

\*622SERBSF10, 635\*

\*622SERBSF10,635\*

Site Name (Subject): UNION CAMP CORPORATION

Site ID (Document ID): NCD003216959

Document Name (DocType): Preliminary Assessment/Site Inspection (PA/SI)

Report Segment:  
Description: Amended Site Re-Assessment Report

Date of Document: 4/29/2002

Date Received:

Box: *Enter SF and # with no spaces* SF10,635

Access Level: PUBLIC

Division: WASTE MANAGEMENT

Section: SUPERFUND

Program (Document Group): SERB (SERB)

Document Category: FACILITY

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**NORTH CAROLINA  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF WASTE MANAGEMENT**



**MICHAEL F. EASLEY, GOVERNOR  
WILLIAM G. ROSS, JR., SECRETARY  
DEXTER R. MATTHEWS, DIRECTOR**

April 29, 2002

Ms. Jennifer Wendel  
NC Site Management Section Chief  
EPA Region IV Waste Division  
61 Forsyth Street, SW 11th Floor  
Atlanta, Georgia 30303

RE: Amended Site Re-Assessment Report  
Union Camp Corporation Site  
NCD 003 216 959  
Jamestown, Guilford County, North Carolina

Dear Ms. Wendel:

This letter is to amend the original Site Re-assessment Report dated May 31, 2000. In this original Site Re-assessment Report, the Union Camp Corporation site was recommended for an Expanded Site Inspection (ESI)(Reference 1) . However, the site was re-evaluated and the NC Superfund Section is recommending that the site now receive a No Further Remedial Action Planned Status (NFRAP).

The site is located on Ragsdale Road, Guilford County, North Carolina. The site consists of a single building facility on 7.9 acres of land (Reference 2, Figure 1). From 1946 to 1959, the site was owned and operated by Highland Container Company which manufactured cardboard boxes at the facility (Reference 2). In 1959, Union Camp Corporation (Union Camp) merged with Highland Container and continued the operations at the site. Materials used in cardboard box manufacturing include inks containing lead and chromium, caustic soda, a water-proofing agent called amerez resin, and the preservative formaldehyde; although, in 1978 Union Camp discontinued the use of formaldehyde in its operations (Reference 2). In 1982, approximately 2 gallons of waste oil from a switch box, suspected to contain PCBs, was allegedly disposed of on

the property; although, the location of the disposal is unknown. At least 2 fuel oil spills have occurred on the property within the last 18 years. The spills contaminated a nearby stream and the incidents were reported to the State of North Carolina (State) and were reportedly cleaned up (Reference 2).

Wastes generated from the operations at the facility resulted from the washing of glue and ink off machinery. The wastewater was discharged to the City of Jamestown sewer system without pre-treatment. Approximately 1,000 to 1,500 gallons of wastewater was generated daily (Reference 2). In addition to wastewater, sludges containing ink residue were generated and the location of the sludge disposal is unknown. Small amounts of 1,1,1-trichloroethane had been used to clean the machinery and removing pads from the printers (Reference 2). Lead and chromium inks were used for years but ink with low lead levels were used starting in 1978 or 1979 (Reference 2).

In December 1985, the NC Superfund Section conducted a Preliminary Assessment of the Union Camp site (Reference 2). A low priority was assigned to the site based on unknown disposal practices. In 1991, a Phase II Screening Site Investigation (SSI) was conducted by Greenhorne & O'Mara, Inc. and the NC Superfund Section (Reference 3). A total of 9 environmental samples were collected to characterize the site (Figure 2). Subsurface and surface soils, groundwater, and surface water/sediment samples were collected. No contaminants were documented in the soils on site. Within the sediments of the unnamed tributary that runs behind the facility, an observed release of chromium was documented downstream of the site (Figure 2, Reference 3). Groundwater samples were collected from 2 monitoring wells on site. One of the wells sampled during the SSI was considered a background well. This well is located downgradient of the facility and no data from this well will be considered as background (Figure 2). Volatile organics documented within the wells include 1,2-dichloroethene (12 ug/l), trichloroethene (14 ug/l), and tetrachloroethene (100 ug/l). Elevated levels of aluminum, barium, beryllium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, vanadium, and zinc were also documented within the wells. Based on the sampling data, the NC Superfund Section recommended that the Union Camp site "move on to the next stage of the pre-remedial process". This report also recommended a target search of nearby drinking water wells and sensitive environments as well as identifying all source areas (Reference 3).

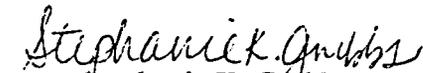
Since the SSI report was written 1992, the City of Jamestown purchases drinking water from the City of High Point's surface water intake located on High Point Lake or City Lake (Reference 4). This intake is located upstream of the Union Camp site and is unaffected by site operations. The entire City of Jamestown is supplied municipal drinking water (Reference 4). Therefore the groundwater pathway is not a pathway of concern for this re-assessment.

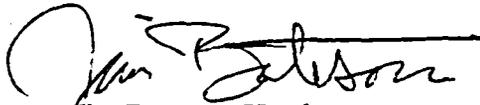
Ms. Wendel  
April 29, 2002  
Page 3

The Probable Point of Entry (PPE) is located 250 feet southeast of the site on an unnamed tributary of the Deep River ( Reference 5). This tributary, sampled during the SSI, flows for 0.38 miles to the Deep River. The Oakdale treatment plant formerly located approximately 1 mile downstream on the Deep River within the 15-mile surface water pathway is no longer used. The Deep River is a recreational fishery and a potential wetland is located at the confluence of the unnamed tributary and the Deep River (Reference 3, 5).

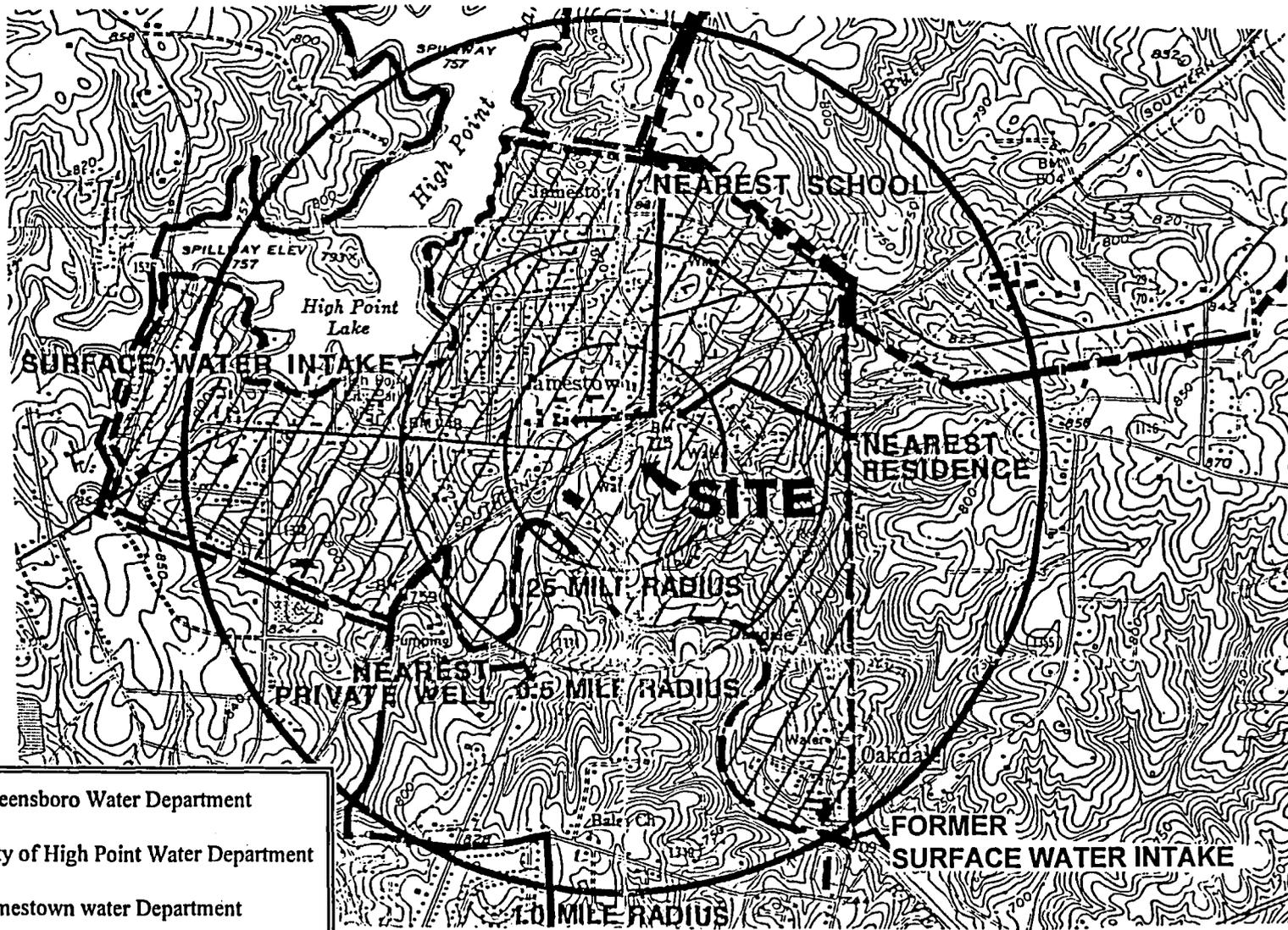
Based on the target information and the contaminants documented on site, the Union Camp site will not score 28.5 or greater to warrant further action under CERCLA. Using the data collected during the SSI and the new target information, even with a Level II release to the fishery and a Level II release to a wetland with greater than 0.1 mile of wetland frontage, the Union Camp site does not warrant further remedial action. Therefore, the NC Superfund Section is recommending that the site be reconsidered for a No Further Remedial Action Planned status. If you have any questions regarding this amended report, please contact me at (919) 733-2801 ext. 315.

