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NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF WASTE MANAGEMENT

May 31, 2000

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SECRETARY

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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-



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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).

UCSW02, the surface water sample collected downstream from the Site, contained 1,2-dichloroethene (35 ppb), trichlorethylene (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).

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

cc: (letter only)
Charlotte Jesnick

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

SITE NAME: Union Camp Corp CERCLIS #: WCD 003 216 956

AKA: _____ SSID: _____

ADDRESS: Ragsdale Road

CITY: James Town STATE: NC ZIP CODE: 27282

SITE REFERENCE POINT: Main Building

USGS QUAD MAP NAME: High Point East TOWNSHIP: _____ N/S RANGE: _____ E/W

SCALE: 1:24,000 MAP DATE: _____ SECTION: _____ 1/4 _____ 1/4 _____ 1/4

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

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

LONGITUDE: 79° 52' 30" LATITUDE: 35° 52' 30"

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

LONGITUDE: 79° 52' 30" LATITUDE: 35° 57' 30"

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 175

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

$A \times 0.3304 = 57.92''$

C) EXPRESS IN MINUTES AND SECONDS (1' = 60"): 00' 56.37"

D) ADD TO STARTING LATITUDE: 35° 57' 30." - 1' 36.37" =

SITE LATITUDE: 35° 58' 36.37"

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 560

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

$A \times 0.3304 = 185.02''$

C) EXPRESS IN MINUTES AND SECONDS (1' = 60"): 3' 05.00"

D) ADD TO STARTING LONGITUDE: 79° 52' 30." - 3' 05.00" =

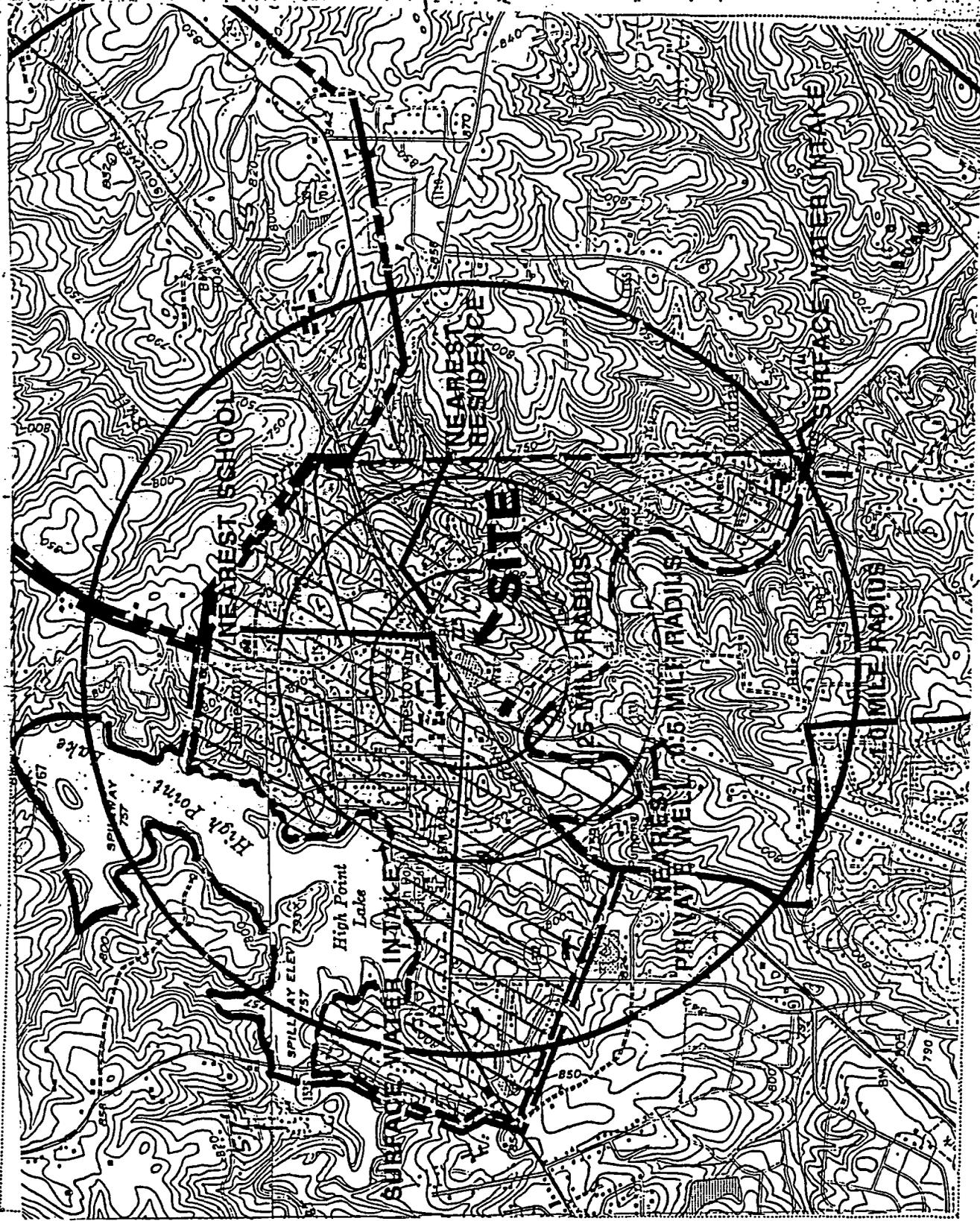
SITE LONGITUDE: 79° 55' 35.00"

