



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
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ATLANTA, GEORGIA 30303-8960

May 13, 2008

**ENFORCEMENT ACTION MEMORANDUM**

**SUBJECT:** Request for Removal Action at the HoltraChem Site  
Riegelwood, Columbus County, North Carolina

**FROM:** Leo Francendese, On-Scene Coordinator  
Emergency Response and Removal Branch

**THRU:** Shane Hitchcock, Chief  
Emergency Response and Removal Branch

**TO:** Franklin E. Hill, Director  
Superfund Division

**I. PURPOSE**

The purpose of this Enforcement Action Memorandum is to request and document approval of the proposed Removal Action described herein for the polychlorinated biphenyl (PCB) contamination above 11 mg/kg located on International Paper's (IP) Riegelwood Mill property as a result of historical operations at the HoltraChem Site, which is located in Riegelwood, Columbus County, North Carolina. A Time-Critical Removal Action was conducted by Honeywell International, Inc. (Honeywell), under an Administrative Order on Consent (AOC), at the HoltraChem Site during 2003-2004, which addressed all containerized hazardous wastes at the Site. In mid-2004, Honeywell began an Engineering Evaluation / Cost Analysis (EE/CA) under a second AOC with the U.S. Environmental Protection Agency (EPA), Region 4, to determine the removal actions required for contaminated soil, sediment and surface water at the Site, and potential future remedial actions required for groundwater. The EE/CA is nearing completion. However, PCB contamination from the HoltraChem Site has been found on the neighboring IP's property. IP needs to expand their permitted industrial landfill as soon as possible into the area of known PCB contamination. Therefore, a removal action is required to excavate the PCB contamination from the IP property and stockpile it on the HoltraChem property until the EE/CA is completed and the final soil cleanup is selected and implemented. This Removal Action will be Enforcement-Lead and implemented by Honeywell and International Paper Company, the Potentially Responsible Parties (PRPs) for the HoltraChem Site, under a third AOC with the EPA. The Site poses a threat to public health and the environment which meets the National Oil and Hazardous Substance Contingency Plan (NCP) Section 300.415(b)(2) criteria for removal actions. This Removal Action was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the NCP. This Removal Action is based on the Administrative Record (AR) for the Site.

## II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID Number: NCD991278631  
Site Specific ID Number: A47J  
Removal Category: Time-Critical Removal Action

### A. Site Description

This Section of the Action Memo provides a description of the Site conditions and relevant background information.

#### 1. Removal Site Evaluation

The HoltraChem Site is located approximately 20 miles west-northwest of the City of Wilmington, North Carolina and includes the former 24 acre HoltraChem chlor-alkali manufacturing plant at 636 John Riegel Road in Riegelwood, North Carolina, and all areas where hazardous substances, pollutants or contaminants released from the former plant, or released as a result of operations thereon, have come to be located. The Cape Fear River borders one side of the plant. The other three sides are bounded by International Paper's Riegelwood Mill (IP) as is illustrated in **Figure 1** in **Attachment A**. The former chlor-alkali plant began operations in 1963 and ceased in October 2000. The plant was originally constructed to provide chlorine gas, caustic soda, and bleach to the adjacent IP facility, using a mercury cell process. Other products were sold or were used in-house by HoltraChem. Unused products and byproducts were discharged to soil, air and wastewater.

A Time-Critical Removal Action was conducted by Honeywell International, a PRP at the HoltraChem Site from January 2003 to October 2004, under which all containerized hazardous wastes were removed from the Site. An EE/CA for a Non-Time Critical Removal Action (NTCRA) is currently being prepared for the Site as required by the AOC dated June 8, 2004. Site characterization activities have indicated that mercury and polychlorinated biphenyls (PCBs), specifically Aroclor 1268, are the primary Site contaminants.

IP is located on 1,500 acres at 865 John Riegel Road in Riegelwood, North Carolina. The Riegelwood Mill has been in operation since 1951 and produces solid bleach board, bristols and market pulp. IP has operated a permitted industrial landfill on its property since 1963. The landfill is surrounded by a series of wastewater treatment ponds used in Mill operations that ultimately discharge to the Cape Fear River.

HoltraChem discharged process wastewater generated during chlorine production to IP's wastewater treatment system. IP personnel have indicated that until the late 1970s or early 1980s, HoltraChem process wastewater was discharged to IP's North Bay treatment pond. Subsequently, HoltraChem's discharge was relocated to the head of IP's treatment works. The North Bay treatment pond served as a settling lagoon for wastewater treatment solids (WWTS) until 2002. It operated for over 20 years.

In 1994, approximately 25 acres of the North Bay treatment pond was bermed and drained for development as a permitted industrial landfill. The southern portion of the bermed area was developed as Landfill Cell No. 1 and is expected to reach its capacity in 2008. The northern portion of the bermed area is scheduled to be utilized for the expansion of the landfill (Cell No. 2) in the near future so that IP can continue operations on an uninterrupted basis. IP has indicated they desire to begin the expansion by June 2008.

Analytical results from samples collected from the planned Cell No. 2 area indicate the presence of PCB Aroclor 1268 at concentrations up to 5,100 mg/kg. The WWTS containing Aroclor 1268 concentrations above 11 mg/kg need to be properly disposed of prior to construction of IP's landfill. Areas of the IP property containing Aroclor 1268 are considered part of the HoltraChem Site under CERCLA. The scope of this Action Memorandum is to address the PCB-contaminated WWTS located on the IP property.

## **2. Physical Location**

The Site is located directly on the Cape Fear River in Riegelwood, Columbus County, North Carolina. The location of the contaminated WWTS is surrounded by property owned and operated by IP. Access to the Site is through IP.

Riegelwood has a population of 3,194 people. Drinking water in the area is supplied by IP through an intake on the Cape Fear River, north and upstream of the Site. The nearby area includes residential, industrial and commercial uses.

## **3. Site Characteristics**

The portion of the Site to be addressed by this Action Memorandum is a former wastewater treatment pond located on IP property. It accepted wastewater from the HoltraChem Site until the late 1970s or early 1980s. It is not currently in use. However, IP intends to utilize this portion of their property to expand their industrial landfill in the near future. This will be the first removal action for the IP property in relation to contamination caused by HoltraChem. A time-critical removal action occurred on the HoltraChem property in 2003-2004, and is described in more detail in section I.B.1.(b)(3).

