS (CONTINUED)

There are two rock wells located at the 15-acre tract east of the plant. The well located near the warehouse building is reported to be inactive. The city supply well (k11), located near I-40, has been reported to yield over 600 gpm. This well, initially installed by United Merchants, has been taken out of operation due to analytical data indicating volatile organic compounds (VOCs) in the water.

The upper (northern) portion of the plant site consists of Braddock series soils, as mapped by the Soil Conservation Service (SCS). The Braddock soils are typically on old alluvial terraces and are characterized as well drained, gravelly loams and clay loam.

On the lower (southern) portion of the site, Rosman series soils occur which are typical of river floodplains. As mapped by the SCS, the Rosman soils are moderate to well drained and typically consist of dark loams and stratified loamy alluvium.

File information concerning plant waste materials and the process wastewater characteristics was not available at the time of the investigation.

REGIONAL GEOLOGY

The Old Fort Finishing Plant lies within the now inactive Brevard Fault zone which forms a boundary between the Blue Ridge geologic province to the northwest and Piedmont geologic province to the southeast. The Old Fort area contains regionally-metamorphosed Inner Piedmont, Brevard Zone, and Blue Ridge lithologies of sedimentary and igneous origin. Major Inner Piedmont lithologies include biotite augen gneiss, felsic gneiss, mica gneiss, mica schist, amphibolite, and diabase dikes. Brevard Zone rocks include phyllonite, mylonite, mylonite gneiss and schist, blastomylonite, cataclasite, and marble. Cataclastic basement gneisses and amphibolite, unlayered porphyroclastic gneiss, and Ocoee metasediments are major Blue Ridge units.

GEOLOGIC RECONNAISSANCE

In the southwestern part of the site, a hill rises approximately 50 to 60 feet above the surrounding ground. A water tank is situated on the top of the hill. A number of rock exposures around the base and on the sides of this hill were examined and the following was noted:

1. Four separate rock types are present:

   a) A fine-grained muscovite-quartz-feldspar mylonite, well foliated and well jointed;
   b) A coarser-grained mylonite compositionally similar to a) above;
   c) A button schist (muscovite-chlorite phyllonite);
   d) A muscovite-feldspar-quartz mylonite.

   These rock types generally correspond to those reported in the available geologic literature on the area.

GEOLOGIC RECONNAISSANCE (CONTINUED)

2. Foliation strike and dip were measured at three locations:

   a) Northern side of hill - Strike N50°E, dip 38° to 45°SE

   b) Northwestern side of hill - Strike N65°E, dip 40°SE

   c) Eastern side of hill - Strike N70°W, dip 46°SW

3. Jointing was observed and measured at six locations on the northern and western sides of the hill. No measurable jointing was observed on the southern (dip slope) or eastern sides of the hill. Joint strike and dip measurements were:

Measurement Location	Strike	Dip
Northwestern side of hill	N to S	Vertical to subvertical
Western side of hill	N60°E	72°NW
Western side of hill	N to S	Vertical to subvertical
Western side of hill	N10°E	70°NW
Southwestern side of hill	N5°E	80°NW
Southwestern side of hill	N15° to 25°E	60°SE
Southwestern side of hill	N30° to 35°E	80°SE

Joint surfaces ranged from well developed to poorly developed. Joint sets ranged from numerous to sparse.

The conclusions that can be reached from these measured data are as follows:

a) Dominant foliation (or compositional layering) strike is NE to SW, and dip is about 40° to 45°SE, i.e. from the plant toward the Catawba River.

b) Dominant jointing strikes NE to SW and dips both 60° to 80°SE and 70° to 80°NW. Another N to S striking, vertically to sub-vertically dipping joint set is less dominant.

GEOLOGIC RECONNAISSANCE (CONTINUED)

c) The two producing bedrock water wells (k1 and k11) lie along a straight-line azimuth which bears N35°E. This azimuth is subparallel to both foliation (compositional layering) strike and to strike of the two joints that are closest to plant supply well (k1). Projecting the two southwesternmost measured joints, both of which dip SE, downward into the plane of the azimuth joining the two bedrock water wells results in an intersection of these joints at a depth of approximately 155 to 165 feet in the projection of plant well (k1). If these joints extend to that depth and also extend laterally to the northeast through and beyond Well k1, they would seem to offer a possible conduit for surface water infiltration, as well as contaminant migration from near surface, down to a depth of 150± feet in Well k1.

The lateral and vertical extent of these joints cannot be determined from the measured data. However, the fact that they are subparallel to both regional strike and to the mapped thrust fault which forms the southeastern boundary of the Brevard Fault Zone (a short distance to the southeast) would lend credibility to the idea that these joints have considerable lateral and vertical extent or continuity. In all likelihood, the joints may be the only observable surface manifestation of an extensive set of parallel to subparallel joints in this area.

HYDROGEOLOGY

Available driller's logs from both monitor and rock wells at the referenced site were reviewed. Additionally, logs of Borings B-1 and B-2 which were previously completed near the wastewater treatment pond to evaluate conditions pertaining to a proposed sludge disposal area were reviewed.

The surficial soils at the site consist of fill material of varying thickness and alluvium characterized as silt and sand with some gravels to an approximate depth of 16 feet. Saprolite underlies the alluvium to the bedrock surface. The saprolite soils are a product of mechanical weathering of the parent rock and consist of silt and rock fragments. The depth to bedrock is estimated to range from 20 to 40 feet at the site.

The saprolite and overburden unit typically function as an unconfined shallow aquifer. Because of its typical low hydraulic conductivity, this unit does not function as a significant water supply aquifer in the region, but does act as a recharge medium for the bedrock aquifer. Water recharges the underground joints, fractures, and other secondary openings in the bedrock by seeping through the saprolite unit or by flowing directly into openings in exposed rock. This recharge is from precipitation that falls in the area. The bedrock is used as a source of groundwater supply at the site.

HYDROGEOLOGY (CONTINUED)

During the installation of the plant supply well (k1), drillers reportedly encountered two large voids at approximate depths of 140 to 180 feet. These voids may be attributed to dissolution of marble or other calcareous rocks. If present, these voids would enhance transmissivity and storage capacity of the bedrock aquifer.

The apparent direction of groundwater flow within the surficial (soils) aquifer at the site is to the south-southeast, toward the Catawba River. Within the bedrock aquifer, in this Brevard Zone area, the direction of local and regional flow are not apparent; however, local flow gradients are created in response to withdrawals from high yield supply wells.

SURFACE GEOPHYSICAL SURVEYS

Surface geophysical surveys were performed at the site. Three primary objectives of the subsurface survey program were a) the location of buried materials, b) the evaluation of the presence of contaminant plumes and their three-dimensional distribution, direction, and rate of movement, and c) the characterization of natural or manmade hydrogeologic conditions. The surveys were deemed appropriate for the Phase I investigation because of a) suspected, indeterminate burial locations, b) apparent high conductivity groundwater adjacent to wastewater ponds, and c) relatively shallow depths to groundwater and bedrock.

Three separate surface geophysical surveys were performed: inductive electromagnetic survey, apparent terrain conductivity survey, and an electrical resistivity survey. The field methods and data interpretations of each survey are presented below.

INDUCTIVE ELECTROMAGNETIC SURVEY

Field Technique

The inductive electromagnetic (EM) survey was performed utilizing a Fisher M-Scope Model TW-5 instrument, which induces an electromagnetic field via directional (transmitting and receiving) loop antennae. The instrument locates buried metallic materials with an audio tone and has an effective measurement depth of approximately 5 to 7 feet.

The instrument was selectively used at locations where United Merchants' personnel indicated past burial activities may have occurred.

Data Interpretation

Numerous areas indicating subsurface metallic signals were located at the plant site and the 15-acre tract east of the Plant. The areas are in general accordance with the outlined "0" (zero) millimhos/meter (mmhos/m) contour areas, as shown on Plates 3, 4, and 5, which illustrate the apparent terrain conductivity data. Another area indicating high signal strength was located at Grid Interval E/F-15 through 19, as outlined in the 100 and 500 mmhos/m contour areas, shown on Plate 4.

Data Interpretation (Continued)

The indicated high signal areas from the inductive EM survey correspond to the locations of anomalously low and high values from the terrain conductivity survey. As the instruments are basically similar electromagnetic induction equipment, the uniform responses indicate that metallic/conductive objects are located in the subsurface at the referenced locations.

The EM survey indicated other areas of high signal strength which due to the obvious linear "shape" and/or area-wide chatter were interpreted to be subsurface water/sewer lines, cables, power lines, and/or miscellaneous piping. Since these subsurface features were indicated by surface expressions or included on site engineering plans, the locations are not further delineated.

APPARENT TERRAIN CONDUCTIVITY SURVEY

Field Technique

The apparent terrain conductivity survey was conducted utilizing a Geonics EM-31 conductivity meter. The instrument functions by generating an electromagnetic field which induces a secondary electromagnetic field in the earth. The EM-31 consists of two horizontal coplanar loops, one acting as transmitter and the other as a receiver, which are separated by a rigid boom. The EM-31 measures the terrain conductivity of the soil/water via a direct read meter in mmhos/m, by comparing the strength of the secondary field to that of the primary. The EM-31 has an effective depth of investigation of approximately 20 feet.

A 100-foot by 100-foot grid was laid out at accessible areas to guide the location of the survey. The grid, as shown on Plate 2, utilizes alphabetic/numeric coordinates. The approximate north-south traverse is alphabetical; the approximate east-west traverse is numerical. Continuous readings were taken during the survey, with values typically recorded at 50-foot spacings in both north/south and east/west orientations of the instrument.

Since the shallow water table (9 to 15 feet) should be within the EM-31's effective depth of investigation throughout the site, values recorded may be contributed by both saturated and unsaturated soil zones.

Data Interpretation

The apparent terrain conductivity data are plotted and contoured on Plates 3, 4, and 5. Numerous anomalously high and low areas were defined in relation to an apparent background conductivity ranging from less than 1 to 5 mmhos/m across the site.

The 0 mmhos/m areas, as discussed in the previous section, are interpreted to be buried metallic objects. At Grid Intervals C-3 and A/B-3 to 4 (Plate 3), the 0 mmhos/m values may reflect subsurface piping which has been indicated on site engineering plans. At the other contoured 0 mmhos/m areas, the nature of the subsurface anomalies are unknown.

Data Interpretation (Continued)

The following observations/interpretations concerning the contoured conductivity data on Plates 3, 4, and 5 are presented:

1. Elevated conductivities were detected at areas surrounding the holding and treatment ponds, clarifiers, and wastewater discharge ditch.

2. Very elevated conductivities were detected at Grid Interval E/F-15 through 19. These anomalously high values are within a sloping swale area, just north of a wet weather drainage ditch. According to plant personnel, this area may have received surface drainage runoff from coal storage areas at the plant site, prior to site grading and construction related to the main building addition.

3. Anomalously high and low areas were detected at Grid Interval C/D-21 through 23. At this cleared field area, some metallic slag was noted on the ground surface, which reportedly may be sourced from the plant boiler operations. The area at C/D-24 may contain similar conductive material; however, no slag was noticed at this vegetated area.

ELECTRICAL RESISTIVITY SURVEY

Field Technique

A Wenner expanding array was employed for the electrical resistivity survey. Equipment consisted of a Soil Test Model R-40C resistivity meter (commutated DC current) and hard-drawn copper alloy electrodes.

Surface soil conditions ranged from soft and slightly moist to hard and dry. It proved necessary to pour water around the current electrodes in many cases to obtain proper electrical coupling with the surface soil.

Seven vertical soundings were run at various locations (shown on Plate 2). The maximum electrode spacing (Wenner "A" spacing) used was 60 feet.

Data Interpretation

A "reference" sounding was first run at Location VES-1 which was believed to be in an uncontaminated part of the site. Interpretation of the sounding curve (apparent resistivity vs. A spacing), coupled with rough correlation to the boring logs from Borings B-1 and B-2 (located approximately 800 and 1,100 feet, respectively, northeast of the reference profile), led to the following resistivity model:

Data Interpretation (Continued)

Layer	Depth (feet)	Composition	Apparent Resistivity (ohm-ft.)
1	0 to 5	Fill	3,000 to 3,700 *
2	5 to 16	Alluvium	2,200
3	>16	Residual soil (saprolite) and/or bedrock	6,000

* The apparent resistivity of this upper layer clearly increases with depth. While this is an unusual condition, it is probably related to the likelihood that this layer is fill (from the boring logs) that may have been spread and compacted in several lifts.

Six additional soundings (VES-2 through 7) were then run at the locations shown on Plate 2. Five of these sounding curves did not resemble the reference sounding curve, and we interpret this to represent anomalous conditions of one type or another. The data obtained was very noisy; this was probably due to a combination of lateral subsurface (soil/rock) inhomogeneity, buried cultural features, subsurface contamination, and perhaps one or more other undefined factors. The data noise/scatter made it impossible to render quantitative interpretations; however, some qualitative interpretations or observations can be made as follows:

1. Station VES-2 (near MW-1)

   This sounding most closely resembled the reference curve. The first few feet of soil (fill) appear anomalous; however, no definitive source or cause can be identified.

2. Stations VES-3, VES-4, and VES-5

   An anomalously low resistivity (high conductivity) is clearly present from a relatively shallow depth (approximately 5 feet) to 30 feet or more. No definitive source or cause can be identified; however, one possible interpretation is that this is a manifestation or expression of a bedrock fracture(s) containing high conductivity fluid.

3. Stations VES-6 and VES-7

   An anomalously high resistivity (low conductivity) is clearly present from a relatively shallow depth (approximately 5 feet) to 30 feet or more. No definitive source or cause can be identified.

SUMMARY OF FINDINGS

A. The Old Fort Finishing Plant lies within the Brevard Fault zone which forms a boundary between the Blue Ridge geologic province to the northwest and Piedmont geologic province to the southeast. Due to the high degree of metamorphism and structural deformation within this region, wide variations in lithologic and hydrogeologic conditions can occur.

B. The surface geophysical surveys indicated areas of anomalously high and low conductivity (inverse of resistivity). The anomalous areas are interpreted to be old burial sites, conductive soil/water areas, fracture trace patterns, and/or subsurface cultural features.

C. A definitive source of VOC contamination has not been identified. Communication between the shallow water table and bedrock aquifers may allow rapid movement of contaminants to a high yield pumping well.

RECOMMENDATIONS

Based upon the data acquisition and field results of the preliminary hydrogeologic assessment, a Phase II hydrogeologic assessment is recommended to evaluate site subsurface and water quality conditions and to identify potential sources of VOC contamination and subsequent remedial action alternatives. The following items are recommended as part of the Phase II assessment:

1. Perform shallow excavations at areas indicated by the surface geophysical surveys to be potential burial areas of waste materials. The shallow excavations should identify the type of buried objects and allow the development of a materials handling and disposal plan (as necessary).

2. Install ten groundwater monitoring wells at preliminary locations as shown on Plate 6. The wells should extend 5 to 10 feet into bedrock. *The Application for Permit to Construct Monitor Wells* (NCDNR&CD Form GW-22B) with a well construction diagram has been enclosed. The locations of proposed monitoring wells may be adjusted in the field, dependent upon the findings of Task 1.

3. Collect water quality samples at the new monitor well locations, for analysis of pH, specific conductance, temperature, chlorides, and VOCs.

4. Perform in-situ permeability or pumping tests at selected monitor/supply wells to evaluate the hydraulic characteristics of the bedrock aquifer.

5. Prepare a report of the Phase II assessment to include our findings, conclusions, and recommendations for additional investigation and/or remedial action alternatives.

LIMITATIONS

This report has been prepared for the exclusive use of United Merchants, Inc. for specific application to the Old Fort Finishing Plant in Old Fort, North Carolina. Our findings have been developed in accordance with generally accepted standards of geology and hydrogeology practice in the State of North Carolina. No other warranty is expressed or implied. Our firm has provided professional services and opinions. We have not caused or contributed to any contamination on the site. Thus, we accept no responsibility for any damages or claims resulting from past or future contamination, or subsequent remediation.

ACKNOWLEDGMENT

Atlanta Testing & Engineering appreciates the opportunity to be of service to you by providing this Preliminary Hydrogeologic Assessment. If you have any questions regarding this report or if we may be of additional assistance, please contact us.

Respectfully submitted,

476-3555

ATLANTA TESTING & ENGINEERING

Charles R. Clymer, Jr.

Chuck Charles R. Clymer, Jr., P.G.
Senior Hydrogeologist
N.C. Reg. No. 289

NORTH CAROLINA LICENSED SEAL 289 GEOLOGIST CHARLES R. CLYMER, JR.

L. T. Gregg

L. T. Gregg, P.G.
Director of Geologic Services
Ga. Reg. No. 610

CRC/LTG/jth

Enclosures

REFERENCE 10

atlanta testing & engineering
11420 johns creek parkway / duluth, georgia 30136 / (404) 476-3555

November 22, 1988

Mr. Rudy Powell
Davis & Floyd, Inc.
P.O. Drawer 48
1319 Reynolds Street
Greenwood, South Carolina 29646

Re: Groundwater Incident No. 3575
Phase II Hydrogeologic Assessment
United Merchants, Inc.
Old Fort Finishing Plant
Old Fort, McDowell County, N.C.
Job No. 8092-A, Report No. 5006

Dear Rudy:

Please find enclosed five copies of the report of Phase II Hydrogeologic Assessment at the referenced site. This report contains a brief outline of the drilling/monitor well installation program and the pit excavation assessment, as submitted in the Status Report, dated September 29, 1988, and includes the analytical data from the monitor well and pit excavation samples. Based upon our interpretation of the field and analytical data, recommendations for additional action are also provided.

DRILLING / MONITOR WELL INSTALLATION PROGRAM

In accordance with Well Construction Permit No. 55-0065-WM-0037, Atlanta Testing & Engineering attempted to construct four shallow monitor wells in the vicinity of the main building and the training building, on the week of August 29, 1988. The rationale of the approved well locations was to evaluate the potential source(s) of contamination from volatile organic compounds (VOC's) based upon past storage and handling operations. A total of nine borings (B-1 through B-9) were completed at the site. Five of the boring locations were offset from the four proposed well locations. Due to a shallow bedrock surface and unsaturated conditions at three of four proposed monitor well locations, only one monitor well (MW-3) was installed.

The soil test borings and monitor well locations are shown on Plate 1. The Soil Test Boring Data, the Well Completion Log, and the Well Construction Record were previously submitted in the referenced Status Report.

Soil samples from the test borings were tested with a Photovac, Inc. TIP II Organic Vapor Analyzer (OVA) to measure the total organic (ionizable) vapors present. The contaminants of concern - trichloroethene and tetrachloroethane - are photoionizable

and detectable in the parts per million (ppm) range with the instrument. The OVA results ranged from below detection limits (BDL) to 20.4 ppm in the soil samples. The concentrations do not indicate apparent soils contamination or a potential VOC source in the area of the borings. The total organic vapor concentrations were included in the status report as Table 2.