INVESTIGATOR: J. J. [Signature]

DATE: 5/20/00

SITE NAME: Union Camp

NUMBER: NCD:003-216-939



TOPOGRAPHIC MAP QUADRANGLE NAME: High Point - West SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 15-MINUTE GRID:

LATITUDE: 35° 58' 36" LONGITUDE: 78° 55' 35"

Union Camp Corp., NCD 003 216 959
Jamestown, Guilford County, NC

The facility began manufacturing cardboard boxes in 1946 as Highland Container Company. In 1959 Highland Container Company merged with Union Camp. In making cardboard containers, the facility has used such raw materials as inks containing lead and chromium, caustic soda, and formaldehyde. Union Camp stopped using formaldehyde in 1978 and began using low lead inks in 1982.

Wastes generated from 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. Earlier waste included sludges containing ink residues. The disposal location for the sludge is unknown. The November 1991 Screening Site Investigation (SSI), performed by Greenhorne & O'Mara, Inc., reported that the facility was using 1,1,1-trichloroethane on rags to clean machinery and remove pads from the printers. It was reported that all of this was lost to evaporation during use.

During the 1991 SSI, a background surface water sample was collected from a drainage feature east of the site. This sample contained elevated levels of vinyl chloride (47 ppb), 1,1-dichloroethane (121 ppb), 1,2-dichloroethene (707J ppb), 1,1,1-trichloroethane (107 ppb), toluene (654 ppb), ethylbenzene (113 ppb), xylenes (434 ppb), and Aroclor 1254 (32 ppb).

A downstream sample collected from this same drainage feature contained elevated levels of vinyl chloride (38 ppb), 1,1-dichloroethane (3J ppb), 1,2-dichloroethene (35 ppb), 1,1,1-trichloroethane (trace), trichloroethylene (12 ppb), and tetrachloroethane (12 ppb).

According to the site diagram, this drainage feature appears to run perpendicular to the flow of groundwater at the site. This gives a poor representation of background conditions. The drainage feature carries runoff approximately 1000 feet to a tributary of Deep River. This tributary runs approximately 1000 feet to a wetland area at the convergence with Deep River. It is not clear if the tributary is a fishery. Deep River is a known fishery.

Groundwater samples collected at the site contained elevated levels of 1,2-dichloroethene (12 ppb), trichloroethene (14 ppb), and tetrachloroethane (100 ppb).

Municipal water service is available to the site and surrounding areas within a half mile. However, there is an on-site well that is used to wash equipment.

Based on the information collected during the 1991 SSI, an observed releases to groundwater and to the surface runoff drainage feature have occurred. Further investigation needs to be performed to insure that surface waters have not been impacted and that no drinking water wells have been affected. It is recommended that this site proceed to the ESI stage.



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.

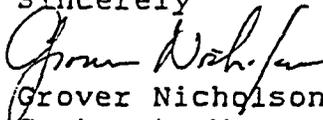
A downgradient ground water sample (UCGW02) was collected south of the storage tank area. No Purgable Organics were reported significantly above background in this sample. One BNA, diethylphthalate (2J ppb), was reported in this sample. See Table 2 for inorganic results.

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

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

CERCLA

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 1×10^{-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 (1.4×10^{-4} cm/sec) to 6.0 in/hr (4.2×10^{-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