#### **4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant**

EPA has determined that a release of the hazardous substance PCBs, as defined by Section 101(14) of CERCLA, has occurred on the IP property, caused by the HoltraChem Site. A time-critical removal action was conducted to address containerized hazardous substances at the former HoltraChem plant in 2003-2004. An EE/CA has been underway since 2004 to assess the extent of soil, sediment and surface water contamination and to evaluate removal or treatment options. The final cleanup for the Site will be defined in a future decision document (i.e. Action Memorandum or Record of Decision). During the EE/CA time-period, PCB contamination was found at the neighboring IP facility. IP plans to expand their landfill into this area of contamination by June 2008.

In September 2005, IP contracted with Premier Environmental Services, Inc. to assess the Landfill Cell No. 2 area. Six soil borings were advanced to depths ranging from 12 to 16 feet below land surface (ft bls). A total of 11 samples were collected for laboratory analysis of PCBs, including Aroclor 1268. Three of the samples were also analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals using the Toxicity Characteristic Leaching Procedure (TCLP) to determine if WWTS in Cell No. 2 would be considered a characteristic hazardous waste. The results of the September 2005 investigation were:

- Aroclor 1268 was detected in 10 of the 11 samples analyzed for PCBs, with the reported concentrations ranging from 0.071 mg/kg to 1,200 mg/kg.
- All TCLP analyses were non-detect.
- WWTS thicknesses measured in the six borings ranged from 1 to 9 feet.

In April 2006, IP personnel met with EPA Region 4 personnel to discuss the October 2005 results, additional site characterization requirements, and potential remedial and waste disposal alternatives. The EPA recommended that IP proceed with the characterization of the site using a biased sampling grid to aid in the development of the cleanup plan.

In July 2006, ARCADIS G&M of North Carolina, Inc. conducted an additional site investigation. A total of 375 soil and sludge samples were collected and analyzed for PCB Aroclor 1268. In addition, four samples were submitted for waste characterization analysis of TCLP VOCs, TCLP SVOCs, and TCLP Resource Conservation and Recovery Act (RCRA) metals. One sample was also analyzed for TCLP pesticides. Two samples were analyzed for VOCs, SVOCs, and RCRA metals. The samples were collected along a grid pattern.

Aroclor 1268 was detected at concentrations exceeding 50 mg/kg in 14 samples collected from 9 locations (I4, H5, I5, J5, K5, I6, K6, M6, and I8) in the northwestern portion of Landfill Cell No. 2. The 14 samples were collected from elevation horizons ranging from 2 to 12 ft bsl at the 9 sample locations and ranged in concentration from 72 mg/kg in Sample SB-I4-22-20 to 5,100 mg/kg in Sample SB-I6-20-18.

Aroclor 1268 was detected at concentrations between 1 and 50 mg/kg in 65 samples and at concentrations below 1 mg/kg in the remaining 296 samples. The majority of the 65 samples exceeding 1 mg/kg were collected from locations in the northwestern portion of Landfill Cell No. 2; however, approximately 20 of these samples were collected from various locations and elevation horizons in the remaining portion of Landfill Cell No. 2. Sample results of Aroclor 1268 from the 2006 sampling event are illustrated in **Figure 2-2** and **Figure 2-3** located in **Attachment A**.

All samples submitted for TCLP analysis were below US EPA regulatory levels for all compounds. The two samples collected from the soil directly below the sludge layer at locations I5 and W10 were below regulatory levels for all compounds.

## **5. NPL Status**

The Site is not on the National Priorities List.

## **6. Maps, pictures and other graphic representations**

Select maps, pictures and other graphic representations are included in **Attachment A** of this Action Memorandum. They include an aerial photograph illustrating the key areas of the Site, aerial photographs with data overlain, and the stockpile design.

## **B. Other Actions To Date**

### **1. Previous Actions**

#### **a. International Paper Property**

No Superfund-related actions have occurred on IP's property other than investigation into the nature and extent of PCB contamination in Cell No. 2. IP manages several units on their property under RCRA.

#### **b. HoltraChem Property**

##### **(1) RCRA**

While it was operating, the HoltraChem facility was permitted under RCRA by the North Carolina Department of Environment and Natural Resources (NCDENR). Some corrective action activities occurred pursuant to that permit. Detailed information about the corrective action and other actions taken under the direction of the NCDENR are available in the site file.

## (2) Hurricane Floyd Response and NCDENR Investigation

Hurricane Floyd and associated flooding caused an overtopping/breach in the rainwater collection pond in September, 1999. EPA personnel and EPA contractors assisted facility personnel in sand-bagging to raise the berm height. Surface soil sampling results in June 2001 performed by NCDENR indicated that mercury may have been transported out of the pond and into surface soils adjacent to the pond.

After sampling events in 2001 by the NCDENR indicated elevated levels of mercury, NCDENR referred the Site to the EPA Emergency Response and Removal Branch (ERRB) in January, 2002.

## (3) Time-Critical Removal Action (2003-2004)

ERRB performed a removal site evaluation in January and February 2002. Airborne mercury vapor levels were in excess of EPA Regional 4 Removal Action Levels (RAL) for mercury within the cell building. Elemental mercury was dripping from structures inside the building and pooled on the lower floor. ERRB also concluded that other areas of the facility had potential for mercury contamination and posed a potential threat as defined by Sections 101(22) of CERCLA, 42 U.S.C. § 9601(22).

EPA entered into an AOC with Honeywell on July 1, 2002. An Enforcement Action Memorandum was signed by EPA on July 2, 2002. Honeywell began the removal action in January 2003. Work was shut down by the USEPA from Mid-July 2003 through September 2003. Work resumed in October 2003 and was completed in September 2004.

The removal action began by removing all asbestos containing materials in and around the Mercury Cell Building, pipe racks, products area, and wastewater area. The mercury cell building and its components were dismantled and disposed of offsite. Cracks in the mercury cell building floor and pit were sealed with a grout mixture and then they were covered with a layer of concrete.

The Retort Unit, brick mercury still and rubber lined acid bath box, and other debris found on the Retort Pad were disposed of as hazardous material. The Retort Pad sump was filled with clean fill material. The entire pad was covered with a multi-layer temporary cap consisting of a plastic liner, fill material, a 6-millimeter plastic liner, and another layer of fill.

Equipment from the Brine Mess Area, which was not needed for water treatment, was removed and the majority of the debris was disposed of as hazardous material. The concrete Brine Shack (control room) was sampled for disposal characterization. The structural steel was disposed of as scrap metal.

The majority of the debris from the Cooling and Drying area was disposed of as construction debris and scrap metal after decontamination and screening procedures. However, there were a several pieces of equipment which had to be disposed of as macro debris. This area is currently covered with a black plastic liner.

The Products area included a control room, a substation with electrical transformers and various equipment and piping. The equipment in this area had been drained prior to the plant closing in October 2000. The Products control room consisted of a concrete block building. The Substation B (concrete block) building was demolished last in this area. The electrical transformers in this area were drained.