Sincerely,

  
Stephanie K. Grubbs  
Hydrogeologist  
NC Superfund Section

  
Jim Bateson, Head  
Site Evaluation and Removal Branch  
NC Superfund Section

enclosure



	Greensboro Water Department
	City of High Point Water Department
	Jamestown water Department



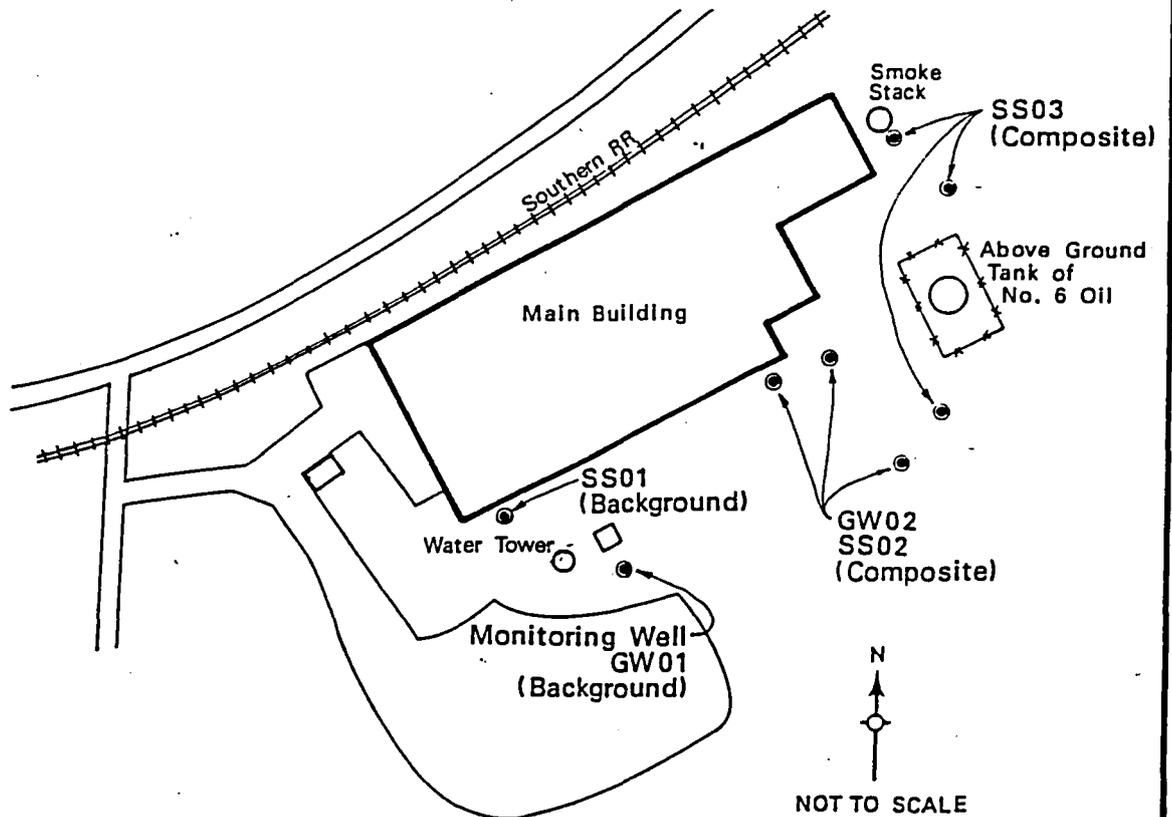
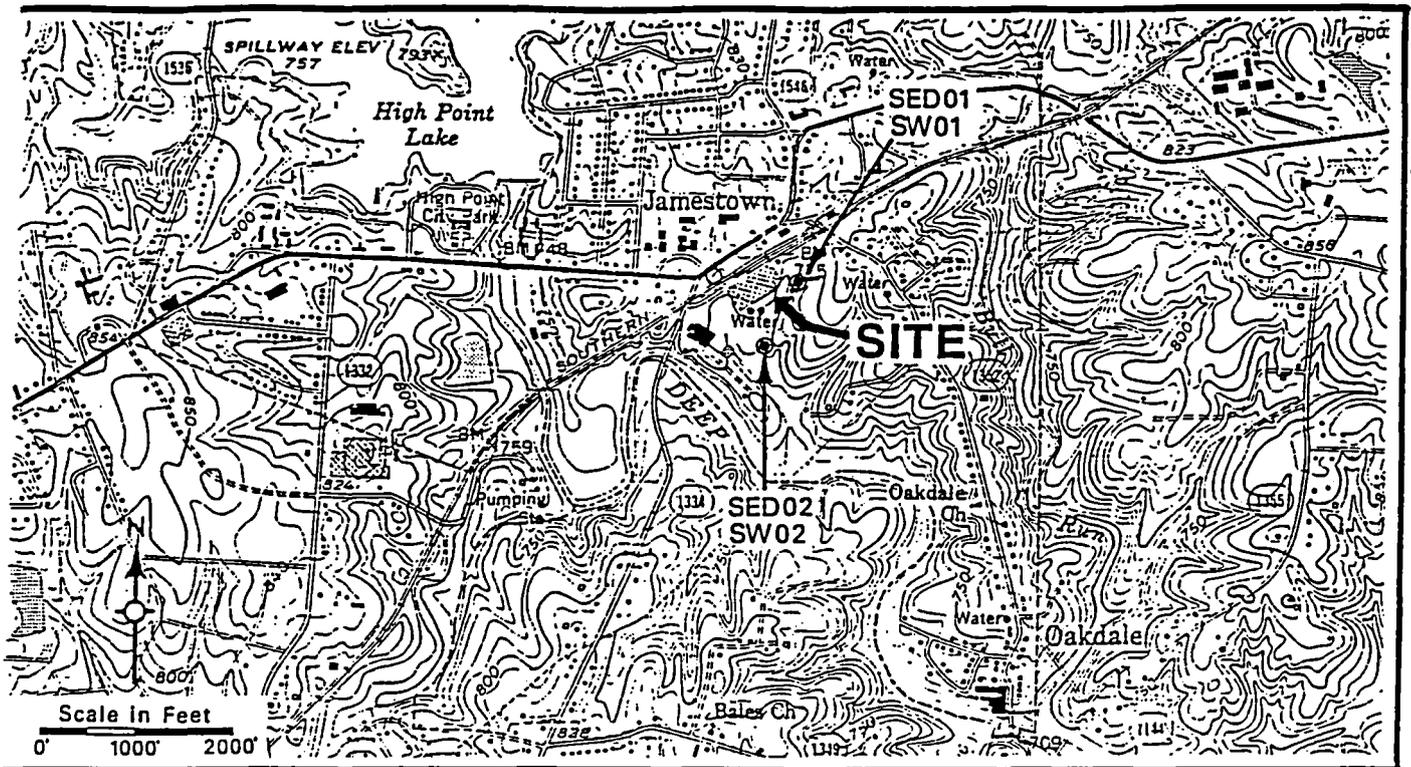
TITLE: 1-Mile Radius Map

SITE NAME: Union Camp Corporation  
LOCATION: Jamestown, Guilford County, NC  
US EPA ID #: NCD 003 216 959

DRAWN BY: S. Grubbs  
SCALE: not to scale  
DATE: 4/11/02

FIGURE

1



**UNION CAMP CORP. - JAMESTOWN**

**FIGURE 2**



ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS • PHOTOGRAMMETRISTS

**GREENHORNE & O'MARA, INC.**

9001 EDMONSTON ROAD, GREENBELT, MARYLAND 20770  
(301) 982-2800

ANNAPOLIS MD • ATLANTA GA • BALTIMORE MD • BALTIMORE MD • CHARLOTTE NC • CHICAGO IL • CINCINNATI OH • COLUMBIA SC • DALLAS TX • DENVER CO • DORTCH MD • GREENBELT MD • HANOVER VA • HONOLULU HI • JACKSONVILLE FL • JAMESTOWN VA • LITTLE ROCK AR • LOS ANGELES CA • MEMPHIS TN • NEW YORK NY • PHOENIX AZ • RICHMOND VA • TAMPA FL

**SITE LAYOUT  
SAMPLING POINTS**

NCD 003 216 959

Reference 1



NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF WASTE MANAGEMENT

May 31, 2000

JAMES B. HUNT JR.  
GOVERNOR

BILL HOLMAN  
SECRETARY

WILLIAM L. MEYER  
DIRECTOR

Ms. Jennifer Wendel  
NC Site Management Section  
US EPA Region IV Waste Division  
61 Forsyth Street, 11th Floor  
Atlanta, GA 30303

Subject: Site Re-Assessment Report  
Union Camp Corp.  
Jamestown, Guilford County, NC  
US EPA ID: NCD 003 216 959

Dear Ms. Wendel:

Enclosed is the Site Re-Assessment Report, completed by the NCDENR Superfund Section ("the State"), for Union Camp Corporation ("the Site"; US EPA ID: NCD 003 216 959). The Site is located on Ragsdale Road in the City of Jamestown. Corresponding geographic coordinates are latitude 35° 58'36" and longitude 79° 55'35" (Reference 1).