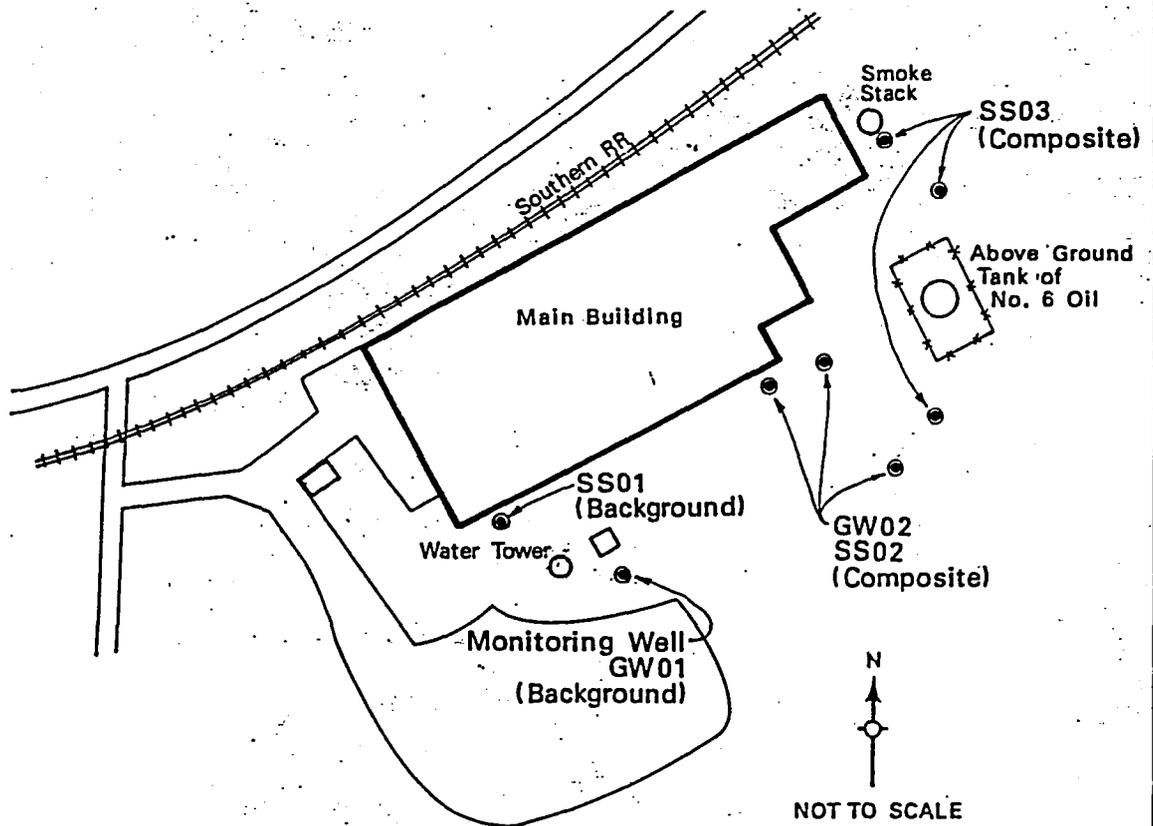
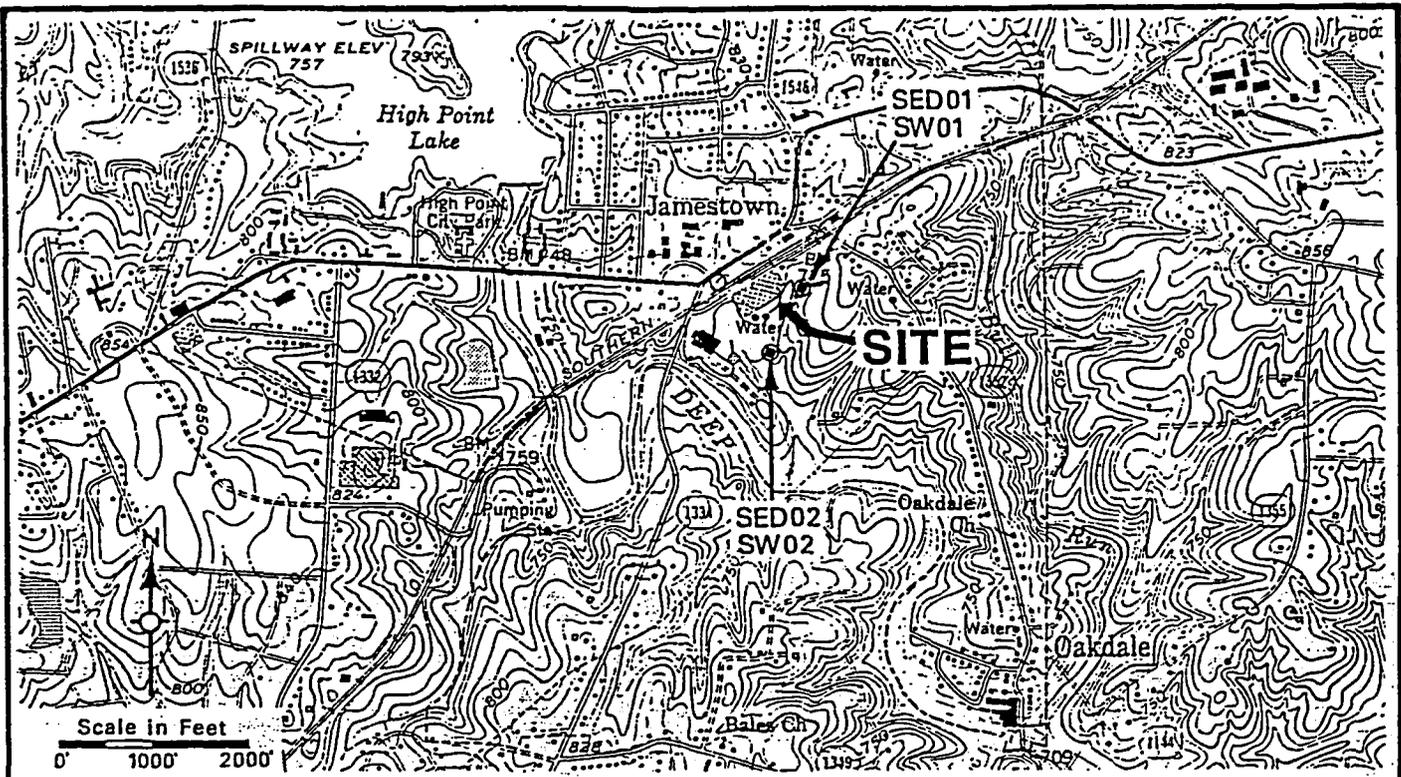
The population within each radius ring was determined by multiplying the number of houses counted on the topographic maps by the estimated number of persons per household in Guilford County and then planimetering the area of the City of High Point within the four-mile radius and multiplying that by the 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).