The Bleach Plant consisted of a reinforced concrete structure (approx. 40' long x 16' wide x 18' high) with three compartments. The standing water in the vat was tested and disposed of in the wastewater treatment system. The concrete structure was demolished using a hydraulic hammer and the debris was screened with a mercury vapor analyzer (MVA). The concrete was placed in the low area near the North Rainwater Pond. The majority of the debris from this area was disposed of as construction debris and scrap metal. Portions of the Bleach Plant currently remain undisturbed.

The two cooling towers were wood structures with corrugated transite panels. The debris from the wood structures was disposed of as non-regulated waste and the equipment associated with the Cooling Towers was disposed of as scrap metal.

The former Salt Dock area and North and South Brine Saturator tanks were located on the northeast section of the plant across from the wastewater pretreatment area. The concrete portion of the former Salt Dock is still present. The South and North Brine Saturator tanks were removed from the site. Prior to removal, both saturator tanks were partially full of salt from the former operations. Some of the salt initially removed from the North Saturator was placed in macro boxes with other debris as void filler per the LDR Variance. The remaining salt was removed from both saturators and staged on the Mercury Cell Building concrete floor. Some of the salt was dissolved on the Mercury Cell Building floor, captured in the Mercury Cell Building Pit, and processed through the on-site water treatment facility. This process was not very efficient so the balance of the solidified salt was loaded into dump trailers and sent to CWM as hazardous waste.

The outer hull of both saturator tanks consisted of welded steel. The South Brine Saturator contained an original brick lining. The North Saturator lining had been previously replaced with a fiberglass lining. The brick lining from the South Saturator was sent CWM as non-regulated waste. The steel and fiberglass portions of the tanks were cut up, pressure washed, and disposed as

scrap metal. Standing water observed in the saturators was drained and treated in the wastewater treatment system.

The former #3 Caustic Storage area contained mercury contamination and residual caustic material. The lines were drained and the equipment, structural steel, and piping removed. The concrete pad and sump were cleaned and left in place. The majority of materials were disposed of as hazardous waste. Materials that could be decontaminated were disposed of as scrap.

Piping, pipe racks, pipe bridges, cable trays and cables were located throughout the facility. Piping and pipe bridge structures in Pipe Racks D, F and I were completely removed. At Pipe Racks A, B, C, E, G, and H, the pipe bridge structures remained in place and only selected piping were removed. Cable tray supports and cable located along the west side of the Mercury Cell Building were removed. Equipment and piping located in the Acid Storage Area north of the Mercury Cell Building were also removed. The majority of the piping material was disposed of as Macro and Micro materials. The majority of the structural steel materials were disposed of as scrap metal.

A disposal summary through February 2008 is included in **Attachment B**.

## **2. Current Actions**

### **a. International Paper Property**

International Paper is preparing to begin construction activities for their industrial Landfill Cell No. 2.

### **b. HoltraChem Property**

From completion of removal activities under the 2002 AOC until the present, the Site has been maintained four days a week, on average. Staff supplied by Honeywell perform routine inspections, air monitoring and wastewater treatment. Occasionally, beads of mercury are found on the former mercury cell building pad and are properly disposed. A summary of waste disposed from the Site from the beginning of the removal action through February 2008 is included in **Attachment B**.

Honeywell began the EE/CA in late 2004. The draft EE/CA report was submitted to EPA in July 2007. The Ecological Risk Assessment needs to be completed and issues addressed regarding treatment/disposal options before the EE/CA can be finalized. It is hoped that EE/CA finalization will occur within the next year. Upon EE/CA completion, a Non-Time-Critical Removal Action Memorandum will be prepared to select the final response action for the entire Site.



## **C. State and Local Authorities' Role**

### **1. State and Local Actions to Date**

NCDENR has been very involved with the HoltraChem Site. A summary of activities leading up to the first Enforcement Action Memorandum for this Site can be found in that document. NCDENR attended monthly progress meetings at the Site during the initial Time-Critical Removal Action. NCDENR participated in negotiations with the PRP to conduct the EE/CA. NCDENR has been involved in oversight of field activities related to the EE/CA, and has actively participated in conference calls and meetings. NCDENR also provides comments on documents. NCDENR has reviewed the PRP's draft work plan for this action and concurs with the proposed approach.

### **2. Potential for Continued State/Local Response**

It is anticipated that NCDENR will continue providing oversight assistance and input regarding the removal process at this Site.

## **III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES**

EPA Region 4 has determined that a release of a hazardous substance into the environment has occurred at the Site, as defined by Section 101 of CERCLA and established under Section 102 of CERCLA at 40 CFR Part 302/Table 302.4. The Site meets the criteria for the threat to public health or welfare factors considered in the determination of the appropriateness of a removal action as specified in Section 300.415(b)(2) of the NCP.

### **A. Threats to Public Health or Welfare**

*NCP Section 300.415(b)(2)(iv) - High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate*

High levels of PCB Aroclor 1268 exist in subsurface soils in the WWTS located on IP's property, as is illustrated in **Figures 2-2 and 2-3 in Attachment A**. Concentrations exceeding removal action limits were found at depth ranges from two to twelve feet below the surface. The concentrations of Aroclor 1268 found during the 2006 investigation ranged up to 5,100 mg/kg. TSCA considers PCB concentrations less than 1 mg/kg to be acceptable for unrestricted uses. The volume of Aroclor 1268 contaminated sludge with concentrations exceeding 1 mg/kg is estimated at 40,500 cubic yards (yd<sup>3</sup>).

The Human Health Risk Assessment (HHRA) for the Site evaluated the human health risk posed by different exposure scenarios and established PCB concentrations that would not be likely to have an appreciable toxic effect. In the HHRA, cleanup goals were presented based on the different exposure scenarios with hazard quotients (HQ) of 0.1, 1 and 3. The cleanup goal associated with the most stringent soil PCB cleanup goals

in an industrial setting were for a construction worker. The cleanup goal associated with an HQ of 1 for a construction worker was 11 mg/kg for soil PCB concentrations.

Although much of the contamination is below the surface, IP intends to begin work in this area to construct an additional landfill cell. This activity will bring the contamination to the surface, and if not handled properly, construction personnel may be exposed to the contamination. In addition, if not handled properly, the contamination may migrate to other areas of the Site or into the adjacent Cape Fear River.