PIT EXCAVATIONS

In accordance with Item No. 1 in the Recommendations Section of the Report of Preliminary Hydrogeologic Assessment, dated June 1988, shallow excavations were performed on September 8 and 9, 1988 to identify potential burial areas of waste materials. The excavations were dug with a backhoe to a maximum depth of 5.5 feet. All field personnel (either Atlanta Testing & Engineering or Davis & Floyd employees) were previously trained concerning the OSHA (Act 29 CFR Section 2910-120) Hazardous Waste Safety Program and were familiar with the Site Safety Plan developed in accordance with Cerela, 40 CFR 300 3B(b). Mr. Chuck Clymer, Atlanta Testing & Engineering, was the Site Safety Officer.

A total of nine pit excavations were performed. The approximate locations, as referenced to the previously surveyed grid shown on Plate 2, are as follows:

Pit	Location	Assessment
A	Grid Interval B-5	Metallic waste
B	Grid Interval B-6 to B-7	13 drums located
C	Grid Interval E/F-16	Cobbles
D	Grid Interval E/F-16 to 17	Cobbles
E	Grid Interval C-23 to 24	Drain pipes
F	Grid Interval C-22 to 23	Coal, slag, and brick
G	Grid Interval A-23	Rubble
H	Grid Interval B-24	Metallic waste
I	Grid Interval A/B-24	Metallic waste

As shown above, only Pit B appeared to contain buried materials, which may cause or contribute VOC contamination. The referenced drums were predominately 55 gallons in size and steel construction. The drums were in varying states of decay, some rusted through, some intact. Where determined to be intact, the drums contained dye sludge material and/or clear liquids. The four drums containing liquids were intact with the liquids held in double lined plastic bags.

The pit excavations were backfilled with native soil immediately after material evaluation and/or sample collection, with the exception of Pit B. The Pit B excavation/drums were covered with plastic sheeting overnight and the excavation was expanded on September 9. After evaluation and sample collection, Pit B was backfilled with native soil.

SAMPLING AND ANALYSES

Monitor Well MW-3, located near the Training Building, was sampled on September 8, 1988 for analysis of Hazardous Substance List (HSL) compounds. The well was sampled utilizing a clean Teflon bailer. Prior to sampling, approximately three volumes of water were removed from the well. The samples were collected in appropriate glass containers, placed in an iced cooler, and transported to Davis & Floyd laboratory for analysis.

Tetrachlorethene was the only compound detected in MW-3, at a concentration of 33 micrograms per liter (ug/l). The proposed groundwater standard for tetrachlorethene is 0.7 ug/l. The analytical results have been tabulated on Table 1, and the laboratory reports are included in the Appendix.

At Pit B, samples of discolored soil, dried dye sludge, and waste liquid were collected. The soil samples are identified as Locations B and C on Table 1. The samples were taken at depths of 3 to 5 feet, near Drum Nos. 1, 2, and 3. The sludge samples consisted of red, green, and gray dried dye material with associated soils. The sludge sample locations are identified as Drum Nos. 1, 2, 3, 6, and 7 on Table 2.

The liquid samples were obtained from Drum Nos. 4 and 12. The Drum No. 4 sample was very viscous and resin-like, while the Drum No. 12 sample was water-like with a slight alcohol odor.

The contents of the remaining drums unearthed at the Pit B site are as follows:

Drum Nos. 5 and 10	-	Empty, crushed
Drum Nos. 9, 11, and 13	-	Liquid similar to Drum No. 12
Drum No. 8	-	Small cask, unknown contents

At Pit C, samples of discolored soil were collected at depths of 2 feet and 4 feet. The samples are identified as Locations D and E, respectively on Table 1.

The analytical results of the pit excavation and drum samples indicate detectable levels of volatile and semi-volatile organic compounds at all locations except Drum No. 4. Additionally, elevated levels of chromium, lead, arsenic, cadmium, and selenium were detected in one or more of the drum samples. The levels detected indicate the materials are hazardous wastes.

The HSL volatile and semi-volatile organic compounds detected in the excavation samples are tabulated in Tables 1 and 2. The laboratory analytical reports from the sampling program are included in the Appendix.

ACKNOWLEDGMENT

We would welcome the opportunity to discuss the findings of this report. If you should have any questions, please contact us.

Very truly yours,

ATLANTA TESTING & ENGINEERING

Charles R. Clymer, Jr., P.G.
Senior Hydrogeologist
Reg. NC 289

CRC/jth

Enclosures

APPENDIX

PLATES

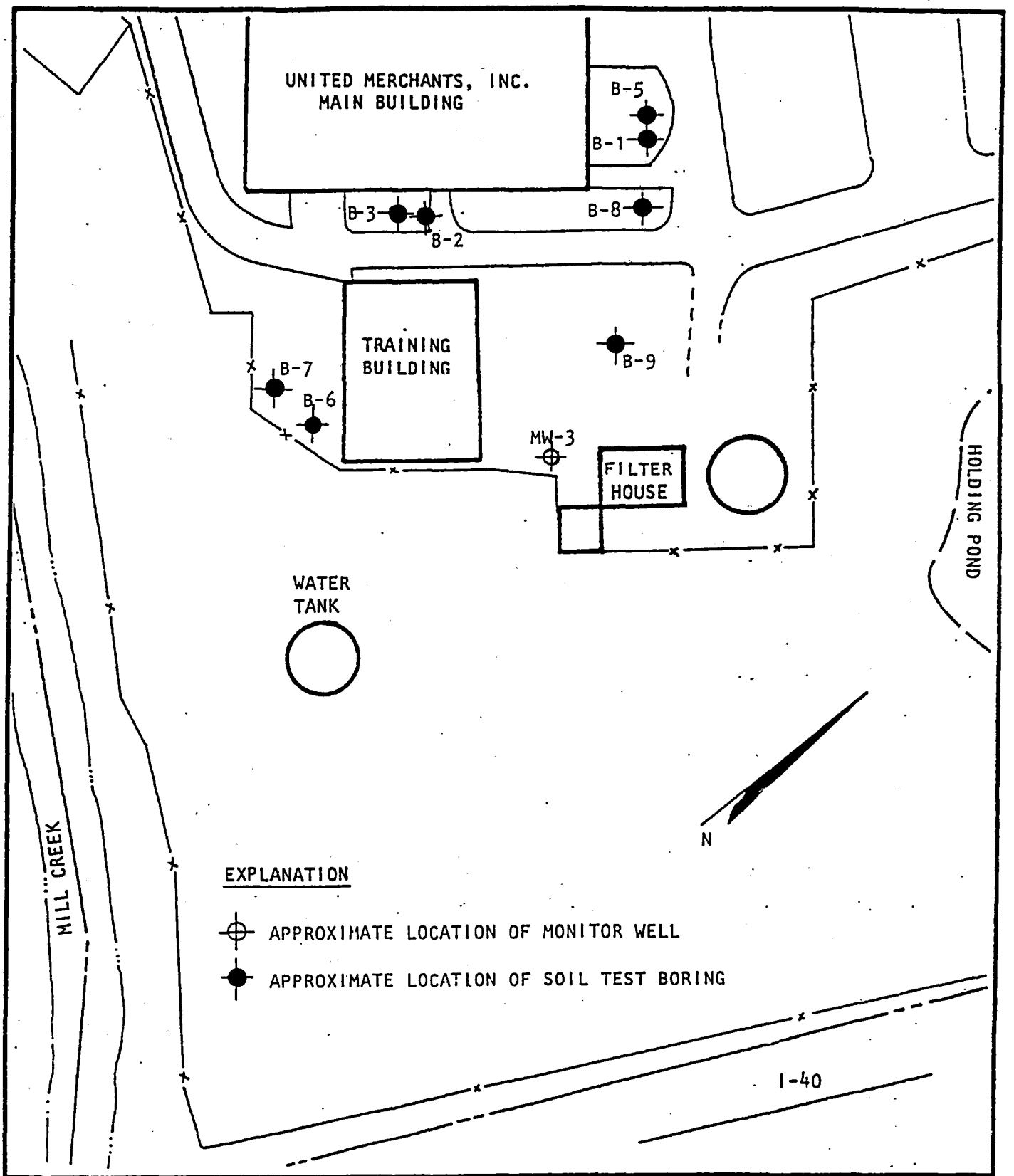
1 - SOIL TEST BORING AND MONITOR WELL LOCATION MAP
2 - SITE PLAN WITH EXISTING AND PROPOSED WELL LOCATIONS (POCKET)

TABLES

TABLE 1 - HSL COMPOUNDS DETECTED
TABLE 2 - HSL COMPOUNDS DETECTED

LABORATORY ANALYTICAL REPORTS
(HSL AND METALS ANALYSIS)

AF 51093AB



DATE	DRAWN BY	CHECKED BY	SCALE	JOB NO.	PLATE NO.
9-28-88	S.H.	CRC	1"=100'	8092-A	1

atlanta testing & engineering
geotechnical and testing engineers
atlanta, greenville, charlotte,
tampa, jacksonville, lakeland, marco island

SOIL TEST BORING AND
MONITOR WELL LOCATIONS
UNITED MERCHANTS, INC.
OLD FORT FINISHING PLANT

ATE-108

TABLE 1

HSL COMPOUNDS DETECTED
UNITED MERCHANTS, INC.
OLD FORT FINISHING PLANT
OLD FORT, NORTH CAROLINA
JOB NO. 8092-A, REPORT NO. 5006

Parameter	Sample Location				
	A (ug/l)	B (ug/kg)	C (ug/kg)	D (ug/kg)	E (ug/kg)
2-Methylnaphthalene	-	-	10,526	-	-
Toluene	-	-	-	-	160
Ethylbenzene	-	15	-	9	321
Xylene (total)	-	49	944	50	-
bis (2-ethylhexyl)phthalate	-	2,019,350	203,837	-	303
Methylene Chloride	-	15	-	-	347
Acetone	-	31	7,644	239	1,720
Tetrachloroethene	33	-	-	-	-
Dimethylphthalate	-	-	-	291	773
Diethylphthalate	-	-	-	1,391	2,895
1, 2, 4, - Trichlorobeneze	-	-	-	-	666
Benzene	-	-	-	-	57
Chloroform	-	-	-	-	32

Notes:
A = Monitor Well MW-3
B = Pit B, soil around Drum No. 1
C = Pit B, soil at 5.5-foot depth
D = Pit C, soil at 2-foot depth
E = Pit C, soil at 4-foot depth

ug/l = micrograms per liter
ug/kg = micrograms per kilogram
(-) = below detection limit

TABLE 2

HSL COMPOUNDS DETECTED
UNITED MERCHANTS, INC.
OLD FORT FINISHING PLANT
OLD FORT, NORTH CAROLINA
JOB NO. 8092-A, REPORT NO. 5006

liquid

Parameter	Drum No. (Sample Location - Pit B)						
	1 (mg/kg)	2 (mg/kg)	3 (mg/kg)	4 (mg/kg)	6 (mg/kg)	7 (mg/kg)	12 (ug/l)
Napthalene	1,039	-	1,061	-	1,074	507	-
2-Methylnaphthalene	3,407	-	3,011	-	3,365	1,748	-
Di-n-butylphthalate	67	-	-	-	170	-	-
Di-n-octylphthalate	58,827	-	-	-	-	-	-
Toluene	39	232	28	-	36	47	-
Ethylbenzene	876	2,583	513	-	1,298	675	-
Xylene (total)	4,013	9,519	3,473	-	5,671	3,671	-
bis(2-ethylhexyl)phthalate	-	118,000	-	-	150,000	150,000	-
Acenaphthylene	-	-	38	-	-	-	-
Methylene Chloride	-	7	-	-	13	-	-
Acetone	-	-	-	-	-	-	53
1, 2 - Dichloroethene (total)	-	-	-	-	-	-	26
Trichloroethene	-	-	-	-	-	-	11
Tetrachloroethene	-	-	-	-	-	-	288

mg/kg = milligrams per kilogram
ug/l = micrograms per liter
(-) = below detection limit

Davis & Floyd, Inc.

Laboratory Analysis Report

Work Order # 88-09-048

Received: 09/12/88

10/12/88 14:16:47

REPORT UNITED MERCHANTS & MANUFACT.
TO P.O. BOX 2148
GREENVILLE,SC 29602

ATTEN A. L. HASHE, JR.

PREPARED DAVIS & FLOYD, INC.
BY Environmental Services Div.
Post Office Drawer 428
Greenwood, S.C. 29648
PHONE (803) 229-5211

CERTIFIED BY

JOHN MCCORD

WORK ID JOB NO. 6328.01
P.O. #
TAKEN DAVIS & FLOYD, INC. (JLM)
TYPE SOLID & CHEMICAL WASTE
NUMBER OF SAMPLES 7

Comments:
WE ARE PLEASED TO PROVIDE THIS CERTIFIED REPORT OF ANALYSES.
FEEL FREE TO TELEPHONE IF FURTHER EXPLANATION IS REQUIRED.

AN " X " INDICATES A DILUTION DUE TO AN INTERFERENCE.

SAMPLE IDENTIFICATION	DATE COLLECTED
01 DRUM #1	09/08/88
02 DRUM #2	09/08/88
03 DRUM #3	09/08/88
04 DRUM #4	09/08/88
05 DRUM #6	09/08/88
06 DRUM #7	09/08/88
07 DRUM #12	09/08/88

Davis & Floyd, Inc.

Laboratory Analysis Report

Work Order # 88-09-048

Received: 09/12/88 10/12/88 14:16:47

Test Description	Units	01 DRUM #1	02 DRUM #2	03 DRUM #3	04 DRUM #4
SILVER	mg/kg	<4	<4	<4	<5
ARSENIC	mg/kg	<0.5	29	1.9	<0.6
BERYLLIUM	mg/kg	<2	<2	<2	<2.5
CADMIUM	mg/kg	1.0	<1	<1	<1.5
CHROMIUM	mg/kg	107	14	100	<5
COPPER	mg/kg	459	215	886	<5
MERCURY	mg/kg	<0.2	<0.2	<0.2	<0.25
NICKEL	mg/kg	11	68	28	<10
LEAD	mg/kg	583	44	589	<15 X
ANTIMONY	mg/kg	32.6	<1	6.8	<5 X
SELENIUM	mg/kg	<0.5	<0.5	<0.5	<0.6
THALLIUM	mg/kg	0.9	0.7	2.3	<1.5
ZINC	mg/kg	55	110	89	12
CYANIDE (TOTAL)	mg/kg	<1	<1	<2	<2
PERCENT TOTAL SOLIDS	%	81.3	84.7	52.8	41.9

Davis & Floyd, Inc.

Laboratory Analysis Report

Work Order # 88-09-048

Received: 09/12/88

10/12/88 14:16:47

Test Description	Units	05 DRUM #6	06 DRUM #7	07 DRUM #12
SILVER (TOTAL)	mg/l			<0.02
SILVER	mg/kg	<4	<4	
ARSENIC (TOTAL)	mg/l			<0.005
ARSENIC	mg/kg	4.9	<0.5	
BERYLLIUM (TOTAL)	mg/l			<0.01
BERYLLIUM	mg/kg	<2	<2	
CADMIUM (TOTAL)	mg/l			23.6
CADMIUM	mg/kg	<1	<1	
CHROMIUM (TOTAL)	mg/l			<0.02
CHROMIUM	mg/kg	126	359	
COPPER (TOTAL)	mg/l			0.04
COPPER	mg/kg	1850	152	
MERCURY (TOTAL)	mg/l			<0.0002
MERCURY	mg/kg	<0.2	<0.2	
NICKEL (TOTAL)	mg/l			<0.04
NICKEL	mg/kg	9	<8	
LEAD (TOTAL)	mg/l			16.8

Davis & Floyd, Inc.

Laboratory Analysis Report

Received: 09/12/88

10/12/88 14:16:47

Work Order # 88-09-048
Continued From Above

Test Description	Units	05 DRUM #6	06 DRUM #7	07 DRUM #12
LEAD	mg/kg	407	1590	
ANTIMONY (TOTAL)	mg/l			<0.6 X
ANTIMONY	mg/kg	24	<3 X	
SELENIUM (TOTAL)	mg/l			0.011
SELENIUM	mg/kg	<0.5	<0.5	
THALLIUM (TOTAL)	mg/l			0.013
THALLIUM	mg/kg	<1	<1	
ZINC (TOTAL)	mg/l			54000
ZINC	mg/kg	45	35	
CYANIDE (TOTAL)	mg/l			<0.08
CYANIDE (TOTAL)	mg/kg	<1	<2	
PERCENT TOTAL SOLIDS	%	80.1	66.3	42.6

REFERENCE 11

Dec. 13, 1988

To: Grover Nicholson, CERCLA
From: Keith Masters, RCRA Compliance
Subject: Old Fort Finishing / United Merchants Site
Old Fort, N.C
McDowell Co
NC EPA ID Number

On Dec 13, 1988 I met with Officials from McDowell County and the town of Old Fort - Concerning the above facility -

The Officials have received information, from reliable sources, that drummed material was buried at four or more location on property formerly owned or occupied by Old Fort Finishing -

The contents of the drums are not known and the disposal took place about 1975 - The disposal site is in the immediate area of a contaminated town well -

On Dec 13, 1988 I discussed this area with A.L. Hoske (803-233-4641) of United Merchants - He stated that this area has been evaluated and nothing has been found but due to information that he had received re-evaluation was to be done -

A Map of the area showing the approximate disposal areas has been provided (attached) and a copy was given to United Merchants in Feb. or March 1988.

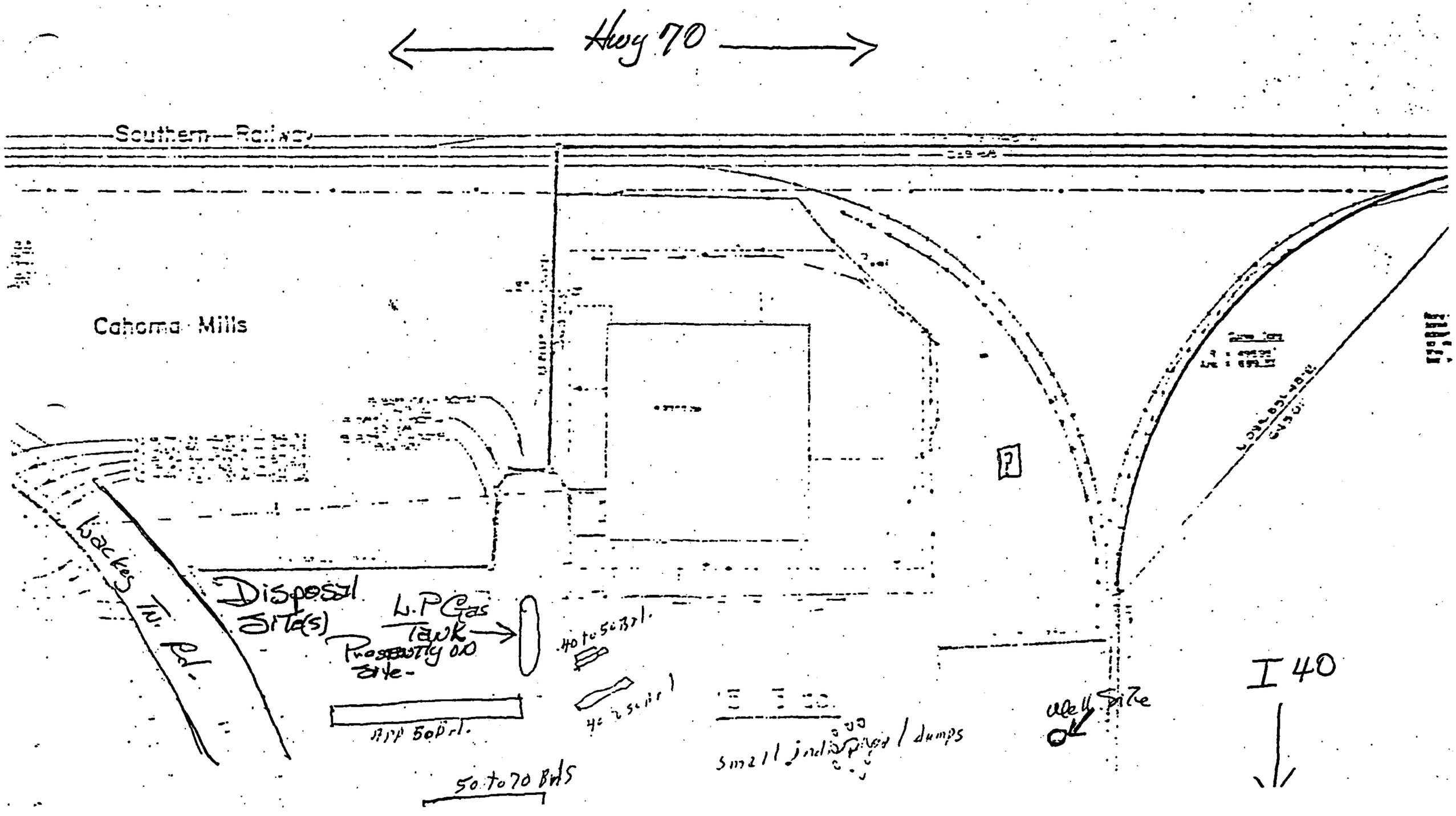
The officials I met with indicate that they are very concerned about this situation and urge CERCLA to respond as soon as is appropriate.