UNION CAMP CORP. - JAMESTOWN

FIGURE 2



ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS • PHOTOGRAMMETRISTS

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**SITE LAYOUT
SAMPLING POINTS**

NCD 003 216 959

TABLE 2A
 UNION CAMP CORPORATION - JAMESTOWN
 NCD 003 216 959

INORGANICS	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
BARIIUM	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
VANADIUM	<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 2A
 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

TABLE 2A
SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959
SAMPLE IDENTIFICATION

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters			Background Groundwater	Downgradient Groundwater	Background Surface Soil	Downgradient Surface Soil	Downgradient Surface Soil
			Sample from On-Site Monitoring Well	Sample - South of Storage Tank	Trip Blank	Composite Near Water Tower	Composite/SW of Storage Tank	Sample N.E. of Main Building		
			Date Collected	6/11/91	6/11/91	6/11/91	6/11/91	6/11/91	6/11/91	
			Laboratory	IEA	IEA	IEA	IEA	IEA	IEA	
			Well Depth (feet)	130						
			G&O Sample ID No.	UCGW01	UCGW02	UCTB01	UCSS01	UCSS02	UCSS03	
			EPA Case No.	A2501	A2502	A2503	A2504	A2505	A2506	
			Case No.	1041-26	1041-26	1041-26	1041-26	1041-26	1041-26	
			Compounds Detected							
			VOLATILE ORGANICS							
			Matrix	Water	Water	Water	Soil	Soil	Soil	
			Level	Low	Low	Low	Low	Low	Low	
			% Moisture	100	100	100	13	16	11	
			Concentration Units	ug/l	ug/l	ug/l	ug/kg	ug/kg	ug/kg	
Gas	A,D,G,I	OCC	chloromethane							
Gas	A,D,G,I	OCC	bromomethane							
Gas	A,D,G,I	OCC	vinyl chloride							
Gas	A,D,G,I	OCC	chloroethane							
Liquid	A,D,H,I	SOL	methylene chloride							
Liquid	E,H,I,A	SOL	acetone							
Liquid	A,H,I	SOL	carbon disulfide							
Liquid	A,D,G,I	SOL	1,1-dichloroethene							
Liquid	A,D,H,G	SOL	1,1-dichloroethane							
Liquid	A,D,G	SOL	1,2-dichloroethene (total)	12						
Liquid	A,D	SOL	chloroform							
Liquid	A,D,G	SOL	1,2-dichloroethane							
Liquid	A,E,G	SOL	2-butanone (MEK)							
Liquid	A,D	SOL	1,1,1-trichloroethane							

TABLE 2A

SUMMARY OF CHEMICAL ANALYSES FOR
 UNION CAMP CORPORATION - JAMESTOWN
 NCD 003216959
 SAMPLE IDENTIFICATION

	Background	Downgradient	Background	Downgradient	Downgradient
	Groundwater	Groundwater	Surface Soil	Surface Soil	Surface Soil
	Sample from	Sample - South	Composite	Composite/SW	Sample N.E.
Sample Collection Information	On-Site	of Storage	Near Water	of Storage	of Main
and Parameters	Monitoring Well	Tank	Tower	Tank	Building
		Trip			
		Blank			

Physical State	Waste Characteristics*	Category	VOLATILE ORGANICS (CONT.)		
Liquid	A,D	SOL	carbon tetrachloride		
Liquid	A,D,G	SOL	vinyl acetate		
Liquid	A,D	OCC	bromodichloromethane		
Liquid	A,D,G	SOL	1,2-dichloropropane		
Liquid	A,D,G	SOL	cis-1,3-dichloropropene		
Liquid	A,D,G,B	SOL	trichloroethene	14	
Liquid	A,D	OCC	dibromochloromethane		
Liquid	A,D	SOL	1,1,2-trichloroethane		
Liquid	A,G	SOL	benzene		
Liquid	A,D,G	SOL	trans-1,3-dichloropropene		
Liquid	A,D	SOL	bromoform		
Liquid	A,E,G	SOL	4-methyl-2-pentanone		
Liquid	A,E,G	SOL	2-hexanone		
Liquid	A,D	SOL	tetrachloroethene	100	
Liquid	A,G,E	SOL	toluene		
Liquid	A,D,E	SOL	1,1,2,2-tetrachloroethane		
Liquid	A,D,G	SOL	chlorobenzene		
Liquid	A,G	SOL	ethylbenzene		
Liquid	A,D,G	OCC	styrene		
Liquid	A,G	SOL	xylenes (total)		
			Tentatively Identified Compounds		
			Unknown (Total)		8JN
			C11 Hydrocarbon		9JN