The Agency for Toxic Substances and Disease Registry's (ATSDR) Toxicological Profile on PCBs states,

*The most commonly observed health effects in people exposed to large amounts of PCBs are skin conditions such as acne and rashes. Studies in exposed workers have shown changes in blood and urine that may indicate liver damage. PCB exposures in the general population are not likely to result in skin and liver effects. Most of the studies of health effects of PCBs in the general population examined children of mothers who were exposed to PCBs.*

*Animals that ate food containing large amounts of PCBs for short periods of time had mild liver damage and some died. Animals that ate smaller amounts of PCBs in food over several weeks or months developed various kinds of health effects, including anemia; acne-like skin conditions; and liver, stomach, and thyroid gland injuries. Other effects of PCBs in animals include changes in the immune system, behavioral alterations, and impaired reproduction. PCBs are not known to cause birth defects.*

*Few studies of workers indicate that PCBs were associated with certain kinds of cancer in humans, such as cancer of the liver and biliary tract. Rats that ate food containing high levels of PCBs for two years developed liver cancer. The Department of Health and Human Services (DHHS) has concluded that PCBs may reasonably be anticipated to be carcinogens. The EPA and the International Agency for Research on Cancer (IARC) have determined that PCBs are probably carcinogenic to humans.*

*Women who were exposed to relatively high levels of PCBs in the workplace or ate large amounts of fish contaminated with PCBs had babies that weighed slightly less than babies from women who did not have these exposures. Babies born to women who ate PCB-contaminated fish also showed abnormal responses in tests of infant behavior. Some of these behaviors, such as problems with motor skills and a decrease in short-term memory, lasted for several years. Other studies suggest that the immune system was affected in children born to and nursed by mothers exposed to increased levels of PCBs. There are no reports of structural birth defects caused by exposure to PCBs or of health effects of PCBs in older children. The most likely way infants will be exposed to PCBs is from breast milk. Transplacental transfers of PCBs were also reported. In most cases, the benefits of breast-feeding outweigh any risks from exposure to PCBs in mother's milk. (ATSDR, 2001)*

## **B. Threats to the Environment**

*NCP Section 300.415(b)(2)(i) - Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants*

Fish and other ecological receptors are currently being exposed to PCB contaminated sediment in the Cape Fear River adjacent to the Site. Sediment samples collected in the River near this location indicate mercury and PCB contamination at concentrations that exceed EPA Region 4 sediment screening values. Disturbance of the WWTS, if not handled properly, may lead to additional PCBs being discharged into the river.

*NCP Section 300.415(b)(2)(iv) - High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate*

As previously discussed, sampling has identified PCB contamination in the subsurface soils on the IP property at concentrations up to 5,100 mg/kg in locations near the Cape Fear River. Contamination has also been found in river sediments at concentrations that exceed EPA Region 4 screening values. Although the contamination planned to be addressed by this Action Memo is below the land surface, IP intends to begin work in this area to construct an additional landfill cell. This activity will bring the contamination to the surface, and if not handled properly, the contamination may migrate to other areas of the Site or into the adjacent Cape Fear River.

*NCP Section 300.415(b)(2)(ii) - Actual or potential contamination of drinking water supplies or sensitive ecosystems*

Mercury and PCB contamination has been documented in the Cape Fear River near the Site. The EPA Region 4 Sediment Screening Value for total PCBs is 0.033 mg/kg (EPA, 2007). As is illustrated in **Figure 2-17 in Attachment A**, Aroclor 1268 concentrations in the river sediment at IP's outfall ranged up to 0.122 mg/kg (sample # IP-3 obtained during EE/CA). Endangered species, threatened species and species of special concern are expected to be located in Columbus County. The shortnose sturgeon is an endangered species which has been observed in the Cape Fear River near the Site. PCBs have high bioconcentration factors. They accumulate in the fat of fish, birds, mammals, and humans.

## **IV. ENDANGERMENT DETERMINATION**

Actual or threatened releases of hazardous substances, pollutants, and contaminants from this Site, if not addressed by implementing the response action selected in this Action Memorandum, will present an imminent and substantial endangerment to the public health, or welfare, or the environment.

## **V. PROPOSED ACTIONS AND ESTIMATED COST**

### **A. Proposed Actions**

#### **1. Proposed Action Description**

The following removal actions are proposed for the PCB contaminated sludge located on IP's property:

- Construct a temporary stockpile cell on the HoltraChem property which will consist of a bottom and top 40-mil high-density polyethylene (HDPE) liner with a berm system surrounding the temporary stockpile
- Excavate sludge with PCB contamination greater than 11 mg/kg
- Collect, treat and dispose of wastewater
- Stabilize sludge, if needed, prior to transport
- Transfer sludge with PCB concentrations of up to 49 mg/kg to IP's double-lined landfill cell #1 (estimated 34,000 yd<sup>3</sup>), which is constructed to RCRA standards
- Transfer sludge with PCB concentrations equal to or greater than 50 mg/kg to the temporary stockpile cell on the HoltraChem property (estimated 6,500 yd<sup>3</sup>)
- Remove former discharge pipe
- Conduct confirmation sampling
- Provide for and adequately undertake the collection, treatment and or disposal of all on-Site contaminated water and sludge including washes, rinses, rinseate and contaminated sediment generated as a result of decontamination operations
- Provide for and undertake a dust suppression method to ensure that no contaminated media/dust particles migrate from the Site
- Secure the contaminated areas in such a manner as to adequately prevent access from unauthorized persons on a 24 hour basis
- Inspect the temporary stockpile on a routine basis, not less than once per week, and make whatever repairs may be necessary to ensure the soundness and integrity of the temporary stockpile
- Continue Post Removal Site Control measures at the HoltraChem property

As a contingency, if the volume of PCB contaminated waste exceeds the storage capacity at HoltraChem, it may be disposed off-site at a TSCA-approved off-site treatment/disposal facility.

Because all PCBs are expected to be removed, Institutional Controls (ICs) are not expected to be required on this portion of IP's property that is affected by this removal action. If cleanup goals are not achieved, the need for ICs will be evaluated.

#### **2. Contribution to Remedial Performance**

The PRP is evaluating the HoltraChem Site through an EE/CA under the oversight of EPA Region 4's remedial program. The goal is to address as much of the Site as possible through the removal process. The proposed Removal Action for the IP property described in the preceding Sections of this Action Memorandum will contribute

to the abatement of immediate threats to human health and the environment posed by this portion of the Site.