If you cannot respond, please advise.

Copies
Doug Holyfield
Charles Chenoweth
Bill Early

Attachment
One (1) map

Part of United Merchants / Old Aunt Hinrshing (Former) Property



REFERENCE 12

atlanta testing & engineering

DRUM EXCAVATION AND SAMPLING PROGRAM

United Merchants, Inc.
Old Fort Finishing Plant
Old Fort, McDowell County, N.C.

STATE FILE

DRUM EXCAVATION AND SAMPLING PROGRAM

United Merchants, Inc.
Old Fort Finishing Plant
Old Fort, McDowell County, N.C.

Job No. C-8092B
July 13, 1989

INTRODUCTION

During May of 1989, manpower and equipment were mobilized to the Old Fort Finishing Plant in order to excavate buried drums which had previously been located at two areas of the site. The drum excavation program was a culmination of exploration activities which were initiated in May of 1988. The previous exploration and excavation programs indicated two areas of buried drums that were reported to date back to the early 1960's. The purpose of this program was to unearth, characterize and store the buried drums and associated soils prior to disposal at an approved facility. Additionally, the characterization of the drum contents and surrounding soils may indicate the potential of a given burial area as a source of groundwater contamination in shallow and bedrock wells at the site.

This report contains a synopsis of excavation activities and the analytical results of the drum and soil samples.

DRUM EXCAVATION

The drum excavation program began on May 15, 1989. In accordance with the site safety plan, prepared by Atlanta Testing and Engineering, dated May 1989, readings of organic vapor and combustible gas were measured on a constant basis in the breathing zone of site workers. Organic vapors were measured with a Photovac, Inc. total ionizables present (TIP II) meter and lower explosive level (LEL) measurements were made with a Biosensor 2 combustible gas meter. The readings were recorded on an hourly basis. After evaluation of OVA and LEL data and conferring with Top Gun, Inc. project leader, Mike Mraovich, it was decided to downgrade the personal protection from Level C to Level D. As stated in the site safety plan, evaluation of LEL and TIP II measurements was the criteria for upgrading or downgrading personal protection levels.

The two areas of proposed drum excavations were outlined from previous subsurface study and excavations at the Old Fort Finishing Plant. The areas, previously designated as pit B and pit no. 6 are located at the western and eastern regions, respectively, of the former facility. Pit B was near monitoring well MW-6 and the on-site holding pond. Pit no. 6 was near monitoring well MW-10, south of the Arrowhead (Tootal American) plant. The pit excavation locations are shown on Plate 1 (attached).

On May 15, 1989 a total of 25 drums were removed from the excavation at pit B. Twenty three of the drums were crushed or in various states of decay, and two contained fluid, thus requiring overpacks (designated OP-1 and OP-2). Upon excavation of the drum placed in OP-2, an organic vapor reading of 342 ppm in the breathing zone prompted work to cease temporarily and personal protection to be upgraded to Level C for workers in the excavation. Work continued in Level C for approximately 0.5 hours until TIP II readings were at an acceptable level of 3.70 ppm. On May 15, 1989 excavation activity was terminated for the day at 5:15 pm.

Work began on May 16, 1989 at 8:00 am. Based upon the orientation of drums discovered the previous day, it was decided to continue the excavation in a more easterly trend. The excavation was continued for approximately 20 feet in an easterly direction and no drums or debris were discovered in this immediate area. Excavation in the easterly extension was halted and further digging was conducted in a southerly direction, toward Interstate I-40. Drums were discovered in this area under a row of pine trees. Drums were discovered approximately seven feet to the south of the tree line, extending to a city sewer line. The sewer line was located by hand digging. After this location had been confirmed, further excavation in this vicinity continued and no drums were found.

Excavation proceeded on the west side of pit B, and no drums were found. In the course of pit B excavation, five pine trees were removed and more drums were found in the eastern region directly under the tree line. Excavations in this area continued for approximately 35 feet. No drums were found beyond monitor well MW-6. At the end of the day on May 16, an additional 14 drums had been discovered in the easterly extension of the trench in the vicinity of the pine trees that were removed. Of those 14 drums, 10 contained sufficient fluids to warrant overpacking (OP-3 through OP-12).

Excavation began on May 17, 1989 at 8:00 am and more investigation was directed toward the south eastern region of pit B. Additional drums were discovered at a depth of approximately 6 feet below ground surface.

By 1:00 pm on May 17, 1989, 28 drums were removed from pit B and 7 were overpacked (OP-13 through OP-19). Therefore, from pit B, a total of 67 drums were removed. Of those 67 drums, 48 were crushed or decayed and 19 appeared to contain sufficient material to be overpacked. When excavation activity was completed, pit B measured approximately 90 feet x 20 feet. Prior to backfilling, a metal detector was used to scan the entire excavation bottom. No anomalous readings were encountered and men and machinery were mobilized to the eastern field to begin excavating pit no. 6.

At 2:45 pm, May 17, 1989, excavation activities began at pit no. 6. Initially, a trench oriented east-west was excavated on the north side of monitoring well MW-10. Excavation activity continued until 5:30 pm. By 5:30 pm on May 17, 1989, 13 drums had been excavated from pit no. 6. Of the 13 drums excavated, 5 were crushed or decayed and 8 contained sufficient material to warrant overpacking (OP-20 through OP-27).

On May 18, 1989, excavation activity began at 8:00 am. Further excavation continued in the region north of the trench area containing drums. Additional drums were located in this region of the trench to a depth of 4.5 feet below ground surface. These drums were located approximately 30 feet north of MW-10. Eleven drums were overpacked (OP-28 through OP-38) and an additional 9 drums were discovered. Total dimensions of the pit no. 6 excavation were approximately 40 feet x 40 feet. The majority of drums were found in a 20-foot x 20-foot area immediately north of monitoring well MW-10.

In summary, a total of 41 drums were excavated from pit no. 6; 22 were crushed and 19 were overpacked. The combined totals from the two excavation locations were as follows:

108 drums (total) excavated
38 drums overpacked
70 drums crushed or decayed and empty

ADDITIONAL EXCAVATIONS

In an effort to locate any additional drum burial locations, additional excavation activities were performed in three locations. Please refer to pit excavation nos. 16, 17 and 18 on Plate 1.

Pit no. 15 was completed west of pit B. The area unearthed measured approximately 5 feet x 5 feet x 3 feet. Prior to excavation, the area was screened with a metal detector and anomalous readings were noted. However, upon digging only metal scraps and wires were found. Evaluation of the metallic debris did not provide any indication of buried drum material or industrial wastes.

A more extensive series of excavations was completed in the vicinity of pit 6. Two pit excavations, numbered 16 and 17, were dug on the south side of monitoring well MW-6. These excavations were parallel to I-40 and extended for approximate distances of 30 and 200 feet, respectively. These two excavations were approximately 4 feet wide and 5 feet deep and did not yield any indication of buried material.

An additional eight trenches (pit excavation no. 18) were completed on the south side of the Tootal American Plant. The trenches were dug parallel to and approximately 6 feet apart from each other. Each trench was approximately 90 feet x 4 feet x 7 feet. There was no indication of buried material in any of the additional eight trench excavations.

SOIL AND DRUM SAMPLING AND ANALYSIS

Soil Sample Collection and Analysis

A total of five soil samples were collected from the pit excavation areas for analysis by Davis & Floyd Laboratories in Greenwood, South Carolina. One background grab sample was collected at the pit B and at the pit no. 6 excavation locations. The background locations were topographically upgradient of the respective pit excavations. One grab sample was also collected from the bottom of each of the two pit excavations. A fifth soil sample, consisting of a composite of discolored soil from the excavations at pit B and pit no. 6, was also collected for analysis. The soil samples were analyzed for hazardous substance list (HSL) volatile organic compounds, HSL base neutral and acid extractable compounds, priority pollutant (13) metals, and EP (extraction procedure) toxicity for the thirteen metals.

All soil samples were collected with clean stainless steel scoops which were decontaminated prior to use.

Drum Sample Collection and Analysis

A total of five samples were collected from material in the overpacked drums. These samples were also collected for analysis by Davis & Floyd Laboratories in Greenwood, South Carolina. Four of the samples were composites of overpacked drums and one sample was a grab sample of a 30 gallon drum which was placed in overpack OP-21.

Visual examination of drum contents and input provided by United Merchants and Manufacturing personnel allow a general segregation of overpack materials into three categories or groups. The groups were 1) water soluble dyes, 2) plasticizers and plastisols, and 3) polyvinyl acetate. The four composite samples were collected from the following overpacks:

Sample Number	Sample Location
Composite 1	OP-19, OP-28
Composite 2	OP-1, OP-2, OP-3, OP-4, OP-5, OP-6, OP-7, OP-8, OP-10, OP-11, OP-12, OP-13, OP-14, OP-15, OP-16, and OP-18
Composite 3	OP-17, OP-22, OP-24, OP-26, OP-27, OP-30, OP-31, OP-32, OP-33, OP-37, and OP-38
Composite 4	Combination of composite 2 and composite 3

Samples from the drums were analyzed for waste characterization parameters; HSL volatile organic compounds, base neutral and acid extractable compounds, arsenic, barium, cadmium, lead, trivalent chromium, hexavalent chromium, mercury, selenium, silver, nickel, titanium, iron, antimony, manganese, cobalt, cyanide, pH, BTU, flashpoint, and percent ash, organically bound sulphur, chloride, and nitrogen.

With detailed evaluation of each overpacked drum, it was discovered that seven overpacked drums were empty. Therefore, these drums were removed from overpacks and placed in the roll-off containers with other crushed, decayed and/or empty drums. The overpacked drums removed to the roll-off boxes were OP-20, OP-23, OP-25, OP-29, OP-34, and OP-35.

ANALYTICAL RESULTS

The analytical results of the five soil samples are outlined in Tables 1 and 2. The HSL compounds detected are included in Table 1; the metals detected are included in Table 2. Additionally, the analytical results of the five drum samples are included in Tables 1 and 2, outlining the HSL compounds and the metals detected. The laboratory analytical report is also included in the Appendix.

CONCLUSIONS AND RECOMMENDATIONS

The excavation programs have delineated all known and suspected areas of drum burial. The drum excavations were performed in a safe and efficient manner. The drum and soil sample characterization do not indicate hazardous waste. Verbal approval from the North Carolina Department of Human Resources (NCDHR) has been granted to United Merchants and Manufacturers to dispose of the excavated material in an approvable manner. A plan to dispose of the materials is currently being formulated, and notification will be forwarded to NCDHR when the plan is completed.

LIMITATIONS

This report has been prepared for the exclusive use of United Merchants, Inc. for specific application to the Old Fort Finishing Plant in Old Fort, North Carolina. Our findings have been developed in accordance with generally accepted standards of geology and hydrogeology practice in the State of North Carolina. No other warranty is expressed or implied. Our firm has provided professional services and opinions. We have not caused or contributed to any contamination on the site. Thus we accept no responsibility for any damages or claims resulting from past or future contamination, or subsequent remediation.

ACKNOWLEDGEMENT

Atlanta Testing & Engineering appreciates the opportunity to be of service to you by providing this report. If you have any questions regarding this report or if we may be of additional assistance, please contact us.

Respectfully submitted,

ATLANTA TESTING & ENGINEERING

Charles R. Clymer, Jr.

Charles R. Clymer, Jr., P.G.
Senior Hydrogeologist
Reg. N.C. 289

L.T. Gregg/KB

L.T. Gregg, P.G.
Director/Geologic Services

CRC/LTG:cbs

Enclosures

APPENDIX

PLATES

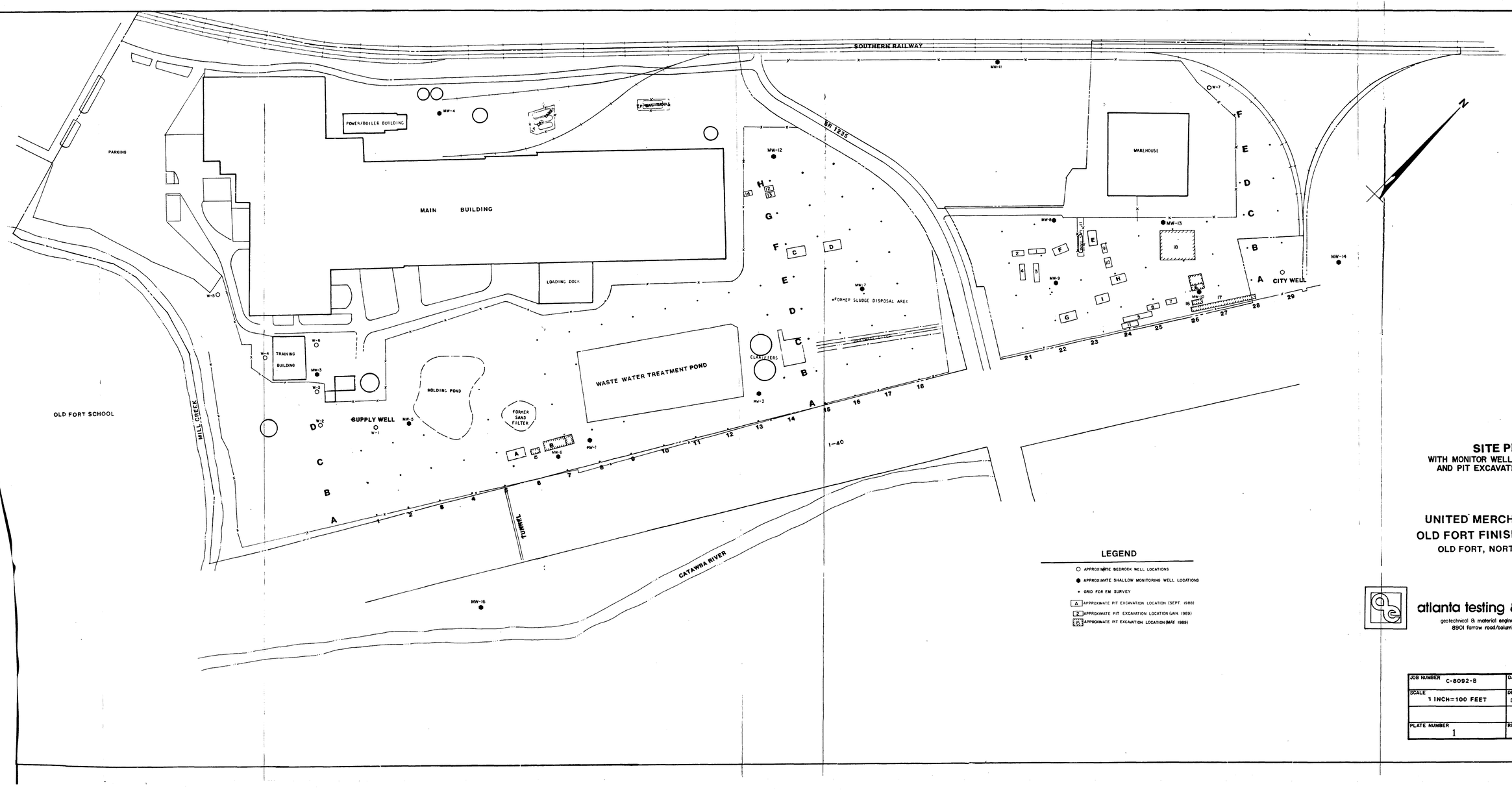
Plate 1 - *Well and Pit Excavation Location Map*

TABLES

Table 1 - *HSL Compounds Detected*

Table 2 - *Metals Detected*

Soil and Drum Analytical Reports



LEGEND

- ○ APPROXIMATE BEDROCK WELL LOCATIONS
- ● APPROXIMATE SHALLOW MONITORING WELL LOCATIONS
- • GRID FOR EM SURVEY
- A APPROXIMATE PIT EXCAVATION LOCATION (SEPT. 1988)
- 2 APPROXIMATE PIT EXCAVATION LOCATION (JAN 1989)
- 15 APPROXIMATE PIT EXCAVATION LOCATION (MAY 1989)

SITE PLAN
WITH MONITOR WELL, BEDROCK WELL AND PIT EXCAVATION LOCATIONS

UNITED MERCHANTS INC.
OLD FORT FINISHING PLANT
OLD FORT, NORTH CAROLINA

atlanta testing & engineering
geotechnical & material engineering and hydrogeology
8901 farrow road/columbia, s.c. 29203

JOB NUMBER C-8092-B	DATE MARCH 23, 1989
SCALE 1 INCH=100 FEET	DRAWN BY D.C.L. / CHECKED BY C.R.C.
PLATE NUMBER 1	REVISIONS JUNE 12, 1989

TABLE 1

HSL COMPOUNDS DETECTED
UNITED MERCHANTS, INC.
OLD FORT FINISHING PLANT
OLD FORT, NORTH CAROLINA
JOB NO. C-8092B

Parameter	Soil Sample Location				
	1	2	3	4	5
	Concentrations in ug/kg (unless noted)				
Acetone, ug/l	46	128	105	63	-
Ethylbenzene, ug/l	-	-	-	-	35,000
Xylene (total), ug/l	-	14	-	-	147,344
bis (2-ethylhexyl)phthalate	-	-	-	-	1,217,500
Methylene Chloride, ug/l	-	6	-	8	-
Phenanthrene	-	1,203	-	-	-
Fluoranthene	-	1,563	-	-	-
Pyrene	-	903	-	-	-

Sample Locations:
1 = Background (Pit B)
2 = Bottom Sample Pit B
3 = Background (Pit #6)
4 = Bottom Sample Pit #6
5 = Composite Pit B and Pit #6