TABLE 2A

SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959
SAMPLE IDENTIFICATION

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters	Background Groundwater Sample from On-Site Monitoring Well	Downgradient Groundwater Sample - South of Storage Tank	Trip Blank	Background Surface Soil Composite Near Water Tower	Downgradient Surface Soil Composite/SW of Storage Tank	Downgradient Surface Soil Sample N.E. of Main Building
			SEMIVOLATILE ORGANICS (CONT.)						
Liquid	A,D,B	OCC	hexachlorobutadiene			NA			
Solid	A,D	OCC	4-chloro-3-methylphenol			NA			
Liquid	A,D	OCC	2-methylnaphthalene			NA			
Liquid	A,D,B	OCC	hexachlorocyclopentadiene			NA			
Solid	A,D	OCC	2,4,6-trichlorophenol			NA			
Solid	A,D	OCC	2,4,5-trichlorophenol			NA			
Liquid	A,D	OCC	2-chloronaphthalene			NA			
Solid	A,D	OCC	2-nitroaniline			NA			
Liquid	A,D	OCC	dimethylphthalate			NA			
Solid	A,D	OCC	acenaphthylene			NA			
Solid	A,D	OCC	2,6-dinitrotoluene			NA			
Solid	A,D	OCC	3-nitroaniline			NA			
Solid	A,D	OCC	acenaphthene			NA			
Solid	A,D,G	OCC	2,4-dinitrophenol			NA			
Solid	A,D	OCC	4-nitrophenol			NA			
Solid	A,D	OCC	dibenzofuran			NA			
Solid	A,D	OCC	2,4-dinitrotoluene			NA			
Liquid	A,D	OCC	diethylphthalate	[11U]	[2J]/U	NA			
	A,D	OCC	4-chlorophenyl-Phenylether			NA			
Solid	A,D	OCC	fluorene			NA			
Solid	A,D,E	OCC	4-nitroaniline			NA			
Solid	A,D	OCC	4,6-dinitro-2-methylphenol			NA			
Solid	A,D	OCC	n-nitrosodiphenylamine			NA			
Liquid	A,D	OCC	4-bromophenyl-phenylether			NA			
Solid	A,D	OCC	hexachlorobenzene			NA			
Solid	A,D	OCC	pentachlorophenol			NA			

TABLE 2A
SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959
SAMPLE IDENTIFICATION

Physical State		Waste Characteristics*	Category	Sample Collection Information and Parameters	Background Groundwater Sample from On-Site Monitoring Well	Downgradient Groundwater Sample - South of Storage Tank	Trip Blank	Background Surface Soil Composite Near Water Tower	Downgradient Surface Soil Composite/SW of Storage Tank	Downgradient Surface Soil Sample N.E. of Main Building
SEMIVOLATILE ORGANICS (CONT.)										
Solid		A,C	OCC	phenanthrene			NA			
Solid		A,D	OCC	anthracene			NA			
Solid		A,D	OCC	carbazole			NA			
Liquid		A,D	OCC	di-n-butylphthalate	[3J]	U/[4J]	NA	[380U]		[110J]
Solid		A,D	OCC	fluoranthene			NA			
Solid		A,D	OCC	pyrene			NA			
Liquid		A,D	OCC	butylbenzylphthalate			NA			
		A,D	OCC	3,3-dichlorobenzidine			NA			
Solid		A,D	OCC	benzo[a]anthracene			NA			
Solid		A,D	OCC	chrysene			NA			
Liquid		A,D	OCC	bis(2-ethylhexyl)phthalate			NA			
Liquid		A,D	OCC	di-n-octylphthalate			NA			
Solid		A,D	OCC	benzo[b]fluoranthene			NA			
Solid		A,D	OCC	benzo[k]fluoranthene			NA			
Solid		A,D,K,L	OCC	benzo[a]pyrene			NA			
Solid		A,D	OCC	indeno[1,2,3-cd]pyrene			NA			
Solid		A,D	OCC	dibenz[a,h]anthracene			NA			
Solid		A,D	OCC	benzo[g,h,i]perylene			NA			
Tentatively Identified Compounds							NA			
Unknown (Total)					51JN	240JN/24JN	NA	1350JN	1389JN	6080JN
halogenated ketane							NA			180JN