As mentioned in Section III.A, in the HHRA cleanup goals were presented based on the different exposure scenarios with hazard quotients (HQ) of 0.1, 1 and 3. The cleanup goal associated with the most stringent soil PCB cleanup goals in an industrial setting were for a construction worker. The cleanup goals associated with each HQ are presented below:

	HQ = 0.1	HQ = 1	HQ = 3
Site-specific PCB cleanup goal for a construction worker:	1.1 mg/kg	11 mg/kg	33 mg/kg

An HQ less than 1 indicates that a receptor's dose of a single contaminant is less than the reference dose (RfD), and that toxic non-carcinogenic effects from that chemical are unlikely. In general, HQ values at or below 1 are interpreted as indicating acceptable risk, while HQ values above 1 are interpreted as indicating the potential for adverse effects.

The remedial process uses a variety of factors in selecting cleanup goals, such as human health risk, ecological risk, and protection of groundwater. For this Site, neither the ecological risk assessment nor the site-specific risk assessment for protection of groundwater has been completed. Recently, the PRP's consultant calculated a soil-to-groundwater screening level using US EPA's Soil Screening Guidance (US EPA, 1997). The resulting soil-to-groundwater screening level was 30.9 mg/kg. In December 2005, Interstate Technology Regulatory Council published a White Paper titled *Examination of Risk-Based Screening Values and Approaches of Selected States* (<http://www.itrcweb.org/Documents/RISK-1.pdf>). Table 4 of that document presents State Screening values for PCBs from 13 states that were surveyed. Leachability values for protection of groundwater were included in the table. Only five of the 13 states surveyed had values for protection of groundwater. The soil concentrations for this category ranged from 0.13 mg/kg (Alabama) to 1,000 mg/kg (Colorado). Other values presented included 6.3 mg/kg (California), 17 mg/kg (Florida), and 53 mg/kg (Kansas).

In a November 29, 2007 memorandum, Kevin Koporec, EPA Toxicologist, provided Interim Removal Action Levels for Arsenic, Lead and PCBs. For PCBs in an industrial setting, he recommended a removal action level of 33 mg/kg (HQ=3). However, he goes on to state that since this value is greater than the HQ=1 concentration, additional investigations and assessments would be needed under the remedial program to determine a final cleanup level. Because a landfill will be built on top of the area to be excavated, a cleanup goal of an HQ=1 (11 mg/kg) is being selected since it would be difficult to excavate more material after the landfill is constructed. A cleanup goal of 11 mg/kg is protective of human health in an industrial setting and falls within the range of protection of groundwater published screening values.

### **3. Description of Alternative Technologies**

The use of alternate technologies is not anticipated at this time. The scope of this removal action is to store sludge contaminated with PCBs at concentrations greater than or equal to 50 mg/kg until the EE/CA is completed and the final soil cleanup is selected. Alternative technologies may be used during the ultimate treatment/disposal of the waste. If so, those treatment technologies will be described in the future EPA decision document(s).

### **4. Engineering Evaluation/Cost Analysis (EE/CA)**

This is a time-critical removal action not requiring an EE/CA. The ultimate treatment and/or disposal of the stockpiled wastes will be addressed under the EE/CA for the HoltraChem Site, which is currently underway.

### **5. Applicable or Relevant and Appropriate Requirements (ARARs)**

On-site removal activities conducted under CERCLA are required to attain ARARs to the extent practical considering the exigencies of the situation. To the extent practicable, the proposed Removal Action will meet the substantive requirements of the following Federal ARARs:

- a. RCRA Requirements for Identification, Management and Transportation of Hazardous Waste (40 CFR Parts 261, 262 and 263)
- b. RCRA Land Disposal Restrictions (40 CFR Part 268)
- c. Toxic Substance Control Act (TSCA) (40 CFR Part 761)
- d. Off-Site Rule (40 CFR Section 300.440)

TSCA has a storage limit of one-year (40 CFR §761.65(a)(1)). It also provides for a 1-year extension if requested from and granted by the EPA Regional Administrator (40 CFR §761.65(a)(2)). An extension may be needed for this removal action.

On June 25, 2007, NCDENR identified to EPA the ARARs that they believed were applicable to the future final cleanup at the HoltraChem Site. Recent conversations with NCDENR indicate that those same ARARs are potentially applicable to the removal action on the IP property. The proposed Removal Action will meet the substantive requirements of the State ARARs, to the extent practicable considering the scope of the time-critical removal action. The extensive list of ARARs provided by the State of North Carolina is included in **Attachment C**.

## **6. Project Schedule**

EPA Region 4 is currently negotiating an AOC with a Honeywell to undertake the removal action. A draft Work Plan has been submitted by the PRP's consultant, as well as a revised version. Work Plan implementation is anticipated for April 2008. The time estimated to complete the field work is three months. The temporary stockpile cell will be monitored under a revised Post-Removal Site Control Plan until the final treatment/disposal remedy is selected for the HoltraChem Site.

## **B. ESTIMATED COSTS**

The cost to complete the excavation and temporary stockpiling of the WWTS onto the HoltraChem property by the PRPs' contractor is approximately \$600,000. The cost to transport and dispose of the WWTS at an off-site facility is estimated at approximately \$3,620,000. The AOC associated with this Removal Action includes the requirement of financial assurance until the time the WWTS are either treated according to the final decision document for the Site or transported and disposed at an off-site facility.

## **VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

If this removal action is delayed or not implemented, the threats described herein will continue to exist and, in fact may worsen as IP begins landfill cell construction this fall/winter.

## **VII. OUTSTANDING POLICY ISSUES**

There are no outstanding policy issues at this time.

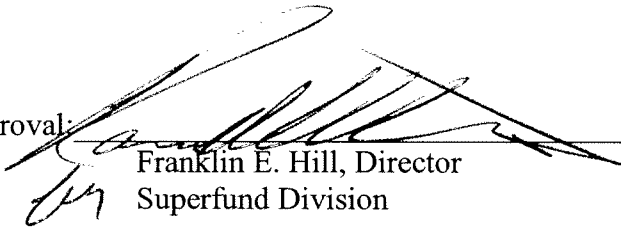
## **VIII. ENFORCEMENT**

This action is anticipated to be undertaken by a PRP pursuant to the terms of a Removal Action AOC. Valerie Nowell, Assistant Regional Counsel, has assisted in the preparation and negotiation of the AOC. Refer to the Enforcement Addendum in **Attachment D** for enforcement confidential information.

## IX. RECOMMENDATION

This decision document represents the selected Removal Action for the International Paper portion of the HoltraChem Site, Riegelwood, Columbus County, North Carolina, developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the Administrative Record for the Site. Conditions at this Site meet the NCP Section 300.145(b)(2) criteria for removal actions and I recommend your approval of the Removal Action described herein.