==========

ug/kg = micrograms per kilogram
ug/l = micrograms per liter
(-) = below detection limit

TABLE 1 (Continued)

HSL COMPOUNDS DETECTED
UNITED MERCHANTS, INC.
OLD FORT FINISHING PLANT
OLD FORT, NORTH CAROLINA
JOB NO. C-8092B

Parameter	Drum Sample Location				
	6	7	8	9	10
	Concentrations in ug/kg (unless noted)				
Ethylbenzene	-	-	208,588	-	12,031
Xylene (total)	-	-	859,046	-	108,438
bis (2-ethylhexyl)phthalate	-	-	4,740,984	-	986,233
Methylene Chloride	-	13,392	-	-	-
Acetone	-	21,725	-	-	-
Benzene	-	51,187	12,089	10,393	-
Tetrachloroethene	-	-	196,728	-	53,125
Chloroform, ug/l	10	-	-	-	-

Sample Locations:
6 = OP-21
7 = Composite #1
8 = Composite #2
9 = Composite #3
10= Composite #4

==========

ug/kg = micrograms per kilogram
ug/l = micrograms per liter
(-) = below detection limit

TABLE 2

METALS DETECTED
UNITED MERCHANTS, INC.
OLD FORT FINISHING PLANT
OLD FORT, NORTH CAROLINA
JOB NO. C-8092B

Parameter	Soil Sample Location				
	1	2	3	4	5
	Concentrations in mg/kg (unless noted)				
Arsenic	-	-	-1.7	1.5	
Beryllium	1.2	1.0	1.2	0.6	0.6
Chromium	16	17	21	14	23
Copper	24	33	18	17	204
Lead	18	14	10	7.1	40
Mercury	-	-	0.11	-	0.11
Nickel	18	20	19	16	17
Zinc	66	75	80	56	420
Zinc (EP TOX), mg/l	0.05	-	0.06	0.06	0.70

Sample Locations:
1 = Background (Pit B)
2 = Bottom Sample Pit B
3 = Background (Pit #6)
4 = Bottom Sample Pit #6
5 = Composite Pit B and Pit #6

==========

mg/kg = milligrams per kilogram
mg/l = milligrams per liter extraction
(-) = below detection limit

TABLE 2 (Continued)

METALS DETECTED
UNITED MERCHANTS, INC.
OLD FORT FINISHING PLANT
OLD FORT, NORTH CAROLINA
JOB NO. C-8092B

Parameter	Drum Sample Location				
	6	7	8	9	10
	Concentration in mg/kg (unless noted)				
Arsenic	-	-	-1.1	-	
Barium	-	70	28	26	74
Cadmium	-	-	0.46	-	1.4
Trivalent Chrominum	-	17	8	11	12
Cobalt	-	-	7	6	8
Iron	4,370	22,400	23,500	21,800	21,700
Lead	-	-	14	8	15
Manganese	27	392	140	-	-
Nickel	-	20	-	15	15
Titanium	-	180	660	520	720
pH (Lab), units	4.8	*	7.0	5.1	5.2
Ash, %	0.14	*	14.93	64.34	53.54
British Thermal Units, btu/lb	6,210	*	2,140	1,240	1,360
Organically Bound Nitrogen, %	3.10	*	1.75	0.76	0.87
Organically Bound Sulpher, %	0.12	*	0.17	0.12	0.09

Sample Locations: *6 = OP-21*
7 = Composite #1
8 = Composite #2
9 = Composite #3
10 = Composite #4

==========

mg/kg = *milligrams per kilogram*
% = *percent*
btu/lb = *British Thermal units per pound*
*** = *no sample*
(-) = *below detection limit*

REFERENCE 13

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

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

William L. Meyer
Director

13 March 1990

Mr. A. L. Hashe, Jr.
United Merchants and Manufacturing, Inc.
Post Office Box 2148
108 Frederick Street
Greenville, SC 29602

RE: Old Fort Finishing Plant Cleanup

Dear Mr. Hashe:

We have received the March 5, 1990, letter from Atlanta Testing and Engineering providing the remainder of the geophysical information. The geophysical survey did not identify any other disposal areas except for some flyash and coal slag areas. We feel these areas should be sampled for total and E.P. Toxicity metal analyses. The metal analyses should at a minimum include arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

If the total metal concentrations are above levels protective of human health or if any of the metals are leachable above E.P. Toxicity limits, United Merchants should consider methods for addressing the flyash. Some alternatives which may be considered are (1) removal and treatment and/or off-site disposal and (2) containment with deed recordation. Alternatives for addressing the flyash and coal slag are not limited to these presented. Further, the Superfund Section neither endorses nor disapproves of the above alternatives at this time.

Upon receipt of copies of waste manifests and after the Superfund Section has determined that the flyash and coal slag disposal areas have been adequately addressed, the Superfund Section will consider the soil/drum investigation and remediation complete. Should additional waste be discovered at the site at a later date, the Section reserves the right to reevaluate the site. In addition, contaminated groundwater remains to be addressed at the site. It is our understanding that the groundwater investigation and remediation are being overseen by the Division of Environmental Management Asheville Regional Office.

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

Sincerely,

Charlotte Varlashkin

Charlotte Varlashkin
Superfund Section

CV/acr

REFERENCE 14

UNITED MERCHANTS

108 FREDERICK STREET • GREENVILLE, S.C. 29607 • TEL. (803) 233-4641
P.O. BOX 2148 • GREENVILLE, S.C. 29602

RECEIVED
APR 24 1990
SUPERFUND SECTION

CRAFTED WITH PRIDE IN U.S.A.

April 20, 1990

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

Attn: Ms. Charlotte Varlashkin
Superfund Section

RE: Old Fort Finishing Plant

Dear Ms. Varlashkin:

Please find attached a copy of the analyses of the flyash and coal slag from areas at the referenced plant. This is as per your request in your letter dated 13 March 1990.

We hope the information satisfies your requirements and that we can consider the investigation and remediation program complete.

If you have any questions, please do not hesitate to call me.

Sincerely,

A. L. Hashe, Jr.
Corporate Engineer

ALH/dks

Attachment

cc: Messrs. R. D. Mathews - UM&M
R. J. Lyons - UM&M
B. Hodge - UM&M
R. Powell - Davis & Floyd
C. Clymer - Atlanta Testing & Engineering

900314 3

DAVIS & FLOYD

Chain of Custody Form

816 East Durst Street, Greenwood, S.C. 29646 Phone (803)229-5211 Fax (803)229-7844

PROJ. NO.: 7178

PROJECT NAME: United Merchants Old fort

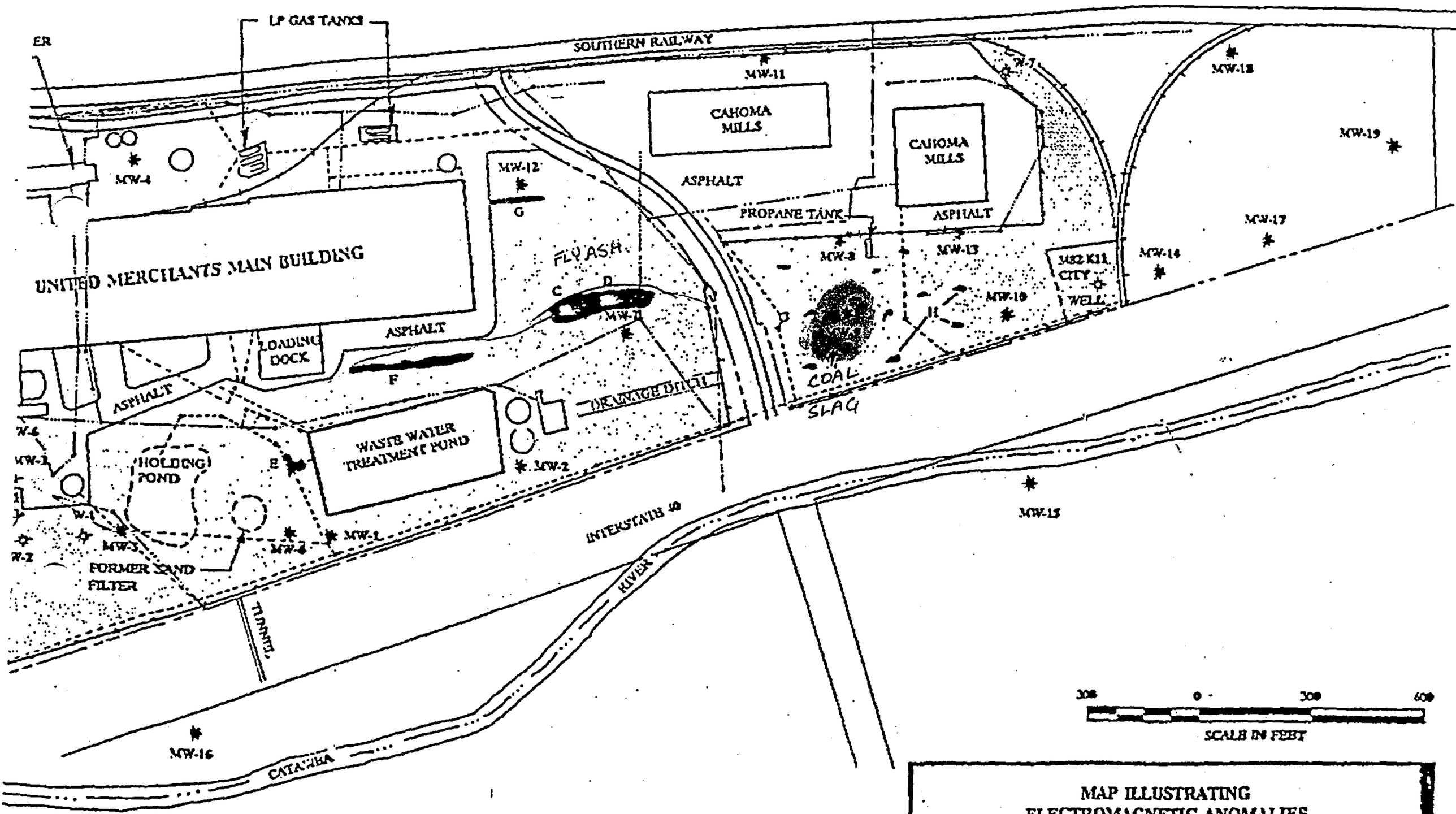
SAMPLERS NAME/AFFILIATION:(PRINTED): W Pollard Steven C. Davis

SAMPLE NO.	DATE	TIME	COMP.	GRAB	SAMPLE DESCRIPTION	NO. OF CONTAINERS	PARAMETERS: Total & EPTox Metals 500 ml												REMARKS	SAMPLE TYPE	POTENTIAL HAZARD
01	29Mar90	1100	X		Area C/D	1	1														
02	1	1135	X		Area H	1	1														

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
W Pollard	29Mar90 1615				

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY: (SIGNATURE)	DATE / TIME	REMARKS
		Donna Kahoiler	3-29-90 1615	

DW-DRINKING WATER HW-HAZARDOUS WASTE SD-SOLID AB-ABSORBENT TUBE



EXPLANATION

W-1 APPROXIMATE BEDROCK WELL LOCATION AND NUMBER

MW-1 APPROXIMATE SAPROLITE-ALLUVIUM UNIT MONITORING WELL AND NUMBER

EXCAVATION LOCATIONS PERFORMED ON 1/24/90

UNDERGROUND PIPING

AREA OF 15-FOOT GRID ELECTROMAGNETIC SURVEY

ANOMALOUS AREAS

MAP ILLUSTRATING
ELECTROMAGNETIC ANOMALIES
AND CULTURAL FEATURES
UNITED MERCHANTS & MANUFACTURERS, INC.
OLD FORT, NORTH CAROLINA

8092

atlanta testing & engineering
geotechnical and testing engineers

Davis & Floyd, Inc.

Laboratory Analysis Report

Work Order # 90-03-143

Received: 03/29/90

04/17/90 11:09:28

REPORT UNITED MERCHANTS & MANUFACT.
TO P.O. BOX 2148
GREENVILLE, S. C. 29602

ATTEN A. L. HASHE, JR.

PREPARED DAVIS & FLOYD, INC.
BY Environmental Services Div.
Post Office Drawer 428
Greenwood, S.C. 29648
PHONE (803) 229-5211

CERTIFIED BY

JOHN_MCCORD

WORK ID JOB NO. 7178
P.O. #
TAKEN DAVIS & FLOYD, INC. (AJP)
TYPE SOILS
NUMBER OF SAMPLES 2

Comments:
WE ARE PLEASED TO PROVIDE THIS CERTIFIED REPORT OF ANALYSES. FEEL FREE TO TELEPHONE IF FURTHER EXPLANATION IS REQUIRED. UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE, SAMPLES WILL BE DISPOSED OF 28 DAYS AFTER ISSUANCE OF THIS REPORT.

SAMPLE IDENTIFICATION	DATE COLLECTED
01 AREA C/D	03/29/90 11:00:00
02 AREA H	03/29/90 11:35:00

Davis & Floyd, Inc.

Laboratory Analysis Report

Work Order # 90-03-143

Received: 03/29/90 04/17/90 11:09:28

Test Description	Units	01 AREA C/D	02 AREA H
SILVER	mg/kg	<2	<2
BARIUM	mg/kg	130	370
CADMIUM	mg/kg	<0.2	<0.2
CHROMIUM	mg/kg	30	20
SILVER (EP TOX)	mg/l extract	<0.02	<0.02
BARIUM (EP TOX)	mg/l extract	0.1	0.3
CADMIUM (EP TOX)	mg/l extract	<0.002	<0.002
CHROMIUM (EP TOX)	mg/l extract	<0.01	<0.01
MERCURY (EP TOX)	mg/l extract	0.0005	0.0005
MERCURY	mg/kg	0.18	<0.1
ARSENIC	mg/kg	9.8	18.4
LEAD	mg/kg	48	66
SELENIUM	mg/kg	<0.9 X	<0.7 X
ARSENIC (EP TOX)	mg/l extract	0.009	<0.005
LEAD (EP TOX)	mg/l extract	<0.05	<0.05
SELENIUM (EP TOX)	mg/l extract	<0.005	<0.005

REFERENCE 15

9 July 1990

MEMORANDUM

TO: Lee Crosby, Chief
Superfund Section

FROM: Charlotte Jesneck
Superfund Section

RE: United Merchants
Old Fort, McDowell County
Recommendation for No Further Action for Soils

An estimated total of 108 crushed and uncrushed drums were excavated along with contaminated soils in two locations at the United Merchants Old Fort Finishing site in May, 1989. The buried drums were located by using geophysical instrumentation and by digging test pits in suspected areas. The excavated drums and contaminated soil were transferred to covered roll-off boxes. A follow-up sample was collected from each of the two excavations and was analyzed for volatile organic compounds, semivolatile organic compounds, and priority pollutant metals. Polynuclear aromatic hydrocarbons, (PAH) were detected in one of the samples at a total concentration of 3.7 ppm. The other sample did not show the presence of PAHs.

The Agency for Toxic Substances and Disease Registry recommends that total PAHs in residential soils be less than 100 ppm for non-carcinogenic PAHs and less than 14 ppm for carcinogenic PAHs (attachment). Since the concentration of PAHs in the follow-up samples are less than 14 ppm, these compounds do not appear to pose a health threat. Also, it is unlikely that groundwater will be impacted by the low levels of PAHs remaining in the soil due to the low mobility of these compounds and the low concentrations which are present at the site.

Other contaminants identified in the laboratory analyses include acetone, methylene, chloride, and xylenes. Acetone was detected in concentrations of up to 128 ppb but was also detected in the background samples at similar concentrations. Methylene chloride was detected at concentrations just above the detection limit in the two follow-up samples. Also, xylene (total) was detected in one of the follow-up samples at a concentration of 14 ppb. Acetone, methylene chloride, and xylenes are common laboratory contaminants. If these compounds are actually present in the soil, their mobility would allow the residuals to be captured during the planned groundwater remediation. No other contaminants were confirmed in the follow-up samples.

On 20 October 1989, the Superfund Section requested that United Merchants conduct additional geophysical survey across all unobstructed areas to ensure to the best extent practicable that all buried drums are located. During the additional geophysical investigation, a flyash disposal area was identified. United Merchants collected and

analyzed samples in the flyash disposal area for RCRA metals (total and EP Toxicity). The total levels were within naturally occurring ranges and the EP Toxicity levels were less than the detection limit or the Primary Drinking Water Standards.

The North Carolina Division of Environmental Management (DEM) Asheville Regional Office has been working with United Merchants in characterizing the extent of groundwater contamination at the site and developing a remedial action plan. The plan will likely include extraction and treatment of the contaminated groundwater. United Merchants is applying for a NPDES permit to discharge the extracted groundwater after it is treated. A Special Order of Consent is being negotiated between DEM and United Merchants for the cleanup.

Off-site private wells have been affected and water lines are being installed for homes with contaminated wells. The Public Water Supply Section of the Environmental Health Division is sampling additional private wells in the area.

United Merchants has provided a report of the excavation, waste manifests, a summary of each geophysical investigation, and the analytical data. I feel that based on available information, the soils at the site do not require further action. I feel that the site should remain in the voluntary remedial action category until groundwater remediation is complete, but that the site should be footnoted as "soil remediation complete".

Attachment

CJ/jo/memos.cv

REFERENCE 16

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

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

William L. Meyer
Director

17 July 1990

Mr. A.L. Hashe
United Merchants and Manufacturers, Inc.
Post Office Box 2148
108 Frederick Street
Greenville, South Carolina 29602

RE: Old Fort Finishing
Old Fort, McDowell County

Dear Mr. Hashe:

We have reviewed all of the information on the United Merchants Old Fort Finishing facility drum disposal remediation. The data currently available does not indicate that further remediation of the soils is necessary. We understand that United Merchants is currently working with the Division of Environmental Management in evaluating and remediating contaminated groundwater at the site. Since groundwater remediation is not complete, the site will be listed in the "Voluntary Cleanup" category, within the Inactive Hazardous Sites Inventory, with a footnote that soil remediation is complete and that groundwater remediation is pending through another agency.

Please be aware that transfer of a site's status in the Inventory does not preclude any future state response at the site and does not preclude any future transfer of the site to another category with the Inventory if new evidence of contamination is revealed. Please contact Charlotte Jesneck or me at (919)733-2801 if you have any questions.

Sincerely,

Lee Crosby

Lee Crosby, Chief
Superfund Section

LC/jo/corres.cv

REFERENCE 17

http://www.epa-echo.gov/cgi-bin/ideaotis.cgi
Last updated on Monday, June 9th, 2008.

Enforcement & Compliance History Online (ECHO)

EPA Home » Compliance and Enforcement » ECHO » Search Data » Search Results

Search Results (All Programs)

Help

14 Facilities Returned

◄ New Search

Map

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Information on the enforcement process is available on the FAQ page. Entries in gray text denote records that are not federally required to be reported to EPA. These data may not be complete.