TABLE 2A

SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959
SAMPLE IDENTIFICATION

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters PESTICIDES/PCBs Matrix Level % Moisture Concentration Units	Background Groundwater	Downgradient Groundwater	Trip Blank	Background Surface Soil	Downgradient Surface Soil	Downgradient Surface Soil
				Sample from On-Site Monitoring Well	Sample - South of Storage Tank		Near Water Tower	Composite/SW of Storage Tank	Sample N.E. of Main Building
Solid	A,D	PSD	alpha BHC	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	beta BHC	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	delta BHC	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	gamma BHC (Lindane)	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Heptachlor	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Aldrin	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Heptachlor epoxide	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Endosulfan I	NA	NA	NA	NA	NA	NA
Solid	A,D,E	PSD	Dieldrin	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	4,4'-DDE	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Endrin	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Endosulfan II	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	4,4'-DDD	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Endosulfan sulfate	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	4,4'-DDT	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Methoxychlor (Mariate)	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Endrin ketone	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	alpha Chlordane	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	gamma Chlordane	NA	NA	NA	NA	NA	NA
Solid	A,D	PSD	Toxaphene	NA	NA	NA	NA	NA	NA

TABLE 2A

SUMMARY OF CHEMICAL ANALYSES FOR
 UNION CAMP CORPORATION - JAMESTOWN
 NCD 003216959

SAMPLE IDENTIFICATION

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters	Background	Downgradient		Background	Downgradient	Downgradient
				Groundwater	Groundwater		Surface Soil	Surface Soil	Surface Soil
				Sample from	Sample - South	Trip	Composite	Composite/SW	Sample N.E.
				On-Site	of Storage	Blank	Near Water	of Storage	of Main
				Monitoring Well	Tank		Tower	Tank	Building
			PESTICIDES/PCBS (CONT.)						
Liquid	A,D	OCC	Aroclor 1016	NA	NA	NA	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1221	NA	NA	NA	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1232	NA	NA	NA	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1242	NA	NA	NA	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1248	NA	NA	NA	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1254	NA	NA	NA	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1260	NA	NA	NA	NA	NA	NA

TABLE 2B
SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959
SAMPLE IDENTIFICATION
DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters	Background	Downgradient	Background	Downgradient
				Sediment Sample Taken East of Site	Sediment Sample Taken South of Site	Surface Water Sample Taken East of Site	Surface Water Sample Taken South of Site
			Date Collected	6/11/91	6/11/91	6/11/91	6/11/91
			Laboratory	State Lab	State Lab	State Lab	State Lab
			G&O Sample ID No.	UCSED01	UCSED02	UCSW01	UCSW02
			State Case No.	16257	16259	16256	16258
				14938	14941	14936	14939
						14937	14940
			Compounds Detected				
			VOLATILE ORGANICS				
			Matrix	Soil	Soil	Water	Water
			Concentration Units	ug/kg	ug/kg	ug/l	ug/l
Gas	A,D,G,I	OCC	chloromethane				
Gas	A,D,G,I	OCC	bromomethane				
Gas	A,D,G,I	OCC	vinyl chloride				
Gas	A,D,G,I	OCC	chloroethane				
Liquid	A,D,H,I	SOL	methylene chloride				
Liquid	E,H,I,A	SOL	acetone				
Liquid	A,H,I	SOL	carbon disulfide				
Liquid	A,D,G,I	SOL	1,1-dichloroethene				
Liquid	A,D,H,G	SOL	1,1-dichloroethane				
Liquid	A,D,G	SOL	1,2-dichloroethene (total)				
Liquid	A,D	SOL	chloroform				
Liquid	A,D,G	SOL	1,2-dichloroethane				
Liquid	A,E,G	SOL	2-butanone (MEK)				
Liquid	A,D	SOL	1,1,1-trichloroethane				

TABLE 2B

SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959

SAMPLE IDENTIFICATION

DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

		Sample Collection Information and Parameters		Background Sediment Sample Taken East of Site	Downgradient Sediment Sample Taken South of Site	Background Surface Water Sample Taken East of Site	Downgradient Surface Water Sample Taken South of Site
Physical State	Waste Characteristics*	Category	VOLATILE ORGANICS (CONT.)				
Liquid	A,D	SOL	carbon tetrachloride				
Liquid	A,D,G	SOL	vinyl acetate				
Liquid	A,D	OCC	bromodichloromethane				
Liquid	A,D,G	SOL	1,2-dichloropropane				
Liquid	A,D,G	SOL	cis-1,3-dichloropropene				
Liquid	A,D,G,B	SOL	trichloroethene				
Liquid	A,D	OCC	dibromochloromethane				
Liquid	A,D	SOL	1,1,2-trichloroethane				
Liquid	A,G	SOL	benzene				
Liquid	A,D,G	SOL	trans-1,3-dichloropropene				
Liquid	A,D	SOL	bromoform				
Liquid	A,E,G	SOL	4-methyl-2-pentanone				
Liquid	A,E,G	SOL	2-hexanone				
Liquid	A,D	SOL	tetrachloroethene				
Liquid	A,G,E	SOL	toluene				
Liquid	A,D,E	SOL	1,1,2,2-tetrachloroethane				
Liquid	A,D,G	SOL	chlorobenzene				
Liquid	A,G	SOL	ethylbenzene				
Liquid	A,D,G	OCC	styrene				
Liquid	A,G	SOL	xylenes (total)				
			Tentatively Identified Compounds				
			Unknown (Total)				