Approval: \_\_\_\_\_

  
Franklin E. Hill, Director  
Superfund Division

Date: \_\_\_\_\_

5/13/08

Disapproval: \_\_\_\_\_

Franklin E. Hill, Director  
Superfund Division

Date: \_\_\_\_\_

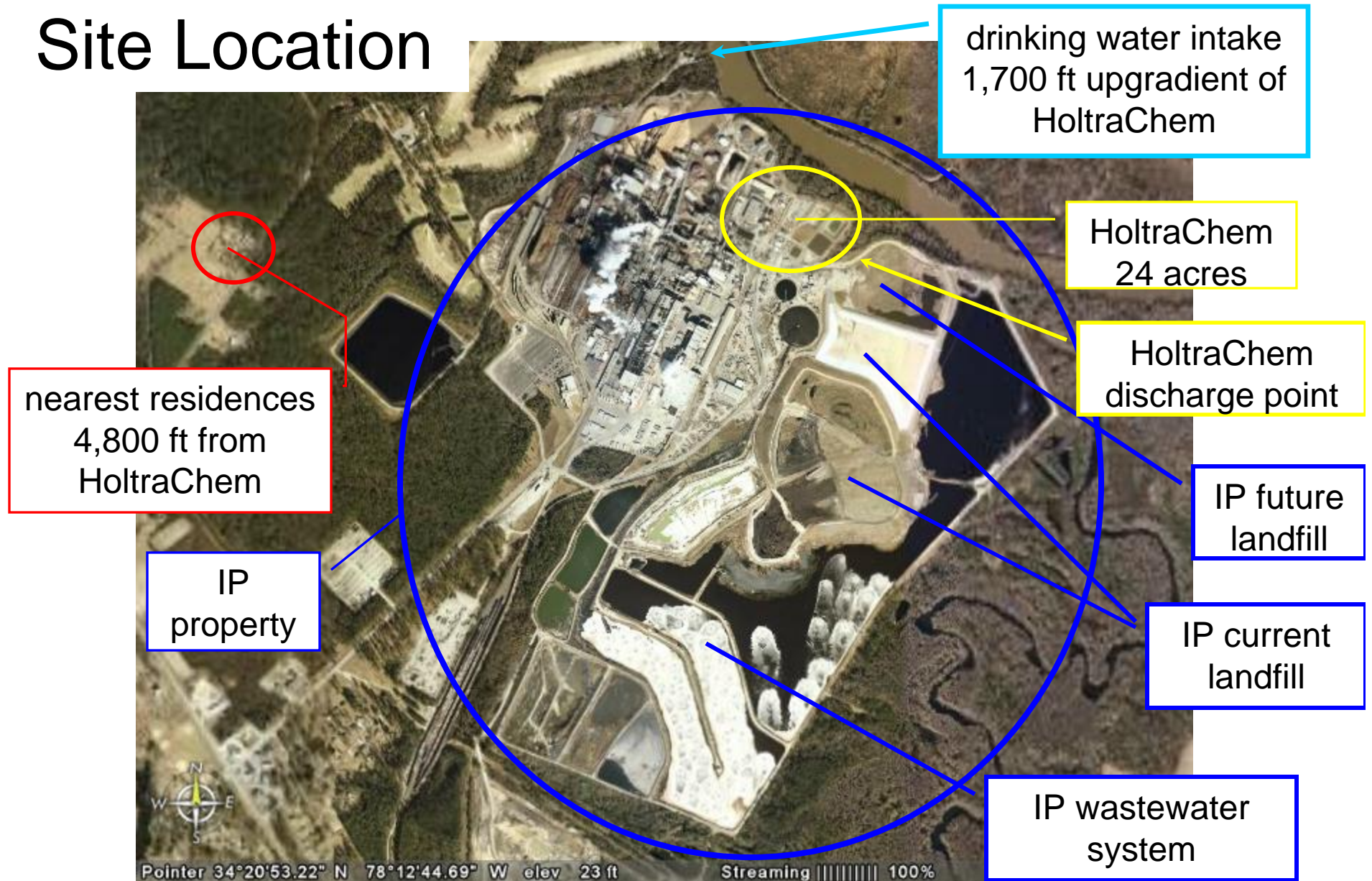
Attachments



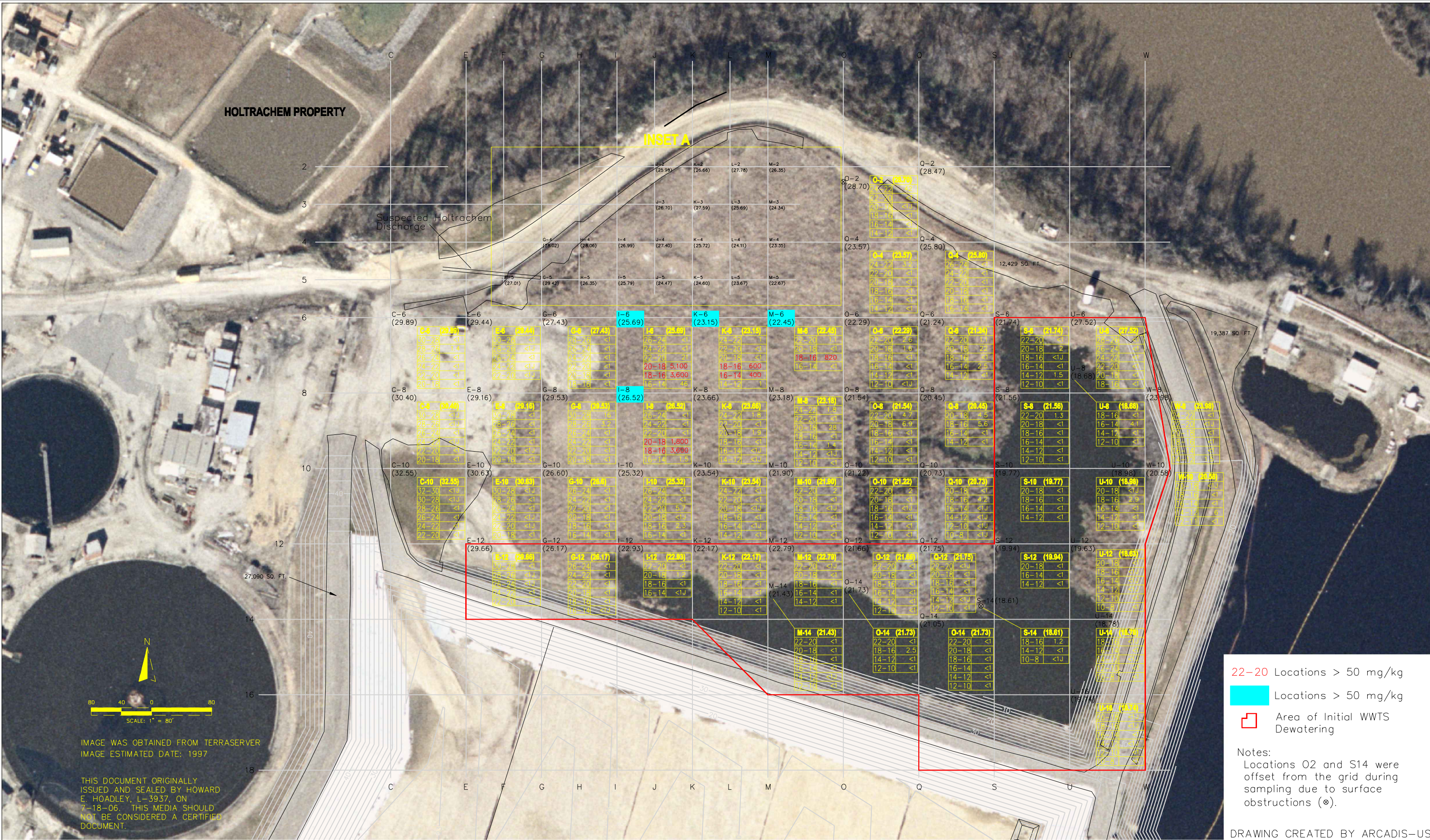
**ATTACHMENT A**

**FIGURES**

# Site Location











DSGN	ARCADIS						
DR	GH						
CHK	KH						
APVD	CB	NO.	DATE	REV.	BY	APVD.	



FIGURE 2-3  
INSET A (SEE FIGURE 2-1) AROCLOR 1268  
CONCENTRATIONS (MG/KG) IN CELL NO. 2  
WWTS MANAGEMENT WORKPLAN  
LCP-HOLTRACHEM RIEGELWOOD, NC

SHEET	
DWG	
DATE	MAY, 2007
PROJ	327350.HW.30.36



LEGEND

[0.093][0.0268] = [MERCURY][AROCLOP 1268]

UNITS ARE mg/kg