The original chronology for the Site, provided to EPA in October, 1999 has been included as Reference 2. This document provides an overview of operational history at the Site, along with a description of the assessment performed in 1991.

Phase II Screening Site Inspection (SSI).

In June, 1991, Greenhome & O'Mara, Inc. undertook a Phase II, Screening Site Investigation (SSI) on the Site. Contaminant characterization the entailed collection of multiple samples; one (1) ground water, two (2) surface sediment, two (2) surface water, two (2) surface soil, one (1) *background* surface soil, and one (1) *background* ground water. Reference 3 identifies sample locations and provides the associated inorganic and organic results, respectively.

Soil Results. (Reference 3)

UCSS01, the background soil sample collected on-site, was found to be non-



1646 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1646  
401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605  
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detect (ND) for pesticides/PCBs, BNA organics, and purgable organics. Multiple inorganics also were detected.

UCSS02, a composite soil sample collected on-site, was found to be non-detect (ND) for pesticides/PCBs, BNA organics, and purgable organics. Multiple inorganics were detected at concentrations below the below the observed release criteria\*.

UCSS03, another composite soil sample collected on-site, was also found to be ND for pesticides/PCBs, BNA organics, and purgable organics. Multiple inorganics were detected at concentrations below the observed release criteria.

#### Sediment Results. (Reference 3)

UCSED01, the background sediment sample collected upstream from the Site, contained arsenic (4.0 ppm) and lead (80.0 ppm) at concentrations exceeding both Federal and State health based surface water benchmark values.

UCSED02, a sediment sample collected downstream from the Site, contained methylene chloride (12 ppb)\*\*, arsenic (1.9 ppm), chromium (20 ppm), and lead (60 ppm) at concentrations exceeding both Federal and State health based surface water benchmark values.

Since both samples were shown to have similar constituents at comparable concentrations, a concern exists as to the location of the contamination source(s).

#### Surface Water Results. (Reference 3)

UCSW01, the background surface water sample collected upstream from the Site, contained vinyl chloride (47 ppb), acetone (474 ppb), 1,1-dichloroethane (121 ppb), 1,2-dichloroethene (707J ppb), 2-butanone (120 ppb), 1,1,1-trichloroethane (107 ppb), 1,2-dichloropropane (31 ppb), 4-methyl-2-pentanone (28 ppb), chlorobenzene (2J ppb), toluene (654 ppb), ethylbenzene (113 ppb), xylenes (434 ppb), 2,4-dimethylphenol (10K ppb), 1,2 4-trichlorobenzene (10K ppb), and Aroclor 1254 (32 ppb). on site?

UCSW02, the surface water sample collected downstream from the Site, contained 1,2-dichloroethene (35 ppb), trichloroethylene (12 ppb), and tetrachloroethane (12 ppb). All concentrations were found to exceed both Federal and State health based surface water benchmark values.

Once again, with similar contaminants at comparable concentrations verified in both

\* Per Table 2-3 (HRS; Final Rule, 1990) an "observed release" entails; 1. Sample concentration equal or exceeding three times background concentration (if background is detected), or 2. Above the sample quantitation limit (if background is non-detect).

\*\* Probable laboratory contaminant.

upstream and downstream samples, a concern exists as to the exact location of the contamination source(s).

Ground Water Results. (Reference 3)

UCGW01, the background ground water sample collected from an upgradient, on-site monitoring well, contained 1,2-dichloroethene (12 ppb), trichloroethene (14 ppb) and tetrachloroethene (100 ppb).

UCGW02, a ground water sample collected from the monitoring well east of the aboveground storage tank area, contained diethylphthalate (2J ppb). Aluminum (76000J ppb), chromium (1600J ppb), beryllium (21J ppb), lead (460J ppb), manganese (190000J ppb), vanadium (3600J ppb), and zinc (1700J ppb) were also found at concentrations exceeding Federal and State health based ground water benchmark values.

Reassessment Conclusions.

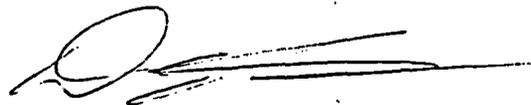
Based on the evidence cited herein; 1.) an observed release to surface water in conjunction with a heavily used fishery downstream ( $\approx 1/2$  mile), 2.) an observed release to ground water in conjunction with the absence of any off-site assessment, 3.) the potential threat to adjacent domestic supply wells serving an estimated 2700 individuals (Reference 3), and finally, 4.) the limited scope of the associated sampling events, the State recommends the Site for further action.

Should you have any questions regarding this report, please feel free to contact Joe Grant at (919) 733-2801, EXT. 297 or e-mail ([joe.g.grant@ncmail.net](mailto:joe.g.grant@ncmail.net)).

Sincerely,



Joe Grant, Environmental Engineer  
Site Evaluation & Removal Branch  
NC Superfund Section



Dan J. LaMontagne, Head  
Site Evaluation & Removal Branch  
NC Superfund Section

cc: Scott Ross, File v

cc: (letter only)  
Charlotte Jesnick

Reference 2



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

James G. Martin, Governor  
Phillip J. Kirk, Jr., Secretary

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

20 December 1985

Ms. Denise Bland  
EPA NC CERCLA Project Officer  
Air and Hazardous Material Division  
345 Courtland Street, N.E.  
Atlanta, GA 30365

**CERCLA**

SUBJECT: Preliminary Assessment Report  
Union Camp Corporation NC D003216959  
Ragsdale Road  
Jamestown, NC 27282

Dear Ms. Bland:

Enclosed please find the Preliminary Assessment report for the subject site. This priority is based on review of available data.

The Union Camp plant in Jamestown was built in 1946 by Highland Container Company. Highland Container merged with Union Camp in December 1959.

Corrigated shipping containers have been manufactured in this plant since 1946. In this process cardboard cartons are cut out, glued together, and printed. In the past the inks that were used contained metals such as lead and chromium. Utilization of an ink with low lead content was begun in about 1978 or 1979. The basic glue used is made in 660 gallon batches and contains about 1,000 lb. of corn starch and about 30 lb. of caustic soda to suppress the gel temperature of the glue. A water proof glue is also produced by adding approximately 50 to 60 lbs. of a water proofing agent to the basic glue formulation. This water proofing agent is called amerez resin and contains a small amount of formaldehyde, presumably as a preservative. In the past about a cup or two of formaldehyde was also used in the basic glue formulation as a preservative, however, the use of formaldehyde was discontinued in about 1975.

The wastes from this process result from washing down this glue and ink from machinery. This wash water is discharged to the Jamestown sewage treatment system without pretreatment. Approximately 1,000 to 1,500 gallons/day of waste water is generated. Occasionally glue containing an excess of starch will solidify before it can be used. This off spec. glue is disposed of in the city landfill as a non-hazardous solid waste.

Ms. Denise Bland  
Page 2

A small amount of 1,1,1-trichloroethane is used to clean machinery and in removing pads from the printers. All of this is lost by evaporation during use. The used rags are reused after off site laundrying.

Approximately 2 gallons of oil suspected to contain PCB's from an old switch box was disposed of approximately 3 years ago as a hazardous waste. Number 6 fuel oil also reportedly has been spilled on site and contaminated a nearby stream on at least 2 occasions in the past. The first fuel oil spill resulted from a broken pipe and the second spill resulted from a leaking underground storage tank. These fuel oil spills occurred approximately 3 or 4 years ago, were reported to state environmental officials at the time, and reportedly have been cleaned up. The plant presently uses natural gas, however, number 6 fuel oil is used as an alternative fuel.

Water from a 182 ft. deep well on the site is used to wash down the corrigation equipment. The plant is also served by city water which is used for drinking, boilers, and to wash the flexographic printing equipment.