TABLE 2B
SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959

SAMPLE IDENTIFICATION
DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

State	Characteristics*	Category	Sample Collection Information and Parameters SEMIVOLATILE ORGANICS Matrix Concentration Units	Background	Downgradient	Background	Downgradient
				Sediment Sample Taken East of Site	Sediment Sample Taken South of Site	Surface Water Sample Taken East of Site	Surface Water Sample Taken South of Site
S, thick	A,B,E	OCC	phenol				
Liquid	A,D,B	OCC	bis(2-chloroethyl)ether				
Liquid	A,D,B	OCC	2-chlorophenol				
Liquid	A,D,H	SOL	1,3-dichlorobenzene				
Solid	A,D,H	OCC	1,4-dichlorobenzene				
Liquid	A,D,H	SOL	benzyl alcohol				
Liquid	A,D,H	OCC	1,2-dichlorobenzene				
Liquid	A,B	OCC	2-methylphenol				
	A,D	OCC	bis(2-chloroisopropyl)ether				
Liquid	A,B	OCC	4-methylphenol				
	A	OCC	n-nitroso-dj-n-dipropylamine				
Solid	A,D	OCC	hexachloroethane				
Liquid	A,D	OCC	nitrobenzene				
Liquid	A,D	OCC	isophorone				
Solid	A,D	OCC	2-nitrophenol				
Solid	A,B	OCC	2,4-dimethylphenol			10K	
Solid	A	OCC	benzoic acid				
	A,D	OCC	bis(2-chloroethoxy)methane				
Liquid	A,D	OCC	2,4-dichlorophenol				
Liquid	A,D	OCC	1,2,4-trichlorobenzene	330K	330K	10K	
Solid	A	OCC	naphthalene				
Solid	A,D	OCC	4-chloroaniline				

TABLE 2B

SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN

NCD 003216959

SAMPLE IDENTIFICATION

DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters	Background	Downgradient	Background	Downgradient
				Sediment Sample Taken East of Site	Sediment Sample Taken South of Site	Surface Water Sample Taken East of Site	Surface Water Sample Taken South of Site
			SEMIVOLATILE ORGANICS (CONT.)				
Liquid	A,D,B	OCC	hexachlorobutadiene				
Solid	A,D	OCC	4-chloro-3-methylphenol				
Liquid	A,D	OCC	2-methylnaphthalene				
Liquid	A,D,B	OCC	hexachlorocyclopentadiene				
Solid	A,D	OCC	2,4,6-trichlorophenol				
Solid	A,D	OCC	2,4,5-trichlorophenol				
Liquid	A,D	OCC	2-chloronaphthalene				
Solid	A,D	OCC	2-nitroaniline				
Liquid	A,D	OCC	dimethylphthalate				
Solid	A,D	OCC	acenaphthylene				
Solid	A,D	OCC	2,6-dinitrotoluene				
Solid	A,D	OCC	3-nitroaniline				
Solid	A,D	OCC	acenaphthene				
Solid	A,D,G	OCC	2,4-dinitrophenol				
Solid	A,D	OCC	4-nitrophenol				
Solid	A,D	OCC	dibenzofuran				
Solid	A,D	OCC	2,4-dinitrotoluene				
Liquid	A,D	OCC	diethylphthalate				
	A,D	OCC	4-chlorophenyl-Phenylether				
Solid	A,D	OCC	fluorene				
Solid	A,D,E	OCC	4-nitroaniline				
Solid	A,D	OCC	4,6-dinitro-2-methylphenol				
Solid	A,D	OCC	n-nitrosodiphenylamine				
Liquid	A,D	OCC	4-bromophenyl-phenylether				
Solid	A,D	OCC	hexachlorobenzene				
Solid	A,D	OCC	pentachlorophenol				

TABLE 2B
SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959
SAMPLE IDENTIFICATION
DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

			Background Sediment Sample Taken East of Site	Downgradient Sediment Sample Taken South of Site	Background Surface Water Sample Taken East of Site	Downgradient Surface Water Sample Taken South of Site
Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters			
			SEMIVOLATILE ORGANICS (CONT.)			
Solid	A,C	OCC	phenanthrene			
Solid	A,D	OCC	anthracene			
Solid	A,D	OCC	carbazole			
Liquid	A,D	OCC	di-n-butylphthalate			
Solid	A,D	OCC	fluoranthene			
Solid	A,D	OCC	pyrene			
Liquid	A,D	OCC	butylbenzylphthalate			
	A,D	OCC	3,3-dichlorobenzidine			
Solid	A,D	OCC	benzo[a]anthracene			
Solid	A,D	OCC	chrysene			
Liquid	A,D	OCC	bis(2-ethylhexyl)phthalate			
Liquid	A,D	OCC	di-n-octylphthalate			
Solid	A,D	OCC	benzo[b]fluoranthene			
Solid	A,D	OCC	benzo[k]fluoranthene			
Solid	A,D,K,L	OCC	benzo[a]pyrene			
Solid	A,D	OCC	indeno[1,2,3-cd]pyrene			
Solid	A,D	OCC	dibenz[a,h]anthracene			
Solid	A,D	OCC	benzo[g,h,i]perylene			
			Tentatively Identified Compounds			
			Unknown (Total)			
			halogenated ketane			