Facility Information (Select Name to Read Report)	Program ID#	Inspections (5 yrs)	Qtrs in Non Compliance (3 yrs)	Alleged Current Significant Violations	Informal Enforcement Actions/NOVs (5 yrs)	Formal Enforcement Actions (5 yrs)
COATS AMERICAN OLD FORT FACILITY 1611 EAST MAIN STREET OLD FORT, NC 28762 FRS ID: 110013288174	PCS: NCG080278		n/a	n/a	i	i
	RCR: NCD079057295			no		i
COLLINS & AIKMAN - LANDFILL SR 1240 OLD FORT, NC 28762 FRS ID. 110009719377	PCS. NCS000359		n/a	n/a	i	i
COLLINS & AIKMAN INC-OLD FORT HWY 70 E OLD FORT, NC 28762 FRS ID: 110022551479	PCS: NCG170297	1	n/a	n/a	i	i
COLLINS AND AIKMAN PRODUCTS CO HIGHWAY 70 EAST OLD FORT, NC 28762 FRS ID: 110007015103	AFS: 3711100024	i	n/a	n/a	1	i
	RCR: NCD981868680	1		no		i
COLUMBIA CAROLINA DIVISION 369 COLUMBIA CAROLINA RD. OLD FORT, NC 28762 FRS ID: 110015681001	AFS: 3711100162	5	1	no	1	i
	PCS: NCG040136		n/a	n/a	i	i
	PCS: NCG210136	3	n/a	n/a	i	i
	PCS: NC0087076	2	n/a	n/a	1	5
ETHAN ALLEN INC BLUE RIDGE DIV 102 COMMERCE ST OLD FORT, NC 28762 FRS ID: 110004020309	RCR: NCD074510728			no		i
ETHAN ALLEN OPERATIONS INC PINE VALLEY DIV 19 912 E. MAIN ST. OLD FORT, NC 28762 FRS ID: 110015739717	AFS: 3711100036	6		no		i
	PCS. NCG180100		n/a	n/a	i	i
	RCR: NCD074509233	2		no		i
HEDRICK INDUSTRIES STATE ROAD 1161 OLD FORT, NC 28762 FRS ID. 110018707407	PCS: NCG020231	1	n/a	n/a	i	i
JANESVILLE-SACKNER GROUP PLANT 80 LACKEY TOWN ROAD OLD FORT, NC 28762 FRS ID: 110007123157	AFS. 3711100181	i	n/a	n/a		i
	PCS: NCG170392 E	1	n/a	n/a	1	i
OLD FORT WWTP 1174 E MAIN ST OLD FORT, NC 28762 FRS ID: 110027989274	PCS: NCG110100		n/a	n/a	i	i
PARKER HOSIERY CO INC 202 CATAWBA AVENUE OLD FORT, NC 28762 FRS ID: 110002441732	AFS: 3711100097	5		no		i
PISGAH YARN AND DYEING CORP 1 ORCHARD STREET OLD FORT, NC 28762 FRS ID: 110006717188	AFS: 3711100100	5	1	no	1	i
	PCS. NCG170056 E	1	n/a	n/a	1	i
TOWN OF OLD FORT CATAWBA AVENUE/U.S. HWY 70 OLD FORT, NC 28762 FRS ID: 110009845711	PCS: NC0021229 E	9	6	no	6	4
TOWN OF OLD FORT WASTE WATER TREATMENT PLANT COLLINS & AIKMAN ENTRANCE ROAD OLD FORT, NC 28762 FRS ID: 110002080462	AFS: 3711100179	i	n/a	n/a		i

Download

Report Generated on 6/9/2008

Search Criteria

Facility Characteristics

Major(AFS,PCS,and RCRA)	Active/Operating: Y

Geographic Location

State/City:	Zip Code: 28762

return to top

Notes:

-Chemical releases reported by TRI are not associated with non-compliance for that facility.

-The Demographics data (Percent Minority and Population Density) are displayed on the first row in each facilities data table.

This data is not specific to that permit but to the whole facility.

Definitions:

AFS- Air Facility System for Clean Air Act programs.

FRS- Facility Registry System.

PCS- Permit Compliance System for Clean Water Act programs monitoring National Pollutant Discharge Elimination System (NPDES) permits.

RCRA- Resource Conservation and Recovery Act waste handler database (RCRAInfo).

TRI- Toxics Release Inventory for Emergency Planning and Community Right-to-Know Act, Section 313 submissions.

ICIS- Integrated Compliance Information System

REFERENCE 18

_code_desc=&chem_name=&chem_search=Beginning+With&cas_num=&page_no=1&output_sql_switch=FALSE&report=1&database_type=ENVIROFACTS

Last updated on Monday, June 9th, 2008.

Envirofacts Data Warehouse

You are here: EPA Home » Envirofacts » Multisystem » Query Results

Query Results

Report an Error

Name: Beginning With: old fort

LIST OF EPA-REGULATED FACILITIES IN ENVIROFACTS

To see a report on a facility click on the underlined Facility Name. Click on the underlined "View Facility Information" link to view EPA Facility information for the facility.

Go To Bottom Of The Page

FACILITY NAME/ADDRESS	FACILITY INFORMATION	Permitted Discharges to Water?	Toxic Releases Reported?	Hazardous Waste Handler?	Active or Archived Superfund Report?	Air Releases Reported?
OLD FORT COLLINS HS 1400 REMINGTON FORT COLLINS, CO 80523	View Facility Information	NO	NO	**YES**	NO	NO
OLD FORT READY MIX COMPANY 600 N. IVEY FORT SCOTT, KS 66701	View Facility Information	NO	NO	NO	NO	**YES**
OLD FORT WESTERN CONY STREET AUGUSTA, ME 04333	View Facility Information	NO	NO	NO	**YES**	NO
OLD FORT TRAIN STATION 25 W MAIN ST OLD FORT, NC 28762	View Facility Information	NO	NO	**YES**	NO	NO
OLD FORT WWTP 1174 E MAIN ST OLD FORT, NC 28762	View Facility Information	**YES**	NO	NO	NO	NO

TOWN OF OLD FORT CATAWBA AVENUE/U.S. HWY 70 OLD FORT, NC 28762	View Facility Information	**YES**	NO	NO	NO	NO
OLD FORT EDWARD SITE MCINTYRE ST FORT EDWARD, NY 12828	View Facility Information	NO	NO	**YES**	**YES**	NO

Go To Top Of The Page

Total Number of Facilities Displayed: 7

_code=&desc=&chem_name=&chem_search=Beginning+With&cas_num=&page_no=1&output_sql_switch=FALSE&report=1&database_type=ENVIROFACTS

Last updated on Monday, June 9th, 2008.

Envirofacts Data Warehouse

You are here: EPA Home » Envirofacts » Multisystem » Query Results

Query Results

Report an Error

ZIP Code: 28762

LIST OF EPA-REGULATED FACILITIES IN ENVIROFACTS

To see a report on a facility click on the underlined Facility Name. Click on the underlined "View Facility Information" link to view EPA Facility information for the facility.

Go To Bottom Of The Page

FACILITY NAME/ADDRESS	FACILITY INFORMATION	Permitted Discharges to Water?	Toxic Releases Reported?	Hazardous Waste Handler?	Active or Archived Superfund Report?	Air Releases Reported?
COATS AMERICAN OLD FORT FACILITY 1611 EAST MAIN STREET OLD FORT, NC 28762	View Facility Information	**YES**	**YES**	**YES**	NO	NO
COLLINS & AIKMAN - LANDFILL SR 1240 OLD FORT, NC 28762	View Facility Information	**YES**	NO	NO	NO	NO
COLLINS & AIKMAN INC-OLD FORT HWY 70 E OLD FORT, NC 28762	View Facility Information	**YES**	NO	NO	NO	NO
COLLINS AND AIKMAN PRODUCTS CO HIGHWAY 70 EAST OLD FORT, NC 28762	View Facility Information	NO	**YES**	**YES**	NO	**YES**
COLUMBIA CAROLINA DIVISION 369 COLUMBIA CAROLINA RD.	View Facility Information	**YES**	**YES**	NO	NO	**YES**

OLD FORT, NC 28762						
ETHAN ALLEN INC BLUE RIDGE DIV 102 COMMERCE ST OLD FORT, NC 28762	View Facility Information	NO	NO	**YES**	NO	NO
ETHAN ALLEN OPERATIONS INC PINE VALLEY DIV 19 912 E. MAIN ST. OLD FORT, NC 287620639	View Facility Information	**YES**	**YES**	**YES**	NO	**YES**
HEDRICK INDUSTRIES STATE ROAD 1161 OLD FORT, NC 28762	View Facility Information	**YES**	NO	NO	NO	NO
JANESVILLE-SACKNER GROUP PLANT 80 LACKEY TOWN ROAD OLD FORT, NC 28762	View Facility Information	**YES**	NO	NO	NO	**YES**
MOCK DAVIS USED PARTS & WRECKER 4251 BETHLEHEM ROAD OLD FORT, NC 28762	View Facility Information	NO	NO	**YES**	NO	NO
MOFFIT HILL USED PARTS / SALVAGE 179 SALVAGE DRIVE OLD FORT, NC 28762	View Facility Information	NO	NO	**YES**	NO	NO
OLD FORT TRAIN STATION 25 W MAIN ST OLD FORT, NC 28762	View Facility Information	NO	NO	**YES**	NO	NO
OLD FORT WWTP 1174 E MAIN ST OLD FORT, NC 28762	View Facility Information	**YES**	NO	NO	NO	NO
PARKER HOSIERY CO INC 202 CATAWBA AVENUE OLD FORT, NC 28762	View Facility Information	NO	**YES**	NO	NO	**YES**
PISGAH YARN AND DYEING CORP 1 ORCHARD STREET OLD FORT, NC 28762	View Facility Information	**YES**	**YES**	NO	NO	**YES**
TOWN OF OLD FORT CATAWBA AVENUE/U.S. HWY 70 OLD FORT, NC 28762	View Facility Information	**YES**	NO	NO	NO	NO

TOWN OF OLD FORT WASTE WATER TREATMENT PLANT COLLINS & AIKMAN ENTRANCE ROAD OLD FORT, NC 28762	View Facility Information	NO	NO	NO	NO	**YES**

Go To Top Of The Page

Total Number of Facilities Displayed: 17

_cod[redacted]sc=&chem_name=&chem_search=Beginning+With&cas_num=&page_no=1&output_sql_switch=FALSE&report=1&database_type=ENVIROFACTS

Last updated on Monday, June 9th, 2008.

Envirofacts Data Warehouse

You are here: EPA Home » Envirofacts » Multisystem » Query Results

Query Results

Report an Error

Envirofacts

Name: Beginning With: united merchants and manufacturers

Total Number of Facilities Displayed: 0

_cod[redacted]sc=&chem_name=&chem_search=Beginning+With&cas_num=&page_no=1&output_sql_switch=FALSE&report=1&database_type=ENVIROFACTS
Last updated on Monday, June 9th, 2008.

Envirofacts Data Warehouse

You are here: EPA Home » Envirofacts » Multisystem » Query Results

Query Results

Report an Error

Envirofacts

Name: Beginning With: former united merchants and manufacturers

Total Number of Facilities Displayed: 0

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Last updated on Monday, June 9th, 2008.

Envirofacts Data Warehouse

You are here: EPA Home » Envirofacts » Multisystem » Query Results

Query Results

Report an Error

Envirofacts

Location Address: one water street
City Name: Old Fort
County Name: mcdowell
State Abbreviation: nc
EPA Region Code: 4

Total Number of Facilities Displayed: 0

Last updated on Monday, June 9th, 2008.

Toxics Release Inventory (TRI)

You are here: EPA Home » Envirofacts » TRI » Query Results

Query Results

Report an Error

Consolidated facility information (from multiple EPA systems) was searched to select facilities

ZIP Code: 28762

Results are based on data extracted on FEB-21-2008

Note:
Click on the underlined TRI_FACILITY_ID value to view a detailed report on the facility.
Click on "View Facility Information" to view EPA Facility information for the facility.
Click on the underlined SUBMISSIONS value to view the list of DCN's for each of the TRI Reporting Year.

Go To Bottom Of The Page

List of EPA-Regulated Facilities in TRI

TRI FACILITY ID	FACILITY INFORMATION	FACILITY NAME	ADDRESS	COUNTY NAME	SUBMISSIONS
28762CTSMR1611E	View Facility Information	COATS AMERICAN OLD FORT FACILITY	1611 EAST MAIN STREET OLD FORT, NC 28762	MC DOWELL	2
28762CLLNSHWY70	View Facility Information	COLLINS AND AIKMAN PRODUCTS CO	HIGHWAY 70 EAST OLD FORT, NC 28762	MCDOWELL	26
28762CLMBC369CO	View Facility Information	COLUMBIA CAROLINA DIVISION	369 COLUMBIA CAROLINA RD. OLD FORT, NC 28762	MC DOWELL	6
28762PNVLLHIGHW	View Facility Information	ETHAN ALLEN OPERATIONS INC PINE VALLEY DIV 19	912 E. MAIN ST. OLD FORT, NC 287620639	MC DOWELL	67
28762PRKRHCATAW	View Facility Information	PARKER HOSIERY CO INC	202 CATAWBA AVENUE OLD FORT, NC 28762	MCDOWELL	1
28762PSGHYORCHA	View Facility Information	PISGAH YARN AND DYEING CORP	1 ORCHARD STREET OLD FORT, NC 28762	MCDOWELL	1

Go To Top Of The Page

Total Number of Facilities Displayed: 6

REFERENCE 19

All POLREPs for this site

Old Fort Industrial Complex Oil Spill

Old Fort , NC - EPA Region IV
POLREP #1 - Final POLREP

Printer Friendly Version

On-Scene Coordinator - Kevin S. Misenheimer
Emergency - Removal Action
Start Date: 3/24/2004

3/31/2004
Pollution Report (POLREP) # 1

Site Description

On 24 March 2004, North Carolina DENR requested assistance at the Old Fort Industrial Complex (formerly Old Fort Finishing) facility in Old Fort, McDowell County, North Carolina (NRC#716874). NC DENR reported a discharge of NO. 6 oil into the storm drains and ditches at the facility, which leads to the Catawba River. Initial NCDENR reports indicated that 1,000 gallons of oil had been discharged.

Current Activities

OSC Misenheimer was dispatched to the incident scene at 1030 hours on 24 March 2004. OSC Misenheimer arrived at the scene at approximately 1430 hours. Upon arrival OSC Misenheimer met with NC DENR representatives and local emergency management staff to ascertain the circumstances surrounding the discharge of oil. It was determined that the discharge of oil was the result of a previous incident involving a ruptured valve on an above ground storage (AST) tank on the facility, which was discovered by local officials in September 2003. The OSC then met with the suspected responsible party (RP), Mr. Sam Simchon, who owns the industrial complex. According to the RP, a contractor on site using heavy equipment damaged the valve on an AST containing an unspecified amount of # 6 oil. The oil was subsequently released from the tank and flowed into the on site storm water management system, an extensive network of under ground piping, junction boxes and multiple discharge points. The exact time frame in which this event occurred was not clearly determined, however, local officials investigated the discharge of oil in September 2003.

The OSC conducted a site reconnaissance and found that oil had been discharged from the storm water outfall, into a ditch leading to the Catawba River. From the storm water discharge point, the ditch entered a 30 inch culvert under Interstate 40 and continued on the other side of the highway for several hundred feet until its confluence with the Catawba River. The OSC discovered oil in the drainage ditch and observed evidence (oiled vegetation on river banks) that oil had been discharged to the river. In addition, the OSC discovered that oil had discharged from another storm water outfall on the site. This location is where an effort was made by the RP to recover oil during the initial spill in September 2003. An earthen, lined containment pit had been constructed to contain oil flowing from the storm water outfall while allowing water to

flow out through pipes during rainfall events. At the time of the site reconnaissance, it was estimated that the pit contained several thousand gallons of # 6 oil.

2. Removal Activities To Date

On 24 March 2004, the Responsible Party mobilized Garco, Inc. to the site to begin oil containment and recovery operations. The OSC met with Garco, Inc. and the RP to discuss a plan to address the oil discharged and to identify additional sources of oil within the storm water management system. Garco, Inc. pumped approximately 2,600 gallons of oil from two of the storm water junction boxes near the ditch leading off site. In addition, crews worked on the south side of I-40, to remove pockets of oil and oiled vegetation.

On 25 March 2004, Garco, Inc. continued clean up activities. The recovered oil was off loaded into the onsite containment pit. However, after several thousand gallons of oil was placed in the pit, oil began to discharge from the outlet pipe. The OSC informed the RP that the containment pit was not acceptable to hold the recovered oil. The RP then mobilized a frac tank to the site to hold the recovered oil. Oil recovery efforts continued at the culvert underneath I-40. While flushing with water on the north side of the culvert, a vacuum truck was used to recover oil from the south side of the culvert. Approximately 800 gallons of oil was recovered from the culvert. The RP, Mr. Simchon was not on site on 25 March 2004.

On 26 March 2004, Garco, Inc. continued to remove oil from the culvert underneath I-40. Approximately 200 gallons of oil was recovered. Crews continued to clean the drainage ditch near the Catawba River and began placing straw in the ditch to absorb residual product. Several underflow dams were constructed on both the north and south side of I-40 to catch any oil released during subsequent rain fall events. The OSC met with NCDENR, and Garco, Inc. to outline subsequent actions that would be taken to mitigate the future release of oil over the next few months. NCDENR agreed to provide oversight of future RP activities. The RP, Mr. Sam Simchon, was not on site on 26 March 2004, however the OSC spoke to Mr. Simchon several times to discuss expectations of the ongoing cleanup. OSC Misenheimer demobilized at 1200 hours.

Planned Removal Actions

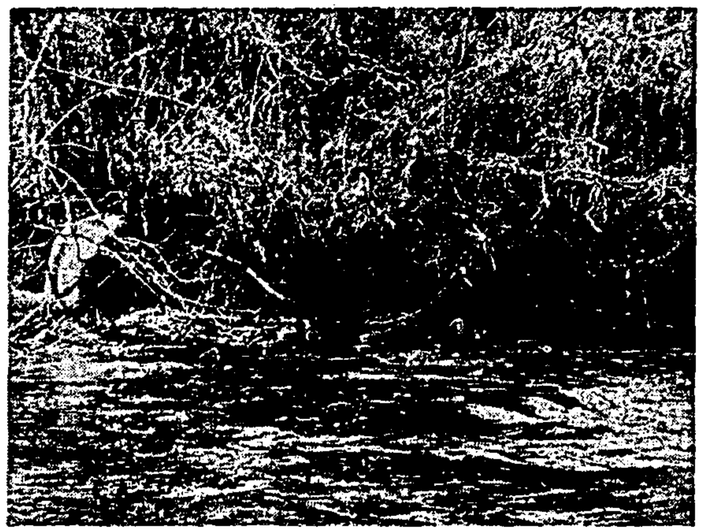
RP will continue response effort as outlined in the Administrative Order. NCDENR will provide oversight. Activities include maintenance of boom and sorbent pads in areas where oil may continue to be released. Also, oil will be contained in underflow dams and removed. Further investigation of the storm water system will be carried out to identify other sources of discharge of oil. The RP will also remove oil and contaminated soil from the pit on site. This material will be disposed of off site.

Key Issues

A Clean Water Act 311(c) Administrative Order, was issued to Mr. Simchon. The Order outlined additional activities required to mitigate the continued threat of discharge of oil into the Catawba River.