There are no records or reports of past hazardous waste disposal or spills, other than the fuel oil spills, in the past. Because of the age of the facility and unknown past waste disposal practices a low priority is assigned.

On 19 December 1985, this Preliminary Assessment was reviewed by CERCLA Unit personnel and by the following representatives from the North Carolina Department of Natural Resources and Community Development, Division of Environmental Management: Fay Sweat, Groundwater Section and Glen Ross, Air Quality Section.

If you have any questions, please call me at (919) 733-2178.

Sincerely,



Jack Butler, Environmental Engineer  
Solid and Hazardous Waste Management Branch  
Environmental Health Section

JB/tb/0214b



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE: NC 02 SITE NUMBER: D003216959

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): Union Camp Corp.  
02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: Ragsdale Road  
03 CITY: Jamestown 04 STATE: NC 05 ZIP CODE: 27282 06 COUNTY: Guilford 07 COUNTY CODE: 41 08 CONG. DIST.: 6  
09 COORDINATES: LATITUDE: 35° 59' 30" LONGITUDE: 79° 56' 15"

10 DIRECTIONS TO SITE (Starting from nearest public road):  
The site is on US 29A/70A about 0.5 or 0.6 miles east of the High Point City Park. Access the plant from Dillon Road which crosses the RR tracks from US 29A/70A.

III. RESPONSIBLE PARTIES

01 OWNER (if known): Union Camp 02 STREET (Business, mailing, residential): 1600 Valley Road  
03 CITY: Wayne 04 STATE: NJ 05 ZIP CODE: 07470 06 TELEPHONE NUMBER: (201) 628-2000  
07 OPERATOR (if known and different from owner): Union Camp Corp. 08 STREET (Business, mailing, residential): P.O. Box 759  
09 CITY: Jamestown 10 STATE: NC 11 ZIP CODE: 27282 12 TELEPHONE NUMBER: (919) 454-1151  
13 TYPE OF OWNERSHIP (Check one):  
 A. PRIVATE  B. FEDERAL: \_\_\_\_\_ (Agency name)  C. STATE  D. COUNTY  E. MUNICIPAL  
 F. OTHER: \_\_\_\_\_ (Specify)  G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply):  
 A. RCRA 3001 DATE RECEIVED: 11/19/80 MONTH DAY YEAR  B. UNCONTROLLED WASTE SITE (RCRA 103 c) DATE RECEIVED: \_\_\_\_\_ MONTH DAY YEAR  C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION BY (Check all that apply):  
 YES DATE: \_\_\_\_\_ MONTH DAY YEAR  A. EPA  B. EPA CONTRACTOR  C. STATE  D. OTHER CONTRACTOR  
 NO  E. LOCAL HEALTH OFFICIAL  F. OTHER: \_\_\_\_\_ (Specify)  
CONTRACTOR NAME(S): \_\_\_\_\_  
02 SITE STATUS (Check one):  A. ACTIVE  B. INACTIVE  C. UNKNOWN 03 YEARS OF OPERATION: 1946 Present UNKNOWN  
BEGINNING YEAR ENDING YEAR

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED:  
Manufacture corrugated shipping containers. Mix glue and ink on site. Equipment wash down and off spec. glue are sources of waste. Glue is non-hazardous solid. Ink containing lead and chromium used until about 1978.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION:  
Wash water to city sewer. No pretreatment. No on-site disposal. City water for drinking; 182 ft. well for wash. Past spill of #6 fuel oil from leaking underground storage tank.

V. PRIORITY ASSESSMENT

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

VI. INFORMATION AVAILABLE FROM

01 CONTACT: Bill Thompson 02 OF (Agency/Organization): Union Camp - Moorestown, Tenn. 03 TELEPHONE NUMBER: (615) 581-8650  
04 PERSON RESPONSIBLE FOR ASSESSMENT: Jack Butler/Pat DeRosa 05 AGENCY: NC DHR/DHS 06 ORGANIZATION: SHW Mgmt. Br. 07 TELEPHONE NUMBER: (919) 733-2178 08 DATE: 12/03/85 MONTH DAY YEAR



High  
V

5/2



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE: NC 02 SITE NUMBER: D003216959

II. HAZARDOUS CONDITIONS AND INCIDENTS

01  A. GROUNDWATER CONTAMINATION 02  OBSERVED (DATE: 1981 & 1982)  POTENTIAL  ALLEGED  
 03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION  
 # fuel oil spilled from ruptured pipe and leaking underground storage tank on 2 occasions in the past. Spills reported to state and reportedly cleaned up.

01  B. SURFACE WATER CONTAMINATION 02  OBSERVED (DATE: 1981 & 1982)  POTENTIAL  ALLEGED  
 03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION  
 Spills discussed under groundwater contamination reportedly contaminated off site stream.

01  C. CONTAMINATION OF AIR 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
 03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION

01  D. FIRE/EXPLOSIVE CONDITIONS 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
 03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION

01  E. DIRECT CONTACT 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
 03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION

01  F. CONTAMINATION OF SOIL 02  OBSERVED (DATE: 1981 & 1982)  POTENTIAL  ALLEGED  
 03 AREA POTENTIALLY AFFECTED: Unknown (Acres) 04 NARRATIVE DESCRIPTION  
 As discussed above.

01  G. DRINKING WATER CONTAMINATION 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
 03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION

01  H. WORKER EXPOSURE/INJURY 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
 03 WORKERS POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION

01  I. POPULATION EXPOSURE/INJURY 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
 03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION



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

I. IDENTIFICATION  
01 STATE: NC 02 SITE NUMBER: D003216959

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01  J. DAMAGE TO FLORA 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
04 NARRATIVE DESCRIPTION

01  K. DAMAGE TO FAUNA 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
04 NARRATIVE DESCRIPTION (include name(s) of species)

01  L. CONTAMINATION OF FOOD CHAIN 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
04 NARRATIVE DESCRIPTION

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

01  N. DAMAGE TO OFFSITE PROPERTY 02  OBSERVED (DATE: 1981 & 1982)  POTENTIAL  ALLEGED  
04 NARRATIVE DESCRIPTION  
As discussed on previous page.

01  O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
04 NARRATIVE DESCRIPTION

01  P. ILLEGAL/UNAUTHORIZED DUMPING 02  OBSERVED (DATE: \_\_\_\_\_)  POTENTIAL  ALLEGED  
04 NARRATIVE DESCRIPTION

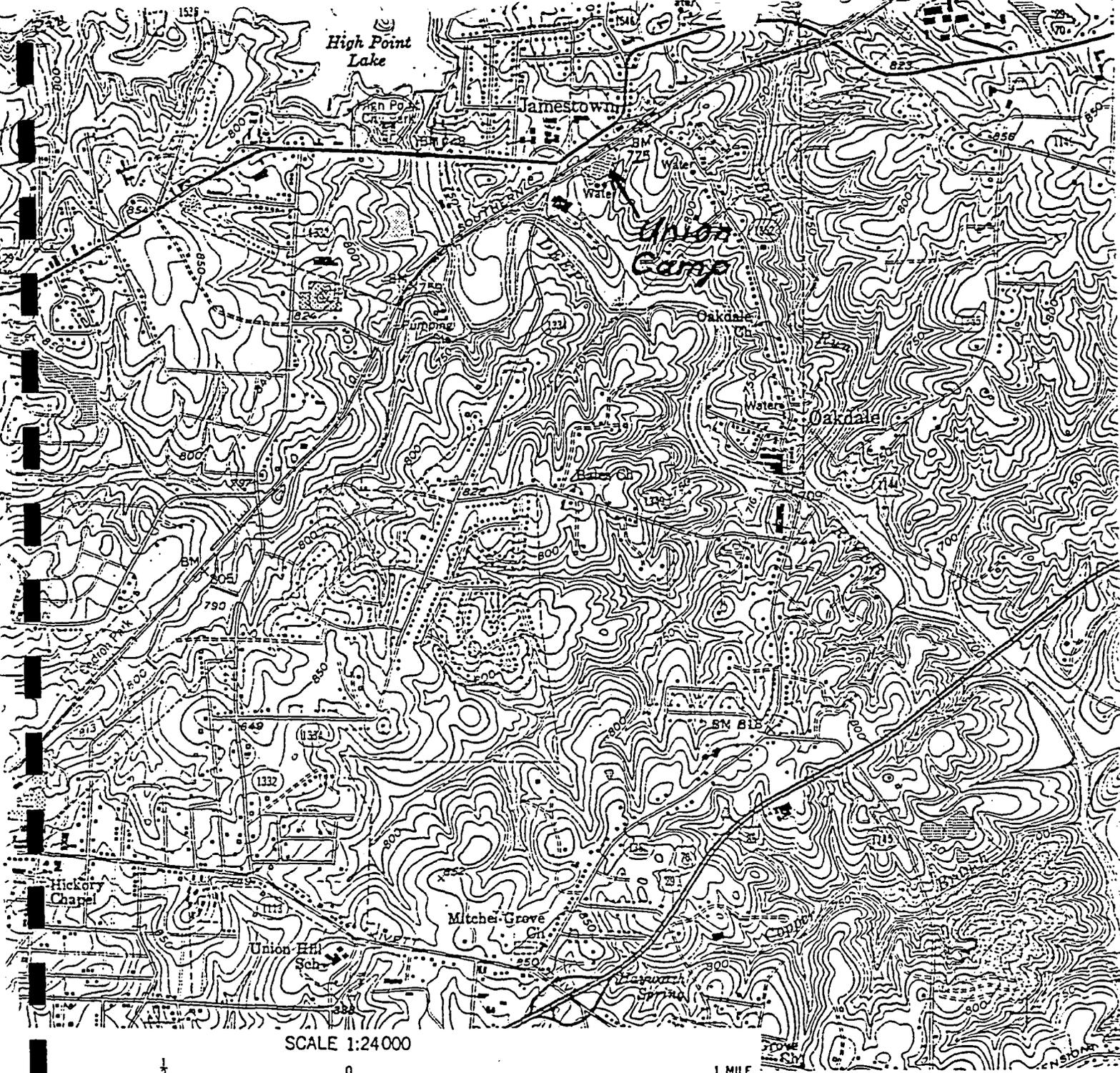
05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