NA = NOT ANALYZED

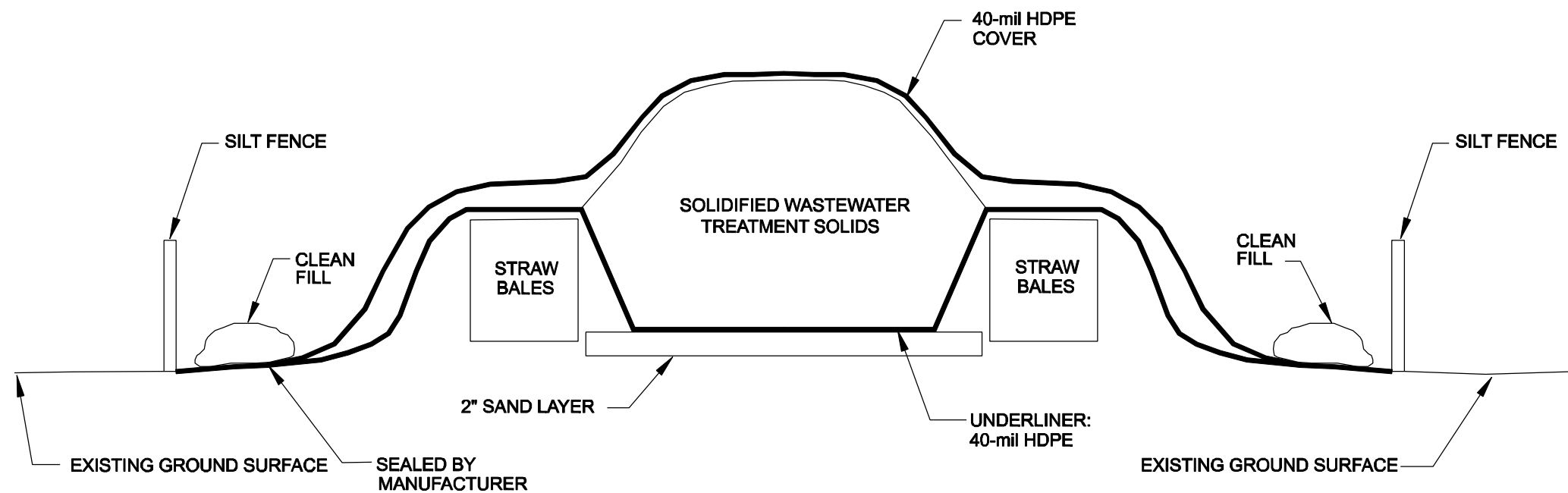
NOTE: SEE SEDIMENT APPENDIX FOR  
REFERENCE SAMPLE DATA



North Arrow  
(2001 Adjustment)

GRAPHIC SCALE  
1" = APPROXIMATELY 1 MILE

DSGN	GMH		<b>CH2MHILL</b>	EE/CA REPORT LCP-HOL TRACHEM SITE, RIEGELWOOD, NC	RIVER SEDIMENT SAMPLING	SHEET	FIGURE 2-17
DR	GMH					DWG	FIGURE 2-17
CHK	KEH					DATE	MAY 2007
APVD						PROJ	327350.HW.20.26
NO.		DATE					



**NOTES:**  
 HDPE = HIGH DENSITY POLYETHYLENE

**STRAW BALES STAKED USING  
 2 REBAR STAKES PER BALE**

DSGN	GMH	NO.	DATE
DR	GMH		
CHK	KEH		
APVD			



FIGURE 5-2  
**TEMPORARY STOCKPILE CROSS SECTION**  
**WWTS MANAGEMENT WORK PLAN**  
**LCP-HOLTRACHEM SITE, RIEGELWOOD, NC**