Old Fort Industrial Complex Oil Spill

Old Fort, NC - EPA Region IV



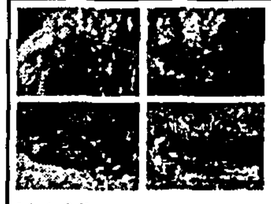
Site Contact:
Kevin S. Misenheimer
OSC
misenheimer.kevin@epa.gov

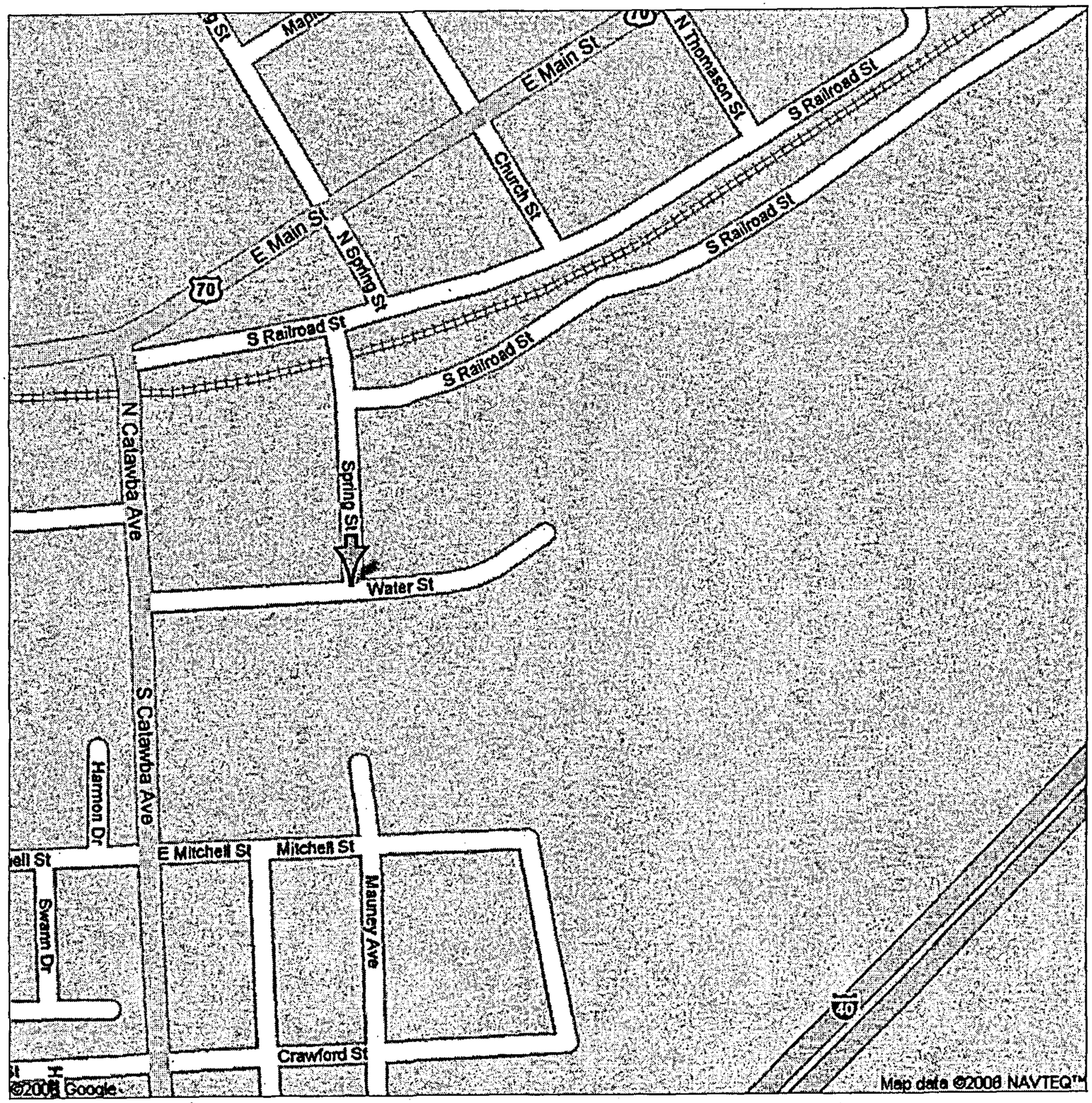
www.epaosc.net/oldfort
One Water Street
Old Fort, NC

site map | area map | bookmark

On 24 March 2004, North Carolina DENR requested assistance at the Old Fort Industrial Complex (formerly Old Fort Finishing) facility in Old Fort, McDowell County, North Carolina (NRC#716874). NC DENR reported a discharge of NO. 6 oil into the storm drains and ditches at the facility, which leads to the Catawba River. Initial NC DENR reports indicated that 1,000 gallons of oil had been discharged.

For additional information, visit the **Pollution Report (POLREPs)** section.

Images	Documents	Contacts	Links
 List All...	None for this site.	None for this site.	None for this site.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N Thomason St
S Railroad St
Church St
E Main St
N Spring St
70
S Railroad St
S Railroad St
S Railroad St
N Calawba Ave
Spring St
Water St
S Calawba Ave
Harmon Dr
E Mitchell St
Mitchell St
Swann Dr
Mauney Ave
40
Crawford St
©2008 Google
Map data ©2008 NAVTEQ™

REFERENCE 20

MEMORANDUM

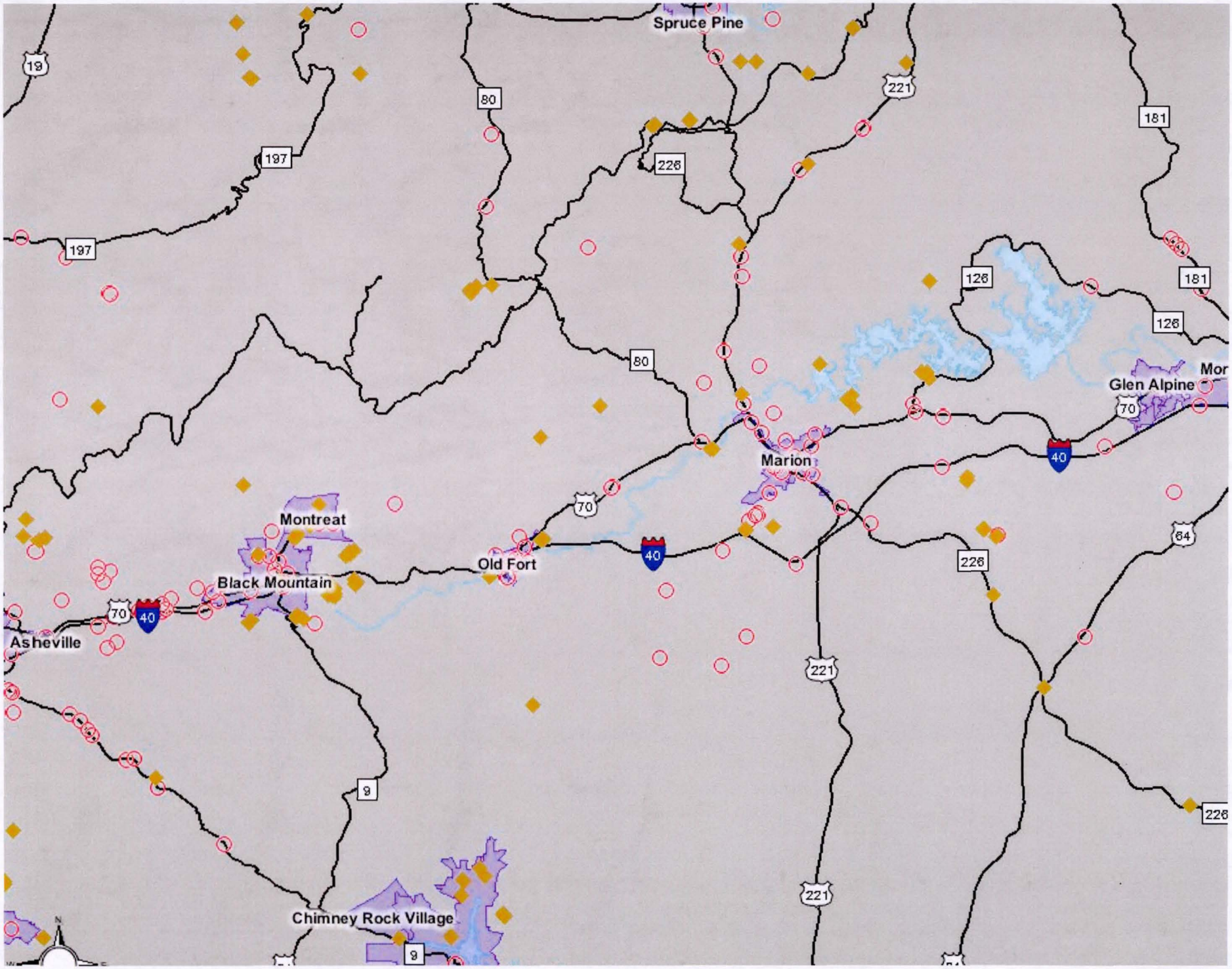
To: File
From: Stuart F. Parker, Hydrogeologist
Date: June 17, 2008
Subject: Preliminary Assessment
Old Fort Finishing (a.k.a., United Merchants and Manufacturers) site
Old Fort, McDowell County, NC
Public Water Supplies

On 6/17/08, SFP visited the NC Public Water Supply Section's Source Water Assessment Program (SWAP) database to identify community wells in proximity to the site and public water supply intakes located downstream.

The Catawba River flows northeast, parallel to Interstate 40 and directly across the highway from the site. No surface water intakes were identified along the Catawba River within 15 miles downstream from the site. The database identified only three surface intakes in McDowell County. The three intakes supplied the City of Marion, and were located on Mackey Creek, Buck Creek and Clear Creek, each of which is a tributary flowing to the Catawba. Source points located downriver near Lake James were all identified by the database as community supply wells.

Old Fort Municipal Well #2 was identified north of the Catawba River, approximately 1 mile upstream (southwest) from the site. Well #2A, the contaminated well east of the site property, was not listed in the database. Old Fort Municipal Wells #5, #9 and #10 were identified north of the Catawba River, approximately 1 mile northeast of the site.

REFERENCE 21


Spruce Pine
19
80
221
181
197
226
197
126
181
126
80
Glen Alpine
70
Marion
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70
Montreat
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Old Fort
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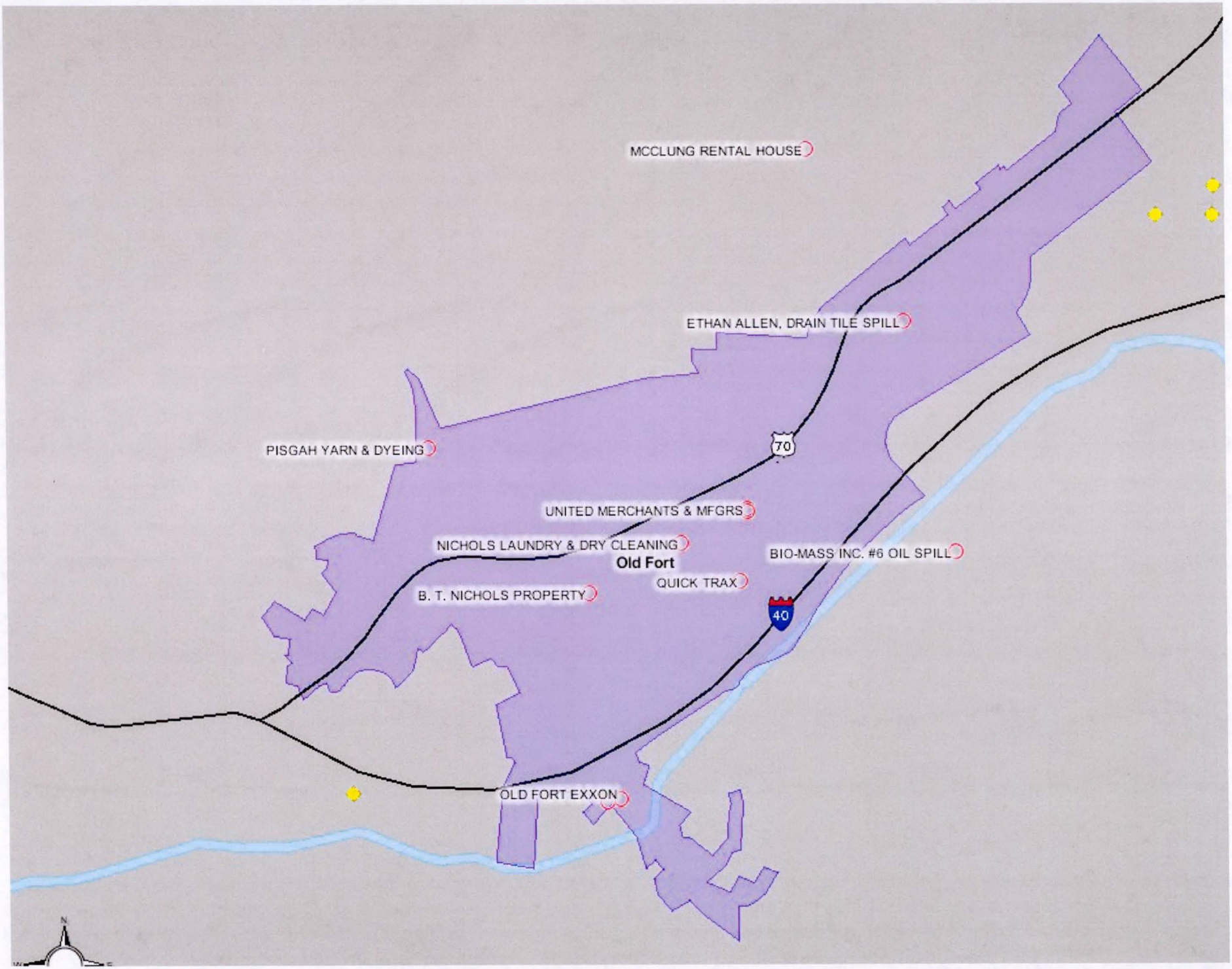
226
Black Mountain
70
40
Asheville
221
9
226
221
Chimney Rock Village
9


MCCLUNG RENTAL HOUSE
ETHAN ALLEN, DRAIN TILE SPILL
PISGAH YARN & DYEING
70
UNITED MERCHANTS & MFGRS
NICHOLS LAUNDRY & DRY CLEANING
Old Fort
BIO-MASS INC. #6 OIL SPILL
QUICK TRAX
B. T. NICHOLS PROPERTY
40
OLD FORT EXXON
N

To view the changes made in the visible column, press the refresh button above.

Public Water Supply Sources

Visible Active

- [ ] Adjacent
- [ ] Campground
- [x] Community
- [ ] Non-Transient Non-Community
- [ ] Transient Non-Community

Show Group Hide Group

Wellhead Protection Areas

Visible Active

- [ ] Wellhead Protection Areas

Show Group Hide Group

Ground Water Assessment Areas

Visible Active

- [ ] Ground Water Delineated Area
- [ ] Ground Water Zone A

Show Group Hide Group

Surface Water Assessment Areas - Zones

Visible Active

- [ ] Watershed Boundary
- [ ] Protected Area Boundary (WS-IV and V only)
- [ ] Critical Area (NA for WS-I)
- [ ] Stream Zone

Show Group Hide Group

Potential Contaminant Sources

Visible Active

- [ ] Animal Operations
- [ ] CERCLIS Sites
- [ ] National Priority List Sites
- [ ] Non Discharge Permits
- [ ] NPDES Permits

- [ ] Old Landfill Sites
- [ ] PCB Sites
- [x] Pollution Incidents
- [ ] RCRA Gen./Trans. Facilities
- [ ] RCRA TSD Sites
- [ ] Septage Disposal Sites
- [x] Soil Remediation Sites
- [ ] Solid Waste Facilities
- [ ] Tier II Sites
- [ ] UIC Permits
- [ ] UST Permits

Show Group Hide Group

Landmarks

Visible Active

- [x] Major Roads
- [x] Municipal Boundaries
- [x] Hydrology
- [x] Counties

Show Group Hide Group

Community

PWS TYPE	SOURCE TYPE	PWS_ID	SOURCE CODE	SYSTEM NAME	SOURCE NAME	CITY	STATE	ZIP	COUNTY
Community	G	0156025	S10	OLD FORT, TOWN OF	WELL #10	OLD FORT	NC	28762	McDowell
Community	G	0156025	S05	OLD FORT, TOWN OF	WELL #5	OLD FORT	NC	28762	McDowell
Community	G	0156025	S02	OLD FORT, TOWN OF	WELL #2	OLD FORT	NC	28762	McDowell
Community	G	0156105	W03	LITTLE SWITZERLAND COMM ASSOC	WELL #3	LITTLE SWITZERL	NC	28749	McDowell
Community	G	0156105	W02	LITTLE SWITZERLAND COMM ASSOC	WELL #2	LITTLE SWITZERL	NC	28749	McDowell
Community	G	0156105	W01	LITTLE SWITZERLAND COMM ASSOC	WELL #1	LITTLE SWITZERL	NC	28749	McDowell
Community	G	0156107	S01	LAKE JAMES LODG	WELL #1	MARION	NC	28752	McDowell
Community	G	0156109	S01	SCOTTY'S MOBILE VILLAGE	WELL #1	MARION	NC	28752	McDowell
Community	G	0156112	W02	SWISS VILLAGE WTR SYSTEM	WELL #2	LITTLE SWITZERL	NC	28749	McDowell
Community	G	0156112	W01	SWISS VILLAGE WTR SYSTEM	WELL #1	LITTLE SWITZERL	NC	28749	McDowell
Community	G	0156113	W01	ASHWORTH ESTATES MHP	WELL #1	MARION	NC	28752	McDowell
Community	G	0156115	S02	BLUE RIDGE MHP	WELL #2	MARION	NC	28752	McDowell
Community	G	0156115	S01	BLUE RIDGE MHP	WELL #1	MARION	NC	28752	McDowell
Community	G	0156122	W01	WHITE PINES MHP	WELL #1	DYSARTSVILLE	NC	28761	McDowell
Community	G	0156125	S01	MCDOWELL NURSING CENTER	WELL #1	NEBO	NC	28761	McDowell
Community	G	0156125	S02	MCDOWELL NURSING CENTER	WELL #2	NEBO	NC	28761	McDowell
Community	G	0156126	S02	CEDARBROOK RESIDENTIAL HOME	WELL #2 WEST	NEBO	NC	28761	McDowell
Community	S	0156010	S02	MARION, CITY OF	MACKEY CREEK	MARION	NC	28752	McDowell
Community	S	0156010	S01	MARION, CITY OF	BUCK CREEK	MARION	NC	28752	McDowell
Community	S	0156010	S03	MARION, CITY OF	CLEAR CREEK	MARION	NC	28752	McDowell
Community	G	0156025	S09	OLD FORT, TOWN OF	WELL #9	OLD FORT	NC	28762	McDowell
Community	G	0156126	S01	CEDARBROOK RESIDENTIAL HOME	WELL #1 EAST	NEBO	NC	28761	McDowell
Community	G	0156127	S02	HOUSTON HOUSE REST HOME	WELL #2	UNION MILLS	NC	28167	McDowell
Community	G	0156128	W01	WOODLAWN HEIGHTS WATER SYSTEM	WELL #1	MARION	NC	28752	McDowell
Community	G	0156129	W02	BEAR DEN ACRES	WELL #2	SPRUCE PINE	NC	28777	McDowell