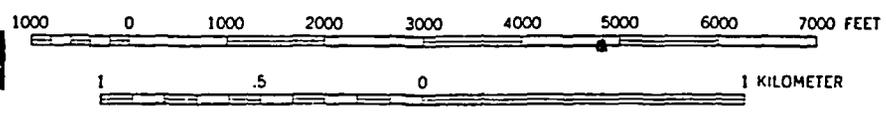
IV. COMMENTS

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

As previously sited.



SCALE 1:24 000

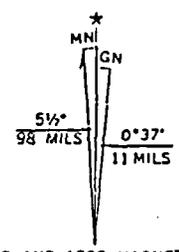


**ROAD CLASSIFICATION**

- Heavy-duty ————— Light-duty - - - - -
- Medium duty ————— Unimproved dirt - - - - -
- Interstate Route    ◻ U. S. Route    ○ State Route

CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

**HIGH POINT EAST QUADRANGLE**  
NORTH CAROLINA  
7.5 MINUTE SERIES (TOPOGRAPHIC)



**HIGH POINT EAST, N. C.**  
N3552.5—W7952.5/7.5

1950  
PHOTOREVISED 1982  
DMA 5055 IV NW—SERIES V842

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



## Reference 3



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

August 31, 1992

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

RE: Phase II, Screening Site Investigation  
Union Camp Corporation - Jamestown  
Jamestown, Guilford County, North Carolina  
NCD 003 216 959

Dear Mr. Benedikt:

Enclosed herewith is the Phase II, Screening Site Investigation (SSI) Report by Greenhorne & O'Mara, Inc. for Union Camp Corporation - Jamestown (NCD 003 216 959).

Based on the information gathered and presented in this report and on the results of the data validation, the North Carolina Superfund Section is recommending that the site move on to the next stage of the pre-remedial process.

The following discussion of the analytical results from the Phase II, SSI sampling event for the subject site, reflects data validation.

A total of nine (9) environmental samples were collected to characterize the site. To characterize whether a release of contaminants has occurred, a limited subsurface and surficial investigation was conducted to obtain ground water, surface water, soil and sediment samples for laboratory analysis. The sampling locations are shown on Appendix A, Figure 2. These samples consisted of two (2) ground water samples, two (2)

surface water samples, three (3) soil samples and two (2) sediment samples.

#### Soils

A background surface soil sample (UCSS01) was collected at the site. No Purgable Organics were reported in this sample. No Base Neutral Acid Extractables (BNA) were reported in this sample. See Table 1 for the inorganic results.

A downgradient surface soil composite sample (UCSS02) was collected from southwest of the storage tank. No Purgable Organics were reported in this sample. No BNAs were reported in this sample. No pesticides/PCBs were reported in this sample. See Table 1 for the inorganic results.

A downgradient surface soil composite sample (UCSS03) was collected northeast of the main building. No Purgable Organics were reported in this sample. No BNAs were reported in this sample. See Table 1 for the inorganic results.

No observed release to soils has been documented from the data gathered relative to the soil samples. It appears that all inorganic materials found in the soils were within the soils natural range.

#### Sediments

An upstream sediment sample (UCSED01) was taken east of the site. No Purgable Organics were found in this sample. The only BNA found was 1,2,4-trichlorobenzene at 330K ppb. No pesticides/PCBs were reported in this sample. Arsenic (4.0 ppm), barium (20 ppm) and lead (80 ppm) were the only inorganics reported in this sample.

A downstream sediment sample (UCSED02) was taken south of the site. Methylene Chloride (12C ppb) was the only Purgable Organic found in the sample. However, 1,2,4-trichlorobenzene (330 ppb) was the only BNA found in the sample. No pesticides/PCBs were reported in this sample. Arsenic (1.9 ppm), barium (50 ppm), chromium (20 ppm) and lead (60 ppm) were the only inorganics reported in this sample.

An observed release to sediments is considered to be documented from the data gathered relative to sediment samples. Chromium was detected in significant concentrations in the downgradient sample. In the past, the inks that were used contained metals such as lead and chromium.

#### Surface Water

An upstream surface water sample (UCSW01) was taken east of the site. The Purgable Organics found in this sample were vinyl

chloride (47 ppb), methylene chloride (14 ppb), acetone (474 ppb) 1,1-dichloroethane (121 ppb), 1,2-dichloroethene (707J ppb), 2-butanone (120 ppb), 1,1,1-trichloroethane (107 ppb), 1,2-dichloropropane (31 ppb), benzene (trace), 4-methyl-2-pentanone (28 ppb), toluene (654 ppb), chlorobenzene (2J ppb), ethylbenzene (113 ppb) and xylenes (434 ppb). Two BNAs were reported in this sample. They were 2,4-dimethylphenol and 1,2,4-trichlorobenzene both at 10K ppb. Aroclor 1254 (32 ppb) was the only pesticide/PCB reported in this sample. Barium (80 ppm) was the only inorganic reported in this sample.

A downstream surface water sample (UCSW02) was taken south of the site. Purgable Organics found in the sample were vinyl chloride (38 ppb), 1,1-dichloroethane (3J ppb), 1,2-dichloroethene (35 ppb), 1,1,1-trichloroethane (trace), trichloroethylene (12 ppb), tetrachloroethane (12 ppb). No BNAs were reported in this sample. No pesticides/PCBs were reported in this sample. Barium (80 ppm) was the only inorganic reported in this sample.

An observed release of trichloroethylene and tetrachloroethene to sediments is documented from the data gathered relative to surface water samples. These contaminants are not known to be specifically attributable to the site, but due to the age of the site and the number of unregulated years of operation, these releases are considered significant.

#### Ground Water

A background ground water sample (UCGW01) was collected from an on-site monitoring well. The Purgable Organics detected in the water sample were 1,2-dichloroethene (12 ppb), trichloroethene (14 ppb) and tetrachloroethene (100 ppb). No BNAs were found in the this sample. No pesticides/PCBs were reported in this sample. See Table 2 for inorganic results.

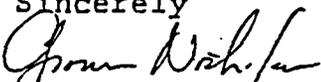
A downgradient ground water sample (UCGW02) was collected south of the storage tank area. No Purgable Organics were reported significantly above background in this sample. One BNA, diethylphthalate (2J ppb), was reported in this sample. See Table 2 for inorganic results.

An observed release to ground water has been documented from the data gathered relative to ground water samples. It appears that significant releases of aluminum, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese mercury, nickel, potassium, selenium, vanadium and zinc have occurred at the site. As can be seen from Table 2, barium, beryllium, chromium, copper, iron, lead, manganese and nickel are greater than their respective NCMCL and/or MCL. Chromium and lead were detected in significant concentrations in the downgradient sample. In the past, the inks that were used contained metals such as lead and chromium.

Based on the information gathered and presented in this report, the North Carolina Superfund Section is recommending that the site move on to the next stage of the pre-remedial process. This investigation should focus on identifying where the organic contamination in groundwater and surface water is originating and whether the inorganics are attributable to site activities. Additionally, the location of the nearest drinking water well should be identified and sampled and the nearest sensitive environment should be identified and sampled.