TABLE 2B
 SUMMARY OF CHEMICAL ANALYSES FOR
 UNION CAMP CORPORATION - JAMESTOWN
 NCD 003216959
 SAMPLE IDENTIFICATION

DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

State	Characteristics*	Category	Sample Collection Information and Parameters PESTICIDES/PCBs Matrix Concentration Units	Background	Downgradient	Background	Downgradient
				Sediment Sample Taken East of Site	Sediment Sample Taken South of Site	Surface Water Sample Taken East of Site	Surface Water Sample Taken South of Site
Solid	A,D	PSD	alpha BHC				
Solid	A,D	PSD	beta BHC				
Solid	A,D	PSD	delta BHC				
Solid	A,D	PSD	gamma BHC (Lindane)				
Solid	A,D	PSD	Heptachlor				
Solid	A,D	PSD	Aldrin				
Solid	A,D	PSD	Heptachlor epoxide				
Solid	A,D	PSD	Endosulfan I				
Solid	A,D,E	PSD	Dieldrin				
Solid	A,D	PSD	4,4'-DDE				
Solid	A,D	PSD	Endrin				
Solid	A,D	PSD	Endosulfan II				
Solid	A,D	PSD	4,4'-DDD				
Solid	A,D	PSD	Endosulfan sulfate				
Solid	A,D	PSD	4,4'-DDT				
Solid	A,D	PSD	Methoxychlor (Mariate)				
Solid	A,D	PSD	Endrin ketone				
Solid	A,D	PSD	alpha Chlordane				
Solid	A,D	PSD	gamma Chlordane				
Solid	A,D	PSD	Toxaphene				

SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN

HCD 003216959

SAMPLE IDENTIFICATION

DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

	Background	Downgradient	Background	Downgradient
	Sediment Sample	Sediment Sample	Surface Water	Surface Water
Sample Collection Information	Taken East	Taken South	Sample Taken	Sample Taken
and Parameters	of Site	of Site	East of Site	South of Site

Physical	Waste		
State	Characteristics*	Category	PESTICIDES/PCBS (CONT.)
Liquid	A,D	OCC	Aroclor 1016
Liquid	A,D	OCC	Aroclor 1221
Liquid	A,D	OCC	Aroclor 1232
Liquid	A,D	OCC	Aroclor 1242
Liquid	A,D	OCC	Aroclor 1248
Liquid	A,D	OCC	Aroclor 1254
Liquid	A,D	OCC	Aroclor 1260

TABLE 2B
SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959

SAMPLE IDENTIFICATION
DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

State	Characteristics*	Category	ANALYTE DETECTED Concentration Units	Background	Downgradient	Background	Downgradient
				Sediment Sample Taken East of Site	Sediment Sample Taken South of Site	Surface Water Sample Taken East of Site	Surface Water Sample Taken South of Site
Solid	A,D	MES	aluminum	4.0	1.9	<0.02	<0.02
Solid	A,D	MES	antimony				
Solid	A,D	MES	arsenic				
Solid	A,D	MES	barium	32	50	0.08	0.08
Solid	A,D	MES	beryllium				
Solid	A,D	MES	cadmium	<16	<15	<0.02	<0.02
Solid	D	MES	calcium				
Solid	A,D	MES	chromium	<20	20	<0.02	<0.02
Solid	A,D	MES	cobalt				
Solid	A,D	MES	copper				
Solid	A,D	MES	iron				
Solid	A,D	MES	lead	80	60	<0.020	<0.020
Solid	A,D	MES	magnesium				
Solid	A,D	MES	manganese				
Liquid	A,D	MES	mercury	<0.07	<0.09	<0.0002	<0.0002
Solid	A,D	MES	nickel				
Solid	D	MES	potassium				
Solid	A,D	MES	selenium	<1.0	<1.0	<0.005	<0.005
Solid	A,D	MES	silver	<20	<20	<0.05	<0.05
Solid	D	MES	sodium				
Solid	A,D	MES	thallium				

TABLE 2B
SUMMARY OF CHEMICAL ANALYSES FOR
UNION CAMP CORPORATION - JAMESTOWN
NCD 003216959
SAMPLE IDENTIFICATION
DATA ANALYZED BY STATE LABORATORY OF PUBLIC HEALTH

	Background Sediment Sample Taken East of Site	Downgradient Sediment Sample Taken South of Site	Background Surface Water Sample Taken East of Site	Downgradient Surface Water Sample Taken South of Site
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Physical State	Waste Characteristics*	Category	ANALYTE DETECTED (CONT.)
Solid	A,D	HES	vanadium
Solid	A,D	HES	zinc
Solid	A	IOC	cyanide

NA - Not Analyzed

* - Concentrations significant, considered to be a release

[] - Below CRDL