View Schedule More Records

Zoom to these records

Community

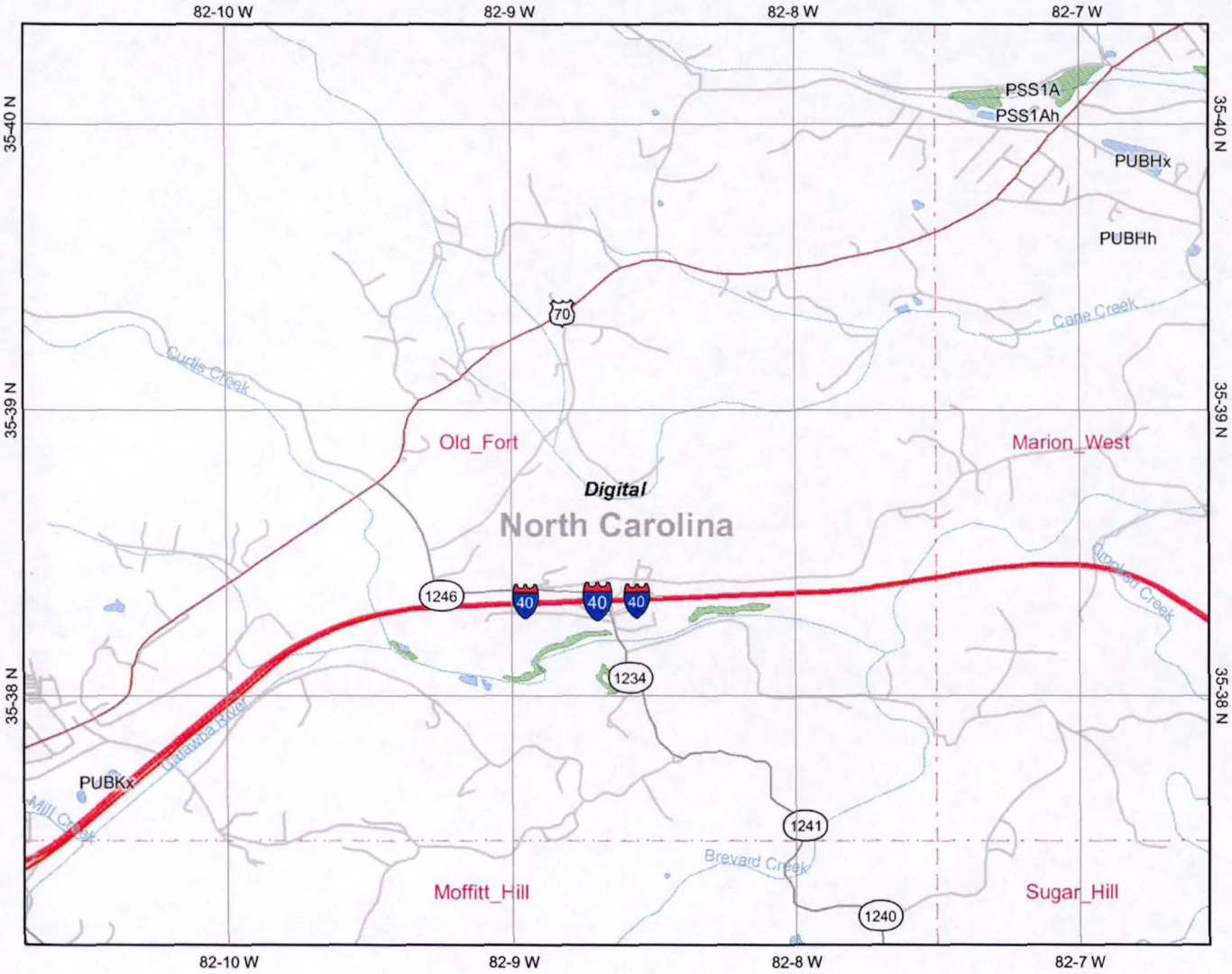
PWS TYPE	SOURCE TYPE	PWS_ID	SOURCE CODE	SYSTEM NAME	SOURCE NAME	CITY	STATE	ZIP	COUNTY
Community	G	0156129	W01	BEAR DEN ACRES	WELL #1	SPRUCE PINE	NC	28777	McDowell
Community	G	0156132	001	MARION MOOSE LODGE	WELL #1	MARION	NC	28752	McDowell
Community	G	0156132	002	MARION MOOSE LODGE	WELL #2	MARION	NC	28752	McDowell
Community	G	0156133	001	MARION MOOSE LODGE-MOUNTAIN	WELL #1	MARION	NC	28752	McDowell
Community	G	0156134	W01	WATERGLYN S/D	WELL #1	NEBO	NC	28761	McDowell
Community	G	0156134	W02	WATERGLYN S/D	WELL #2	NEBO	NC	28761	McDowell
Community	G	0156134	W03	WATERGLYN S/D	WELL #3	NEBO	NC	28761	McDowell
Community	G	0156135	W0B	RIVERSIDE MHP	WELL #B	MARION	NC	28752	McDowell
Community	G	0156135	W0A	RIVERSIDE MHP	WELL #A	MARION	NC	28752	McDowell
Community	G	0156136	W02	HARMONY ESTATES S/D	WELL #2	NEBO	NC	28761	McDowell
Community	G	0156136	W01	HARMONY ESTATES S/D	WELL #1	NEBO	NC	28761	McDowell
Community	G	1056029	W01	RECOVERY VENTURES CORPORATION	WELL #1	OLD FORT	NC	28762	McDowell
Community	G	1056001	W04	BLUE RIDGE COUNTRY CLUB	WELL #4	MARION	NC	28752	McDowell
Community	G	1056009	W01	MCDOWELL HOUSE REST HOME	WELL #1	NEBO	NC	28761	McDowell

View Schedule Previous 25 Records

Zoom to these records

REFERENCE 22

Catawba River below Old Fort NC



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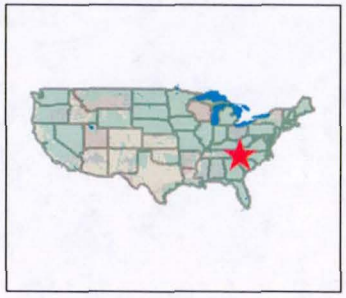


Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

N

Scale: 1:41,648

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

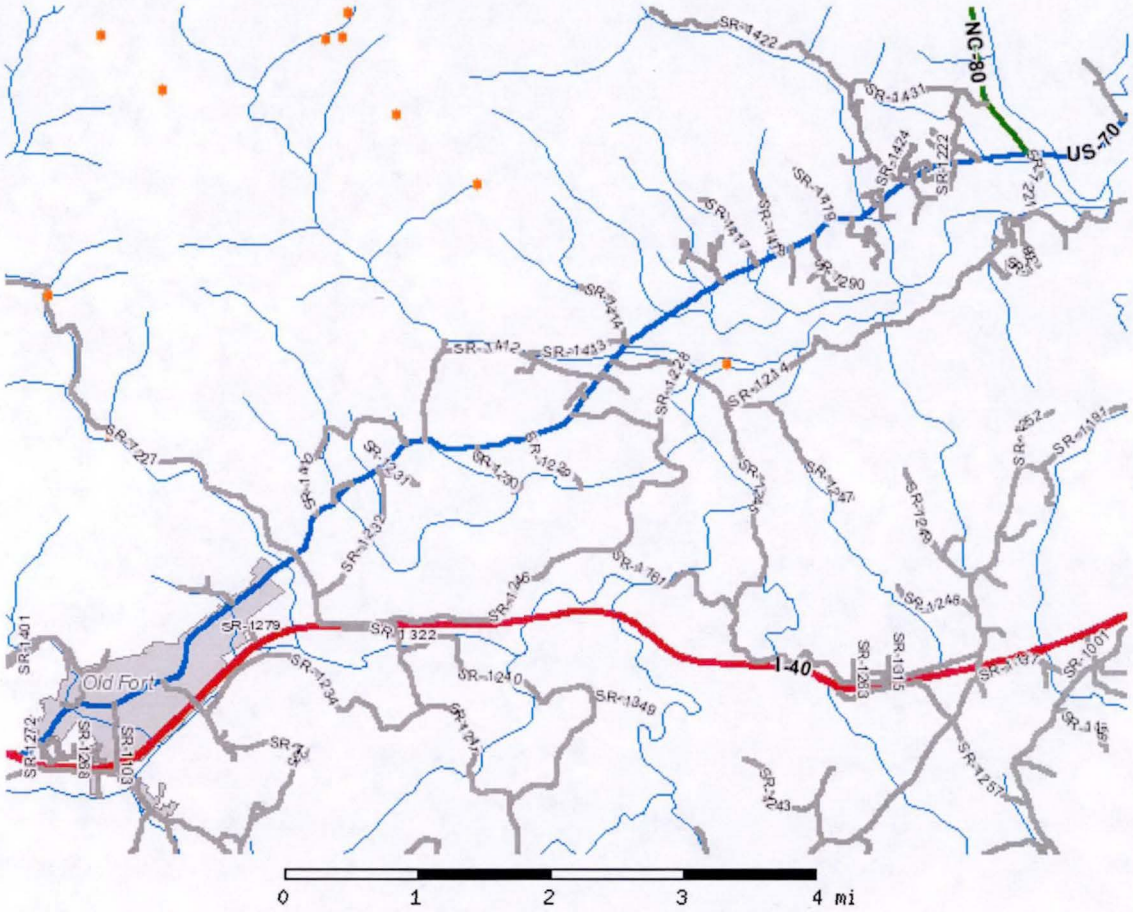
REFERENCE 23

Home Help

Legend

- Element Occurrences (show after queried)
- EO Source Points
- EO Source Lines
- EO Source Polygons
- Submitted EOs
- Significant Natural Heritage Areas
- Managed Areas
- Primary Roads
- Secondary Roads
- Municipalities
- Rivers and Lakes (Lines)
- Rivers and Lakes (Polygons)
- Topo Images
- Aerial Images (2006)
- Aerial Images (1998)
- Topo Boundaries
- County Boundaries
- Redraw Map

NC Natural Heritage Program Virtual Workroom



GIS Data Sources: NCNHP, CGIA, NCDOT, USGS. NCNHP data updated on: 2008-Jun-18

Locator Map

Map Size: 600 x 450

Functions

- Zoom In
- Zoom Out
- Pan
- Identify
- Select Features
- Submit EO
- Show Coordinates
- Query Database
- Clear Selection

Quick View

--Select Region--

Problems or Questions?

Powered By: WebGD DM Solutions MapServer PHP PostgreSQL PostGIS

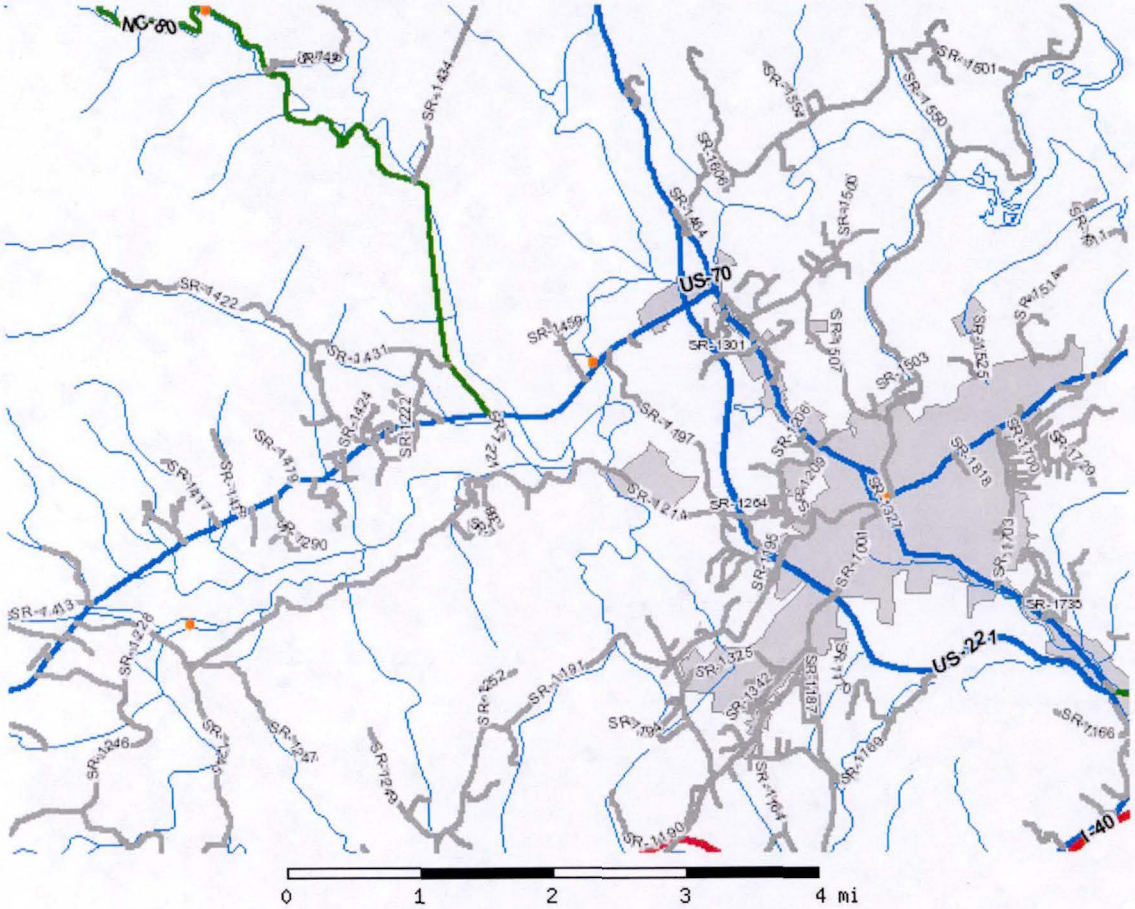
Home Help

Legend

- [x] Element Occurrences (show after queried)
- [x] EO Source Points
- [ ] EO Source Lines
- [ ] EO Source Polygons
- [ ] Submitted EOs
- [ ] Significant Natural Heritage Areas
- [ ] Managed Areas
- [x] Primary Roads
- [x] Secondary Roads
- [x] Municipalities
- [x] Rivers and Lakes (Lines)
- [ ] Rivers and Lakes (Polygons)
- [ ] Topo Images
- [ ] Aerial Images (2006)
- [ ] Aerial Images (1998)
- [ ] Topo Boundaries
- [x] County Boundaries

Redraw Map

NC Natural Heritage Program Virtual Workroom



GIS Data Sources: NCNHP, CGIA, NCDOT, USGS. NCNHP data updated on: 2008-Jun-18

Locator Map

Map Size: 600 x 450

Functions

- Zoom In
- Zoom Out
- Pan
- Identify
- Select Features
- Submit EO
- Show Coordinates
- Query Database
- Clear Selection

Quick View

--Select Region--

Problems or Questions?

Powered By: WebGD DM Solutions MapServer PHP PostgreSQL PostGIS

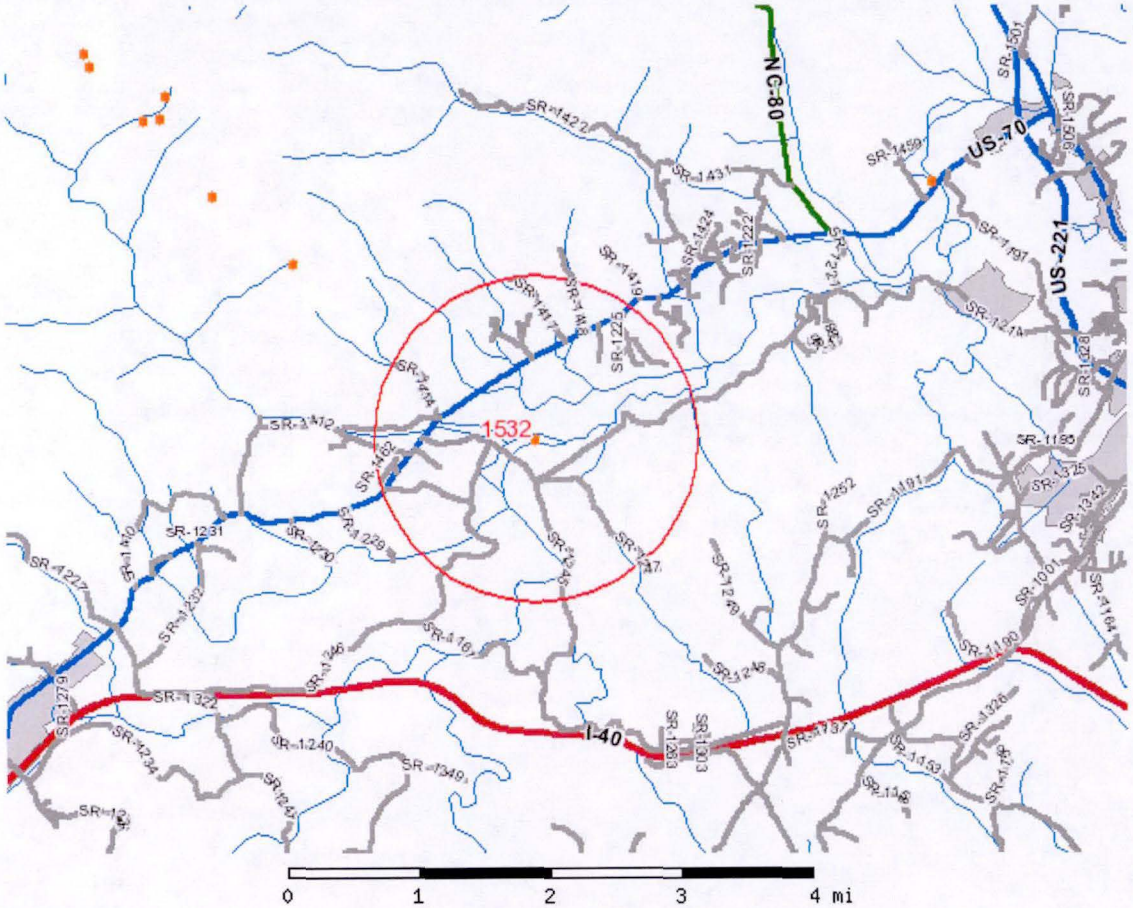
Home Help

Legend

- [x] Element Occurrences (show after queried)
- [x] EO Source Points
- [ ] EO Source Lines
- [ ] EO Source Polygons
- [ ] Submitted EOs
- [ ] Significant Natural Heritage Areas
- [ ] Managed Areas
- [x] Primary Roads
- [x] Secondary Roads
- [x] Municipalities
- [x] Rivers and Lakes (Lines)
- [ ] Rivers and Lakes (Polygons)
- [ ] Topo Images
- [ ] Aerial Images (2006)
- [ ] Aerial Images (1998)
- [ ] Topo Boundaries
- [x] County Boundaries