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

Sincerely



Grover Nicholson, Head  
Contracts Management Branch

Enclosures

TABLE 1  
UNION CAMP CORPORATION - JAMESTOWN  
NCD 003 216 959

ORGANICS	SOILS	UCSS01 (PPM)	UCSS02 (PPM)	UCSS03 (PPM)
	NATURAL RANGE (PPM)			
ALUMINUM	0.7->10%	21000	17000	11000
ANTIMONY	<1-8.8	20UR	20UR	8.8UR
ARSENIC	<0.1-73	1UJ	1UJ	2UJ
BARIUM	10-1500	180J	110J	100J
BERYLLIUM	<1-7	0.31J	0.38J	0.46J
CADMIUM	0.01-0.7	0.99UJ	0.98UJ	0.84UJ
CALCIUM	0.01-20%	2800	3600	2600
CHROMIUM	1-1000	23	28	17
COBALT	<0.3-70	18	20	11
COPPER	<1-700	51	23	24
IRON	0.01->10%	23000	26000	14000
LEAD	<10-300	5.1	3.6	8.2
MAGNESIUM	0.005-5%	7200	6900	3400
MANGANESE	<2-7000	250	330	190
MERCURY	0.01-3.4	0.26U	0.28U	0.27U
NICKEL	<3-700	14	23	29
POTASSIUM	0.005-3.7%	1900	680	1400
SELENIUM	<0.1-3.9	0.24U	0.23U	1U
SILVER	0.01-5	1.1UJ	1.2UJ	1UJ
SODIUM	0.05-5%	280U	340U	290U
THALLIUM	-	0.49U	0.47U	0.48U
TANADIUM	<7-500	68	69	160
ZINC	<5-2900	44	38	58
CYANIDE	-	5.8U	5.8U	5.4U

NOTES:

- 1) NA - NOT ANALYZED
- 2) N - PRESENCE OF CONTAMINANT PRESUMED
- 3) J - CONCENTRATION ESTIMATED
- 4) U - NON-DETECT
- 5) B - CONTAMINANT FOUND IN ASSOCIATED BLANK

TABLE 2  
 UNION CAMP CORPORATION - JAMESTOWN  
 NCD 003 216 959

INORGANICS	WATER NCMCL (PPB)	WATER MCL (PPB)	UCGW01 (PPB)	UCGW02 (PPB)
ALUMINUM	-	-	1300UJ	760000J
ANTIMONY	-	10/5	42UJ	210UJ
ARSENIC	50	-	1UJ	2UJ
BARIUM	1000	5000	30UJ	7400J
BERYLLIUM	-	1	1UJ	21J
CADMIUM	5	5	4UJ	20UJ
CALCIUM	-	-	74000J	230000J #
CHROMIUM	50	100	5UJ	1600J
COBALT	-	-	5UJ	1300J *
COPPER	1000	1300	15J	1200J
IRON	300	-	1400J	1100000J
LEAD	50	50	10J	460J
MAGNESIUM	-	-	23000J	190000J
MANGANESE	50	-	430J	63000J
MERCURY	1.1	2	0.5UJ	0.67J
NICKEL	150	100	11UJ	670J
POTASSIUM	-	-	1900UJ	7300J
SELENIUM	10	50	1UJ	6J
SILVER	50	-	5UJ	25UJ
SODIUM	-	-	21000J	34000J
THALLIUM	-	2/1	2UJ	2UJ
VANADIUM	-	-	7J	3600J
ZINC	5000	-	220J	1700J
CYANIDE	154	200	10U	10U

NOTES:

- 1) NA - NOT ANALYZED
- 2) N - PRESENCE OF CONTAMINANT PRESUMED
- 3) J - CONCENTRATION ESTIMATED
- 4) U - NON-DETECT
- 5) R - DATA UNUSABLE
- 6) B - CONTAMINANT FOUND IN THE ASSOCIATED BLANK
- 7) NCMCL - NORTH CAROLINA MAXIMUM CONTAMINANT LEVEL
- 8) MCL - FEDERAL MAXIMUM CONTAMINANT LEVEL

PHASE II  
SCREENING SITE INVESTIGATION  
FOR THE  
UNION CAMP CORPORATION - JAMESTOWN

NCD 003216959

Submitted to:

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

Prepared By:

Greenhorne & O'Mara, Inc.  
9001 Edmonston Road  
Greenbelt, Maryland 20770

November 1991  
Revised February 1992

GEROLA

## EXECUTIVE SUMMARY

Union Camp Corporation is located in Jamestown, Guilford County, North Carolina. At this facility, Union Camp Corporation has manufactured cardboard boxes since 1946 when the site was opened by the Highland Container Company. In manufacturing the cardboard boxes the facility has used inks containing lead and chromium, caustic soda, a water-proofing agent called amerez resin, and formaldehyde, presumably as a preservative. Two spills have occurred on the site, one from a leaking underground tank and one as a result of a broken pipe. These spills were reported to the state environmental officials and were reportedly cleaned up. The Union Camp facility in Jamestown was deleted as a small-quantity generator in January 1985 and ceased being a RCRA facility at that time.

The facility is on 7.9 acres of land and has a main building, industrial well, water tower and an above-ground storage tank on the site property. The surface water pathway from the site flows overland in a southerly direction until it joins a small stream that enters Deep River. There is a surface water intake at the Oakdale treatment facility which is along the 15-mile surface water pathway. The site is located within the Carolina Slate Belt of the Piedmont Physiographic Province. The saprolite and bedrock act as a single hydrologic system since there is no confining layer. The site lies on the Enon-Mecklenburg soil association which is characterized by strongly sloping, well drained soils. There are no critical habitats for Federally endangered species identified in the vicinity of the facility.

There are approximately 61,912 residents who depend on surface water from public municipal water systems for their water supply within a four mile radius. Approximately 2,706 residents within a four-mile radius rely on groundwater for their drinking water.

A Phase I Screening Site Inspection (SSI) performed by NUS Corporation on August 3, 1990, recommended that the site proceed to Phase II SSI on a high priority basis. Consequently, on June 11, 1991, Greenhorne & O'Mara, Inc. (G&O) performed a Phase II SSI for the Union Camp Corporation site in Jamestown. A total of nine (9) environmental samples were taken at the site. Results of the sampling event indicate that releases of inorganic metals has occurred on the site. Therefore, G&O recommends that the site move on to the next stage of the pre-remedial process since there is a potential health risk to area residents as a result of contaminated groundwater at the facility.

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## 1.0 INTRODUCTION

### 1.1 OBJECTIVES

Greenhorne and O'Mara, Inc. (G&O) conducted a Phase II Screening Site Inspection (SSI) at the Union Camp Corporation site located in Jamestown, Guilford County, North Carolina. The overall objective of the Phase II SSI is to provide information to support the recommendation that a site should move onto the next stage of the pre-remedial process or be designated as "no further remedial action planned (NFRAP)" under the Federal Superfund program. Additional objectives of the Phase II SSI are the following:

- 0 Identify the types of contaminants present.
- 0 Assess whether a release of hazardous substances has occurred.
- 0 Search for evidence of actual human and environmental exposure to contaminants.
- 0 Determine the likelihood of the site scoring high enough on the HRS to be recommended for further pre-remedial action under the Federal Superfund program.

The SSI builds upon data obtained during the preliminary assessment (PA) and Phase I SSI stages to further characterize problems at or near the site and to support a management recommendation.

### 1.2 SCOPE OF WORK

The scope of work for the Phase II SSI includes the following tasks:

- 0 Reviewing both EPA and state file material.
- 0 Preparing an abbreviated site-specific sampling plan and Health and Safety Plan. This task included developing a site map to illustrate proposed sampling locations, the approximate number of samples, and the type of samples to be collected.
- 0 Conducting a site reconnaissance with the NCDEHNR to determine and flag actual sampling locations based on the sampling plan and existing field conditions, and the professional judgement of the NCDEHNR and the G&O sampling team. During the site reconnaissance, G&O also developed a site layout map to illustrate all of the important site features including location of buildings, access roads, and waste source areas, as well as site drainage.
- 0 Performing field sampling activities by collecting up to five (5) environmental media samples and three (3) QA/QC samples. The five environmental samples usually included two (2) groundwater samples (with a maximum well depth of 15 feet) and three (3) surface soil samples. The three (3) QA/QC samples included one (1) water duplicate, one (1) surface soil duplicate, and one (1) trip blank.
- 0 Analyzing laboratory data and presenting the data in four summary

tables: volatile organic compounds, semi-volatile organic compounds, inorganic compounds, and pesticides/PCBs. Any releases that were observed were highlighted on the tables and discussed in the Phase II SSI report.

- 0 Preparing a Phase II SSI report that presents information gathered during the site visit, field observations, and laboratory data with respect to observed releases. Any existing data gaps will be discussed in the text. Greenhorne and O'Mara was not contracted to collect additional background information.