Redraw Map

NC Natural Heritage Program Virtual Workroom



GIS Data Sources: NCNHP, CGIA, NCDOT, USGS. NCNHP data updated on: 2008-Jun-18

Locator Map

Map Size: 600 x 450

Functions

- Zoom In
- Zoom Out
- Pan
- Identify
- Select Features
- Submit EO
- Show Coordinates
- Query Database
- Clear Selection

Quick View

--Select Region--

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Redraw Map

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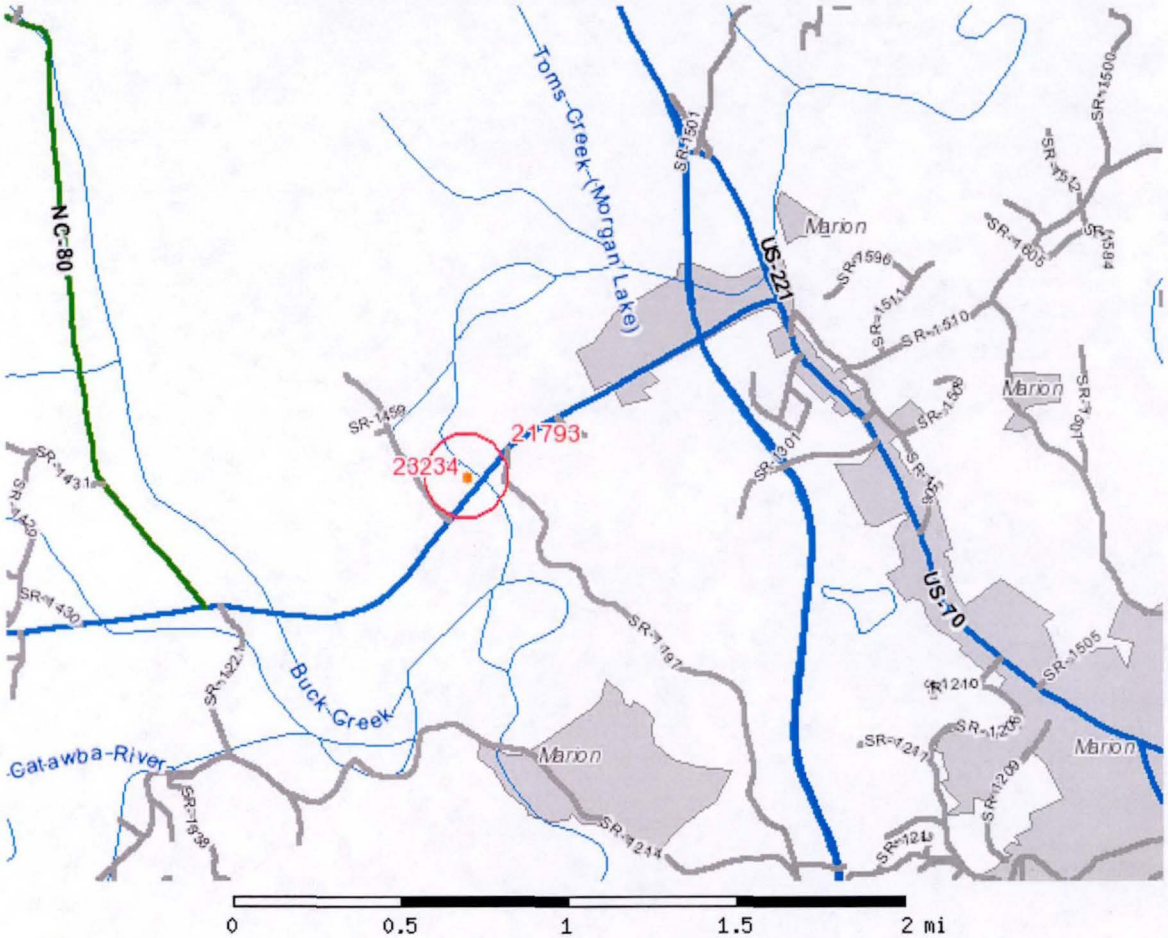

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Locator Map

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Problems or Questions?

Powered By: WebGD DM Solutions MapServer PHP PostgreSQL PostGIS

Select Element Occurrence(s)

Found 2 Element Occurrence(s)

Select	Details	EO ID	Scientific Name	EO Nb	Common Name	Date Last Observed	EO Rank	EO Accuracy	State Protection Status	Federal Protection Status	State Rank	Global Rank
☐	View	1532	Cyprinella zanema	12	Santee Chub	1991-Pre	E	Low	SR		S3	G4
☐	View	21793	Myotis septentrionalis	36	Northern Myotis		E	Very Low	W2		S3S4	G4

☐ Select All Zoom to Record

Select Element Occurrence Page 1 of 1

Select Element Occurrence(s)

Found 2 Element Occurrence(s)

Select	Details	EO ID	Scientific Name	EO Nb	Common Name	Date Last Observed	EO Rank	EO Accuracy	State Protection Status	Federal Protection Status	State Rank	Global Rank
☐	View	23234	Hymenocallis occidentalis	1	Hillside Spider-lily	1949-08-17	H	Low	SR-P		SH	G4?
☐	View	21793	Myotis septentrionalis	36	Northern Myotis		E	Very Low	W2		S3S4	G4

☐ Select All Zoom to Record

Element Occurrence Information

Element Occurrence ID	1532
Scientific Name	Cyprinella zanema
Element Occurrence Number	12
Common Name	Santee Chub
Most Recent Survey Date	1991-Pre
Date First Observed	1991-Pre
Date Last Observed	1991-Pre
Element Occurrence Rank	E - Verified extant (viability not assessed)
Directions	MENHINICK MAP SHOWS A RECORD FOR CATAWBA RIVER, SLIGHTLY DOWNSTREAM FROM MACKEY CREEK.
Element Occurrence Data	MENHINICK MAP SHOWS A RECORD FROM THIS AREA. NO FURTHER DATA.
Habitat Description	
Owner Name and Comments	
Protection Comments	
Management Comments	
Additional Comments	

Element Occurrence Information

Element Occurrence ID	21793
Scientific Name	Myotis septentrionalis
Element Occurrence Number	36
Common Name	Northern Myotis
Most Recent Survey Date	
Date First Observed	
Date Last Observed	
Element Occurrence Rank	E - Verified extant (viability not assessed)
Directions	McDowell County -- no location given.
Element Occurrence Data	Species reported from this county by Chris McGrath, pers. comm. to David Webster (2004).
Habitat Description	
Owner Name and Comments	
Protection Comments	
Management Comments	
Additional Comments	

Element Occurrence Information

Element Occurrence ID	23234
Scientific Name	Hymenocallis occidentalis
Element Occurrence Number	1
Common Name	Hillside Spider-lily
Most Recent Survey Date	1949-08-17
Date First Observed	1949-08-17
Date Last Observed	1949-08-17
Element Occurrence Rank	H - Historical
Directions	McDowell County; 1 mile west of Garden Creek (Radford 1949). Population located on US 70, 1 mile west of NC 80.
Element Occurrence Data	This is a specimen in the University of North Carolina Herbarium collected by A.E. Radford on 17 August 1949. The specimen is labeled as Hymenocallis crassifolia, but has since been changed.
Habitat Description	No available information
Owner Name and Comments	
Protection Comments	
Management Comments	
Additional Comments	

REFERENCE 24

State of North Carolina
Department of Natural Resources and Community Development
Asheville Regional Office

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

David R. Spain
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT
GROUNDWATER SECTION

January 31, 1989

Mr. A. L. Hashe
United Merchants and Manufacturers, Inc.
P. O. Box 2148
Greenville, South Carolina 29602

Subject: United Merchants and Manufacturers, Inc.
Old Fort Finishing Plant
Groundwater Incident No. 3575
McDowell County, North Carolina

Dear Mr. Hashe:

As discussed during our meeting on January 25, 1989, and in conversation with Mr. Rudy Powell, a report regarding the subject incident is due in this office by March 31, 1989.

The NPDES Permit for Old Fort Finishing Plant expires in March, 1989. When the permit is renewed, it would be advantageous to modify the permit to include the discharge from groundwater remediation activities. By all means the Company should request renewal prior to expiration of this NPDES Permit. If you have any questions relating to NPDES permit renewal, you may contact Jim Reid at 704-251-6208, extension 291.

Thank you for your continuing cooperation. If you have any comments or questions, please contact me at 704-251-6208, extension 266 or Don Link, extension 301.

Sincerely,

Kay Dechant

Kay Dechant
Hydrogeologist

KD:ar
cc: Douglass Dixon
Jim Reid
R. L. Powell
Charles R. Clymer
Chuck Abernathy

GW

United Merchants
MC 3575

Rec'd GWS-ARO
12/13/89

GW remediation

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

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

December 1, 1989

R. Paul Wilms
Director

Mr. R. D. Matthews
P.O. Box 2148
Greenville, NC 29602

Subject: Permit No. NC0077623
United Merchants & Manufacturers, Inc.
McDowell County

Dear Mr. Matthews:

In accordance with your application for discharge permit received on August 14, 1989, we are forwarding herewith the subject State - NPDES permit. This permit is issued pursuant to the requirements of North Carolina General Statute 143-215.1 and the Memorandum of Agreement between North Carolina and the US Environmental Protection Agency dated December 6, 1983.

If any parts, measurement frequencies or sampling requirements contained in this permit are unacceptable to you, you may request a waiver or modification pursuant to Regulation 15 NCAC 2B .0508(b) by written request to the Director identifying the specific issues to be contended. Unless such request is made within 30 days following receipt of this permit, this permit shall be final and binding. Should your request be denied, you will have the right to request an adjudicatory hearing.

Please take notice that this permit is not transferable. Part II, D.3. addresses the requirements to be followed in case of change in ownership or control of this discharge.

This permit does not affect the legal requirements to obtain other permits which may be required by the Division of Environmental Management or permits required by the Division of Land Resources, Coastal Area Management Act or any other Federal or Local governmental permit that may be required.

If you have any questions concerning this permit, please contact Ms. Rosanne Barona at telephone number 919/733-5083.

Sincerely,
Original Signed By
Donald Safrit for
R. Paul Wilms

RECEIVED
Water Quality Section

DEC 13 1989

Asheville Regional Office
Asheville, North Carolina

cc: Mr. Jim Patrick, EPA
Asheville Regional Office

Permit No. NC0077623

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL MANAGEMENT

PERMIT

TO DISCHARGE WASTEWATER UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provision of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

United Merchants and Manufacturers, Inc.

is hereby authorized to discharge wastewater from a facility located at

Old Fort Finishing Plant
northwest of NCSR 1235 overpass of I-40
east of Old Fort
McDowell County

to receiving waters designated as the Catawba River in the Catawba River Basin

in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective December 1, 1989

This permit and the authorization to discharge shall expire at midnight on November 30, 1994

Signed this day December 1, 1989

Original Signed By
Donald Safrit for

R. Paul Wilms, Director
Division of Environmental Management
By Authority of the Environmental Management Commission

Permit No. NC0077623

SUPPLEMENT TO PERMIT COVER SHEET

United Merchants and Manufacturers, Inc.

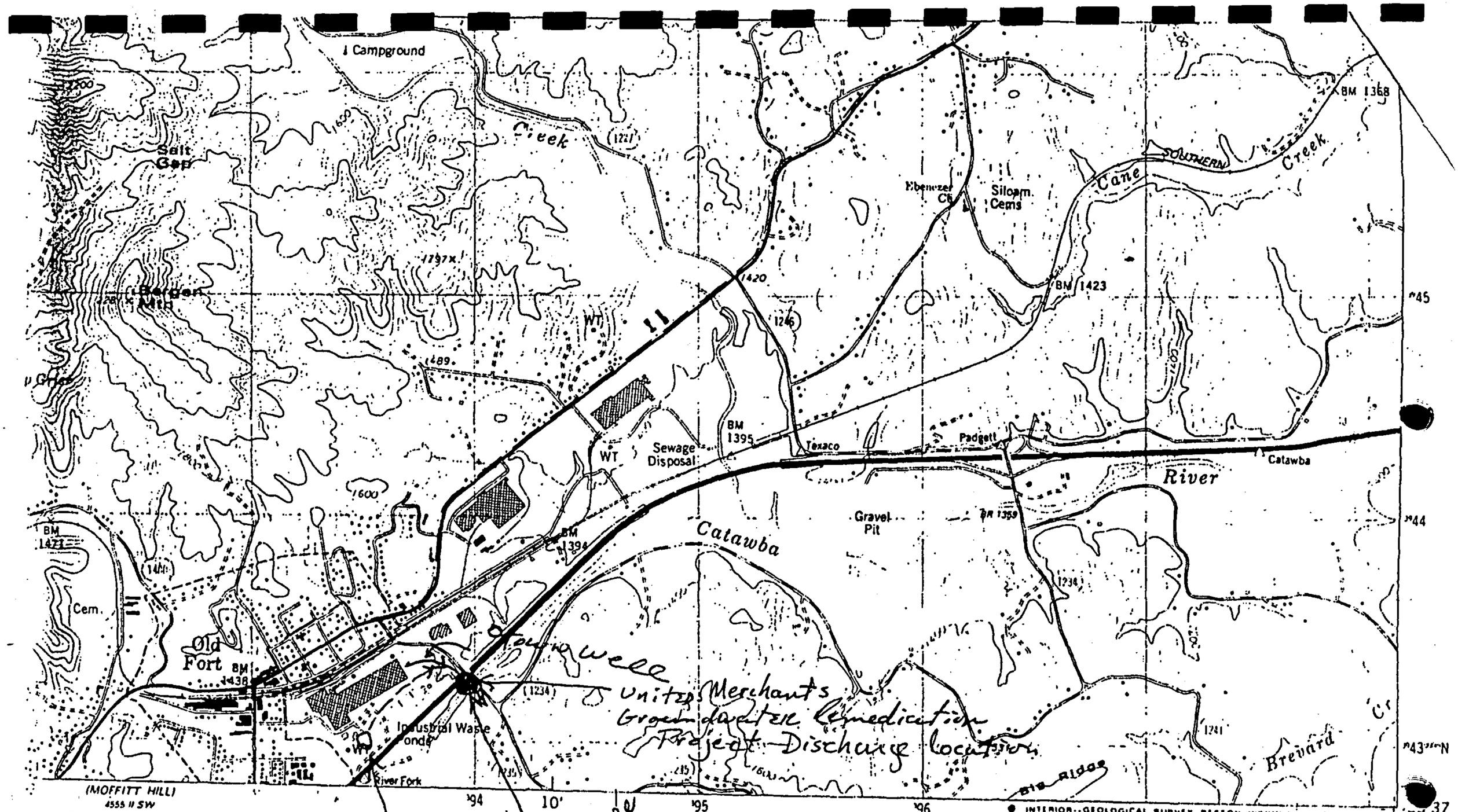
is hereby authorized to:

1. Enter into a contract for construction of a wastewater treatment facility, and

2. Make an outlet into the Catawba River and,

3. After receiving an Authorization to Construct from the Division of Environmental Management, construct and operate a 2.12 MGD wastewater treatment facility located at Old Fort Finishing Plant, northwest of NCSR 1235 overpass of I-40, east of Old Fort, McDowell County (See Part III of this Permit), and

4. Discharge from said treatment works at the location specified on the attached map into the Catawba River which is classified class C waters in the Catawba River Basin.



SCALE 1:24 000

0 2000 3000 4000 5000 6000 7000 FEET

0 1 KILOMETER 1 MILE

CONTOUR INTERVAL 40 FEET
GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION

Primary highway, hard surface — Light-duty road hard or improved surface

Secondary highway, hard surface — Unimproved road

Interstate Route U. S. Route State Route

N C

QUADRANGLE LOCATION

IES WITH NATIONAL MAP ACCURACY STANDARDS
GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
J. S. TENNESSEE VALLEY AUTHORITY,
. TENN. 37401 OR KNOXVILLE, TENN. 37902
GRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

OLD FORT, N. C.
NW/4 MARION 15' QUADRANGLE
35082-F2-TF-024

1982

DMA 4555 II NW, SERIES V842

A. ( ). EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FINAL Permit No. NC0077623

During the period beginning on the effective date of the permit and lasting until expiration, the Permittee is authorized to discharge from outfall(s) serial number 001. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations Lbs/day		Discharge Limitations Units (specify)		Monitoring Requirements		
	Mon. Avg.	Daily Max	Mon. Avg.	Daily Max.	Measurement Frequency	Sample Type	*Sample Location
Flow**			2.1-2 MGD		Continuous	Rec or Flow	E
Organics***					Quarterly	Grab	E
Lead				129.0 ug/l	Quarterly	Grab	E
Chronic Toxicity****					Quarterly	Grab	E
Zinc					Quarterly	Grab	E

*Sample locations: E - Effluent

** If a pump totalizer is used to monitor flow, monthly average flow (Total flow/month) along with the instantaneous flow at the time of the effluent sampling may be used in lieu of continuous monitoring.

*** See Part III, Condition G.

**** Chronic Toxicity (Ceriodaphnia) P/F at 19%, March, June, September and December: See Part III, Condition H.

Samples for Lead, Zinc and Organics should be collected at the same time as the whole effluent toxicity sample.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 2/month by grab sample at the effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

REFERENCE 25

North Carolina Department of Environment and Natural Resources

Division of Air Quality

North Carolina Criteria and Toxic Air Pollutant Point Source Emissions Report

We continue to work on ways to make this report better for the users and to provide more explanations as to how the data are collected, limitations, caveats, etc. Please provide any comments or suggestions to EIUG Reports DENR.DAQ.Emission_Inventory_UG@lists.ncmail.net Thank you.

Note: *Data here represents permitted point sources only, as reported to North Carolina Department of Environment and Natural Resources, Division of Air Quality.*
The facility name search parameter is case insensitive. The results will return all facilities whose name contains the text you enter. Special characters like apostrophe ('), and comma (,) do count towards this search.

Facility Name: **County:** Show All Counties

Search for a Facility

Perform State and County Queries Instead

Calendar Year: Show Calendar Year 2006

United Merchants and Mfg Inc
Old Fort

Old Fort, NC 28762
McDowell County

No pollutants reported

Send this page to: from: DENR.DAQ.Emission_Inventory_UG@lists.ncmail.net
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North Carolina Department of Environment and Natural Resources

Division of Air Quality

North Carolina Criteria and Toxic Air Pollutant Point Source Emissions Report

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Facility Name: **County:** Show All Counties

Search for a Facility

Perform State and County Queries Instead

Calendar Year: Show Calendar Year 2000

United Merchants and Mfg Inc
Old Fort

Old Fort, NC 28762
McDowell County

No pollutants reported

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North Carolina Department of Environment and Natural Resources

Division of Air Quality

North Carolina Criteria and Toxic Air Pollutant Point Source Emissions Report

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Facility Name: **County:** Show All Counties

Search for a Facility

Perform State and County Queries Instead

Calendar Year: Show Calendar Year 1996

United Merchants and Mfg Inc
Old Fort

Old Fort, NC 28762
McDowell County

No pollutants reported

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North Carolina Department of Environment and Natural Resources

Division of Air Quality

North Carolina Criteria and Toxic Air Pollutant Point Source Emissions Report

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Facility Name: **County:** Show All Counties

Search for a Facility

Perform State and County Queries Instead

Calendar Year: Show Calendar Year 1993

United Merchants and Mfg Inc
Old Fort

Old Fort, NC 28762
McDowell County

No pollutants reported

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