## 2.0 SITE CHARACTERIZATION

### 2.1 SITE BACKGROUND AND HISTORY

Union Camp Corporation, located in Jamestown, Guilford County, North Carolina, has manufactured cardboard boxes since 1946, when the plant was opened by the Highland Container Company. Highland Container Company merged with Union Camp in 1959 (Ref. 1). In making cardboard containers, the facility has over the years used such raw materials as inks containing lead and chromium, caustic soda, a water-proofing agent called amerez resin, and formaldehyde, presumably as a preservative. Union Camp stopped using formaldehyde in 1978 (Ref. 1). The utilization of inks with a low lead content began in 1982 (Ref. 2). Approximately 2 gallons of oil suspected to contain PCBs from an old switch box was disposed of in 1982, as a hazardous waste (Ref. 1). The location of the disposal is unknown. Number 6 fuel oil was also reported to have spilled on the site and contaminated a nearby stream on at least two occasions in the past. The first spill resulted from a broken pipe, and the second spill resulted from a leaking underground storage tank. The two fuel oil spills occurred approximately eight years ago, were reported to state environmental officials and were reportedly cleaned up. The plant presently uses natural gas; however, number 6 fuel oil is sometimes used as an alternative (Ref. 1).

The Union Camp Corporation filed a RCRA Part A application for status as a generator and storer of hazardous waste in November 1980 (Ref. 3). In April 1982, the facility requested withdrawal of its Part A application on the grounds of a change in plant processes (Ref. 2). In May 1982, the facility was granted deletion as a generator and storer of waste (Ref. 4). Union Camp was subsequently classified as a small-quantity generator (Ref. 5). Union Camp was deleted as a small-quantity generator in January 1985 and ceased being a RCRA facility at that time (Ref. 5).

### 2.2 SITE DESCRIPTION

#### 2.2.1 Site Location

The site is located on Ragsdale Road just south of Routes 29 and 70 (Appendix A, Figure 1). The site is found on the 7.5' quadrangle map High Point East (Ref. 6)

#### 2.2.2 Site Features

The site is a single building on approximately 7.9 acres of land. There is an industrial well and water tower on site (Ref. 1). In addition, there is a smoke stack and a fenced above-ground storage tank that contains number 6 fuel oil (Ref. 7).

#### 2.2.3 Waste Characteristics

Wastes generated from the operations at the facility resulted from washing the glue and ink off machinery. The wastewater was discharged to the Jamestown City sewer system without pretreatment (Ref. 1). Earlier

waste included a potentially hazardous sludge containing ink residues, such as lead (Ref. 2). It is not known where the sludge was disposed. A small amount of 1,1,1-trichloroethane is used to clean machinery and for removing pads from the printers. All of this is lost to evaporation during use. The rags are reused after off-site laundering. In the past, the inks that were used contained metals such as lead and chromium. Utilization of the ink with low lead content was begun in 1978 or 1979. The basic glue used is made in 660 gallon batches and contains about 1,000 pounds of corn starch and about 30 pounds of caustic soda to suppress the gel temperature of the glue. A waterproof glue is also produced by adding approximately 50 to 60 pounds of a waterproofing agent to the basic glue. This water proofing agent is called amerez resin and contains a small amount of formaldehyde. Previously, formaldehyde was also used in the basic glue formulation as a preservative. The use of formaldehyde was discontinued in 1975 (Ref. 1). Approximately 1,000 to 1,500 gallons per day of waste water is generated from the process of washing down the glue and ink from machinery. Occasionally, glue containing an excess of starch will solidify before it can be used. This off spec. glue is disposed of in the city landfill as a non-hazardous solid waste (Ref. 1).

## 3.0 ENVIRONMENTAL SETTING

### 3.1 TOPOGRAPHY

The site slope is approximately two percent tending toward the southeast. The site is approximately 750 feet above mean sea level (Appendix A, Figure 3).

### 3.2 SURFACE WATER

#### 3.2.1 Overland Drainage and Potentially Affected Surface Water Bodies

The surface water pathway from the Union Camp Corporation flows overland in a southerly direction for 250 feet until it joins a small stream. The unnamed tributary flows approximately .38 miles to the Deep River. The fifteen mile pathway expires on the Deep River. The Oakdale treatment facility, the only surface water intake on the 15-mile surface water pathway, is located 1.04 miles downstream from the point where the tributary joins the Deep River. The Deep River has recreational fishing (Refs. 6 and 20).

#### 3.2.2 Climatology

The mean annual precipitation is approximately 45 inches, and the mean annual lake evaporation is approximately 41 inches (Ref 9). Therefore, the net annual rainfall for this area is 4 inches. The 2-year, 24-hour rainfall is approximately 3.8 inches (Ref. 10).

### 3.3 GROUND WATER

#### 3.3.1 Hydrogeology

Jamestown is located within the Carolina Slate Belt of the Piedmont Physiographic Province (Refs. 11, 12, and 13). The area is characterized by gently rolling topography with moderately steep slopes along the drainageways (Ref. 14). The geology of Jamestown consists of folded and fractured metamorphic bedrock overlain nearly everywhere by residual material called saprolite (Refs. 13 and 15). The saprolite ranges in thickness from a few feet near rock outcrops to more than 100 feet in interstream areas with an average thickness of 30 feet on most hills and ridges (Refs. 16 and 15). The metamorphosed granitic rock that the site lies on is predominantly medium to coarse-grained, equigranular to porphyritic quartz to monzonite and granodionite with lesser amounts of granite (Ref. 12).

#### 3.3.2 Aquifer Use

The saprolite and bedrock act as a single hydrologic system, since there is no confining layer. In the saprolite, groundwater occurs within intergranular pore spaces (Ref. 15). In the bedrock, groundwater occurs

primarily within joints, fractures, and other secondary porosity openings (Ref. 15). The saprolite has a hydraulic conductivity of less than  $1 \times 10^{-7}$  cm/sec and acts as a reservoir that feeds water into the underlying bedrock (Ref. 15). It is also the unit from which most domestic water supplies in the region are obtained (Ref. 13). The water is supplied to both dug and bored wells that are completed within the saprolite at, and just below, the water table (Ref. 13). The depth to the water table in the facility area is about 15 feet below land surface (Ref. 16).

### 3.3.3 Soils

The site area is on the Enon-Mecklenburg soil association which is characterized by strongly sloping, well drained soils that have a sandy clay loam, clay and clay loam subsoil (Ref. 14). The site itself lies on Enon-Urban soils which are well drained and found on side slopes and broad interstream divides. The urban land part of this soil consists of disturbed areas where the original soil has been changed to the extent that most soil properties have been so altered that a soil series is not recognized (Ref. 14). The permeability of the Enon-Urban soils ranges from 0.2 in/hr ( $1.4 \times 10^{-4}$  cm/sec) to 6.0 in/hr ( $4.2 \times 10^{-3}$  cm/sec) (Ref. 14).

### 3.4 WATER SUPPLY

One mile south of Deep River is the Oakdale treatment facility, the location of the only surface water intake on the 15-mile surface water pathway. This intake serves the city of Jamestown, which maintains connections for 1,000 residences and 150 businesses. The city also purchases water from the Greensboro and High Point water departments, which have surface water intakes upstream or on different water routes, namely the Deep River and High Point Lake (Refs. 6, 18 and 20). A 182-foot deep well on the Union Camp site is used to wash down the corrugation equipment. The plant is also served by city water which is used for drinking, boilers, and to wash flexographic printing equipment (Ref. 1).

Groundwater use in the area is sporadic, with the majority of wells found to the south and southeast of the facility where there is no municipal service.

The following is a breakdown of the estimated population believed to be relying on domestic wells within a 4-mile radius of the Union Camp site:

<u>Radius</u>	<u># of Houses</u>	<u>Multiplier</u>	<u>Pop/Radii</u>	<u>Cumulative Pop.</u>
1/4-mile	0	2.44	0	0
1/2-mile	0	2.44	0	0
1-mile	79	2.44	193	193
2-mile	279	2.44	681	874
3-mile	351	2.44	856	1730
4-mile	400	2.44	976	2706

This population was determined by counting the number of houses not served by the municipal water supply in each distance ring. The total number of houses were then multiplied by the U.S. Census Bureau's 1990 figure for persons per household in Guilford County to derive a groundwater population for each radius (Refs. 6 and 19).

### 3.5 POPULATION DISTRIBUTION

The total population within a 4-mile radius is approximately 64,618. The population within each radius ring is listed below:

Radius	# of Houses	Pop/Radii	City of High Point	Cumulative Pop.
1/4-mile	34	83	0	83
1/2-mile	135	329	0	412
1-mile	158	386	0	798
2-mile	627	1530	8888	11216
3-mile	848	2069	20423	33708
4-mile	4143	10109	20801	64618

The population within each radius ring was determined by multiplying the number of houses counted on the topographic maps by the estimated number of persons per household in Guilford County and then planimentering the area of the City of High Point within the four-mile radius and multiplying that by the persons per square mile for the City of High Point (1,891 persons per square mile) (Refs. 17, 19). The nearest residence is approximately one tenth of a mile northeast of the site.

### 3.6 LAND USE

The site is bordered on the north by the Southern Railroad, and on the east by a chemical facility, Chem Central. The south side of the site is heavily wooded down to the Deep River, located an overland distance of approximately 0.3 miles away. On the west side is Dillon Road and a convenience store. Approximately 0.15 mile northeast of Union Camp Corporation is the Jamestown Elementary School, and 0.6 mile to the east is High Point City Park (Refs. 7 and 20).

### 3.7 SENSITIVE ENVIRONMENTS

There are no critical habitats identified in the area of the facility (Ref. 21). Two state-designated threatened species, the Greensboro burrowing crayfish (Cambarus cataquius) and the plant Nestronia umbellula are found in Guilford County (Ref. 22). There are no critical habitats of Federally listed endangered species in Guilford County (Ref. 23).

## 4.0 FIELD INVESTIGATION

### 4.1 DESCRIPTION OF SAMPLES AND SAMPLE LOCATIONS

A total of nine (9) environmental samples were collected to characterize the site. To determine whether a release of contaminants has occurred, limited subsurface and surficial investigation was recommended to obtain groundwater, surface water, and sediment samples for laboratory analysis. The locations of the sampling points were originally proposed in an abbreviated sampling plan prepared by G&O; however, the NCDEHNR made the final recommendations during the sampling effort conducted on June 11, 1991. Therefore, the final sampling locations as shown in Appendix A, Figure 2 reflects the decision of the NCDEHNR staff.

To determine whether contaminants were released into the environment, three (3) surface soil samples, and two (2) groundwater samples were obtained. A representative of the NCDEHNR collected two (2) surface water and two (2) sediment samples. All the samples collected on the site were contained, preserved and held in accordance with the Standard Operating Procedures (SOP) (Ref. 24).

### 4.2 FIELD MEASUREMENTS

Field measurements for groundwater samples include pH, temperature, and conductivity. These values are listed in Table 1.

TABLE 1

FIELD MEASUREMENTS FOR GROUNDWATER SAMPLES  
FOR UNION CAMP CORPORATION  
JAMESTOWN, GUILFORD COUNTY, NORTH CAROLINA  
PHASE II

<u>SAMPLE CODE</u>	<u>pH</u>	<u>TEMPERATURE (°C)</u>	<u>CONDUCTIVITY (umhos/cm)</u>
UCGW01		18.3	0.666
UCGW02		19.1	0.820

### 4.3 ANALYTICAL RESULTS

Upon completion of the sampling effort, samples were taken to Industrial and Environmental Analysts, Inc. (IEA) in Research Triangle Park, North Carolina for analysis (see Volume II). Level IV Routine Analytical Service (RAS) Contract Laboratory Program (CLP) data packages and associated narratives were assembled for this project by IEA. At the request of the EPA, the data was validated, but was not available for this report. Samples collected by NCDEHNR include UCSED01, UCSED02, UCSW01, and UCSW02. These samples were analyzed by the North Carolina State Laboratory of Public Health. The results of the sample analyses are summarized in Table 2A and 2B (Appendix A) and discussed below.

DOWNGRADIENT GROUNDWATER SAMPLE COLLECTED FROM AREA SOUTH OF THE ABOVE-GROUND STORAGE TANK (UCGW02) - A down gradient groundwater sample was collected from a hand-augured temporary well, from the area south of the above-ground storage tank and east of the main building. No volatile organic compounds (VOCs) or semivolatile organic compounds (BNAs) were identified at levels significantly above the CRDL. The following metals were identified at levels significantly above CRDL: aluminum (760000J ppb), barium (7400J ppb), beryllium (21J ppb), calcium (230000J ppb), chromium (1600J ppb), cobalt (1300J ppb), copper (1200J ppb), iron (1100000J ppb), lead (460J ppb), magnesium (190000J ppb), manganese (63000J ppb), mercury (.67J ppb), nickel (670J ppb), potassium (7300J ppb), selenium (6J ppb), vanadium (3600J ppb) and zinc (1700J ppb). The following contaminants exceed the U.S. EPA's Drinking Water Regulations and Health Advisories Maximum Contaminant level and/or the North Carolina Maximum Contaminant Level: barium, beryllium, chromium, copper, iron, lead, manganese and nickel.

DOWNGRADIENT SOIL SAMPLE COMPOSITE COLLECTED SOUTHWEST OF THE ABOVE-GROUND STORAGE TANK (UCSS02) - A down gradient soil sample was collected from several locations southwest of the above-ground storage tank and east of the main building. No VOCs or BNAs were detected at concentrations significantly above the CRDL. Several inorganic metals were positively identified, but none were at levels significantly above the background levels.

DOWNGRADIENT SOIL SAMPLE COMPOSITE COLLECTED NORTHEAST OF THE MAIN BUILDING (UCSS03) - A downgradient soil sample was collected near the northeast side of the main building in the vicinity of the above-ground storage tank and the smock stack. No VOCs or BNAs were detected at concentrations significantly above the CRDL. Several inorganic metals were positively identified, but none were at levels significantly above the background levels.

DOWNGRADIENT SEDIMENT SAMPLE COLLECTED SOUTH OF THE SITE (UCSED02) - A downgradient sediment sample was collected south of the site. Methylene chloride (12C ppb) was the only VOC found and 1,2,4-trichlorobenzene (330K ppb) was the only BNA found. Chromium (20 ppm) was the only inorganic reported in significant concentrations in this sample. There were no pesticides/PCBs found in this sediment sample.

DOWNGRADIENT SURFACE WATER SAMPLE COLLECTED SOUTH OF THE SITE (UCSW02) - A downgradient surface water sample was collected south of the site. The VOCs found were vinyl chloride (38 ppb), 1,1-dichloroethane (3J ppb), 1,2-dichloroethene (35 ppb), 1,1,1-trichloroethane (trace), trichloroethylene (12 ppb), and tetrachloroethene (12 ppb). There were no pesticides/PCBs found in this surface water sample.

In summary, groundwater appears to have releases of hazardous contaminants. Groundwater appears to be contaminated with the metals aluminum, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, vanadium, and zinc. Barium, beryllium, chromium, copper, iron, lead, manganese and nickel exceeded the U.S. EPA's health-based benchmarks and/or North Carolina Maximum Contaminant Levels. It should be noted that the upgradient groundwater sample collected from an on-site monitoring well had elevated concentrations 1,2-dichloroethene (12 ppb), trichloroethene (14 ppb), tetrachloroethene (100 ppb). The presence of these contaminants may indicate that either there is an off-site source of contamination or the monitoring well may not be located hydrologically upgradient and therefore may be affected by the site. Soils on the site did not appear to have significant concentrations of contaminants. Surface water south of the site appears to be contaminated with trichloroethylene and tetrachloroethene.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analytical results of the sampling event at the Union Camp facility, the following areas appear to have had environmental releases of hazardous contaminants that are assumed to be associated with the facility's operations:

- o Groundwater in the area of the above-ground storage tank appears to be contaminated with barium, beryllium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, vanadium and zinc. The concentrations of barium, beryllium, chromium, copper, iron, lead, manganese and nickel exceeded the U.S. EPA's health - based bench marks.
- o Surface water south of the site appears to be contaminated with trichloroethylene and tetrachloroethene.

There are approximately 2,706 residents within a four-mile radius of the site that rely on domestic wells for their drinking water. In addition, there are a total of 64,618 people living within a four-mile radius of the facility. Due to the fact that groundwater is contaminated in this area with inorganic metals, G&O is recommending that this site proceed to the next stage of the pre-remedial process. Both lead and chromium have been documented to have been used extensively on the site. Both of these contaminants exceed the U.S. EPA's health-based benchmarks. If any near-by domestic wells have been contaminated by these metals then the health effects could be severe.

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JAMESTOWN, NORTH CAROLINA  
EPA REFERENCE ID NUMBER NCD003216959

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Reference 4

**MEMORANDUM**

Date: April 10, 2002

From: Stephanie K. Grubbs  
Hydrogeologist *Stephanie K Grubbs*

To: File

RE: Drinking water and former surface water intake along the 15-mile  
surface water pathway  
Union Camp Corp., Guilford County, Greensboro

In May 2000, I spoke with Bill Frazier, Water Quality Management Laboratory Supervisor, of the City of High Point (336-883-3167). He stated that the intake for the City of High Point water supply has not changed since 1992. The City of High Point has two surface water intakes. The primary intake is located off the East Fork Branch of the Deep River. The back-up intake, used in case of spills from the tank farms and other incidences, is located on the West Fork Branch of the Deep River. Both of these intakes are located upstream of the Union Camp site and are not affected by the site. He also stated that approximately 78,000 people drink water from these intakes. Mr. Frazier also stated that the Cities of Jamestown and Archdale purchase water from the City of High Point.

I also contacted Mr. Wynne Underhill (336-454-1914) with the City of Jamestown. Mr. Underhill stated that 2,028 customers or 4,664 people drink the water obtained from City of High Point and from the City of Greensboro. He also stated that 95% of the people use the City of High Point water and 5% (mostly county residences) use the City of Greensboro water. He stated that the intake located downstream on the Deep River was not used for municipal drinking water anymore.

Reference 5

# NATIONAL WETLANDS INVENTORY

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