SHEET
DWG
DATE MAY 2007
PROJ 327350.HW.20.26

**ATTACHMENT B**

**DISPOSAL SUMMARY**

Prepared By: Kim Charles Smith (MACTEC) Disposal Summary updated March 10, 2008			
Waste Stream	Disposal Destination	Quantity Shipped During February 2008	Quantity Shipped To Date*
Saturator Salt	Waste Management - Emelle Treatment Facility Emelle, AL	Task Complete	(24) 25-yd (1,008,180 lbs.)
Hazardous - Variance Debris	Waste Management - Emelle Treatment Facility Emelle, AL	Task Complete	(28) flat bed trailers (761,972 lbs.)
Hazardous - Micro	Waste Management - Emelle Treatment Facility Emelle, AL	Task Complete	(4) 20-yd boxes (43) 25-yd boxes
Non-Regulated Material (Directly Land Filled)	Waste Management - Emelle Treatment Facility Emelle, AL	Task Complete	(8) 20-yd boxes (68) 25-yd boxes (4) 30-yd box
Hazardous - Macro (Including ACM Hazardous)	Waste Management - Emelle Treatment Facility Emelle, AL	Task Complete	(98) 20-yd boxes (1) 25-yd box
D009 (Wastewater Filter Cake)	EQ - Michigan Disposal Waste Treatment Belleville, MI	<b>1 Box (13,900 lbs.)</b>	(15) 25-yd boxes (9) 30-yd boxes
ACM (Non-Haz)	Anson Waste Management Facility Polkton, NC	Task Complete	(3) 40-yd boxes (22,040 lbs.)
Non-Haz Construction Debris	Sampson Co. Disposal Facility Roseboro, NC	None	(48) 30-yd boxes (676,260 lbs.)
Non-Haz Scrap Metal	Southern Metals Recycling Wilmington, NC	None	(77) variable size boxes (1,317,529 lbs.)
Non-Haz Scrap Titanium	Southern Metals Recycling Wilmington, NC	None	(2) 10-yd boxes (4,280 lbs.)
Non-Haz Scrap Copper	Southern Metals Recycling Wilmington, NC	None	(8) 5-yd boxes (9) 10-yd boxes (1) 30-yd box (183,177 lbs.)
Non-Haz Scrap Brass	Southern Metals Recycling Wilmington, NC	None	(1) 5-yd box (1,232 lbs.)
Non-Haz Scrap Aluminum	Southern Metals Recycling Wilmington, NC	None	(1) 5-yd box (1) 10-yd box (2) 25-yd boxes (20,520 lbs.)
Non-Haz Scrap Stainless Steel	Southern Metals Recycling Wilmington, NC	None	(1) 10-yd box (1) 20-yd box (14,650 lbs.)
Reclaimed Elemental Mercury (for Reuse)	Goldsmith Evanston, IL	None	(17.5) one-metric-ton cylinders (34,447 lbs.)

Note: This table is being modified as weight data is received.



**ATTACHMENT C**  
**NORTH CAROLINA ARARs**



North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor

William G. Ross Jr., Secretary

June 25, 2007

Ms. Samantha Urquhart-Foster  
Remedial Project Manager  
Superfund Remedial & Site Evaluation Branch  
Waste Management Division  
US EPA Region 4  
61 Forsyth Street, Southwest  
Atlanta, Georgia 30303-8960

RE: Request for Additional Information Regarding  
Identification of North Carolina  
Applicable or Relevant and Appropriate Requirements  
LCP-HoltraChem Site  
Riegelwood, Columbus County, NC

Dear Ms. Urquhart-Foster:

The State of North Carolina has reviewed the request from EPA for additional information regarding the state Applicable or Relevant and Appropriate Requirements (ARARs) specific to the LCP-HoltraChem Site (Site) located in Riegelwood, Columbus County, NC. The following North Carolina ARARs are to be met at this Site:

State Action-Specific ARARs:

<b>Standard, Requirement, Criteria, or Limitation</b>	<b>Citation</b>	<b>Requirements Synopsis</b>	<b>Comment</b>
Asbestos Hazard Management Program	10A North Carolina Administrative Code (NCAC) 41C.0600	Establishes program and regulations for the management of asbestos.	Potentially Applicable
Surface Water and Wetlands Standards	15A NCAC 2B .0100	Procedures For Assignment Of Water Quality Standards	Applicable
	.0200	Classifications And Water Quality Standards Applicable To Surface Waters And Wetlands Of North Carolina	Applicable
	.0300	Assignment Of Stream Classifications	Applicable
	.0400	Effluent Limitations	Potentially Applicable
	.0500	Surface Water Monitoring: Reporting	Potentially Applicable



Procedures For Permits: Approvals	15A NCAC 2H	Point Source Discharges To The Surface Waters	Potentially Applicable
	.0100		
	.0400	Coastal Waste Treatment Disposal	Potentially Applicable
	.0500	Water Quality Certification	Potentially Applicable
	.0900	Local Pretreatment Programs	Potentially Applicable
	.1000	Stormwater Management	Potentially Applicable
	.1300	Discharges To Isolated Wetlands And Isolated Waters	Potentially Applicable
Groundwater Classification and Standards	15A NCAC 2L		
	.0100	General Considerations	Applicable
	.0200	Classifications And Groundwater Quality Standards	Applicable
	.0300	Assignment Of Underground Water Classifications	Applicable

Air Quality Permits Procedures	15A NCAC 2Q .0100	General Provisions  Construction And Operation Permits  Toxic Air Pollutant Procedures  Exclusionary Rules	Potentially Applicable
	.0300		Potentially Applicable
	.0700		Potentially Applicable
	.0800		Potentially Applicable
Sedimentation Control	15A NCAC 4B .0100	Erosion And Sediment Control	Applicable
Hazardous Waste Management	15A NCAC 13A .0100	Establishes standards for characterization, storage, treatment, and disposal of hazardous waste.	Applicable

Solid Waste Management	15A NCAC 13B .0100 .0300 .0500 .0600 .1600	General Provisions  Treatment And Processing Facilities  Disposal Sites  Monitoring Requirements  Requirements For Municipal Solid Waste Landfill Facilities (MSWLFs)	Applicable  Potentially Applicable  Applicable  Applicable  Potentially Relevant and Appropriate
Sedimentation Pollution Control Act	North Carolina General Statute (NCGS) Chapter 113A, Article 4	Provides for the creation, administration, and enforcement of a program and for the adoption of minimal mandatory standards which will permit development of this State to continue with the least detrimental effects from pollution by sedimentation.	Applicable

NC Solid Waste Management Act	NCGS 130A, Article 9	Definitions	Applicable
	Part 1		
	Part 2	Solid and Hazardous Waste Management	Applicable
	NCGS 130A-294(c)(17)	The bottom of a hazardous waste disposal facility shall be at least 10 feet above the seasonal high water table and more when necessary to protect the public health and the environment	Potentially Applicable
	NCGS 130A-294(h)(6)	Prohibits disposal in a hazardous waste disposal facility of ignitables as defined in the RCRA, polyhalogenated biphenyls of 50 ppm or greater concentration, and free liquids whether or not containerized.	Applicable
	Part 2A	Nonhazardous Solid Waste Management	Applicable
	Part 3	Inactive Hazardous Sites	Relevant and Appropriate
	Part 4	Superfund Program	Applicable
Asbestos Hazard Management	NCGS 130A, Article 19	Establishes program and regulations for the management of asbestos	Potentially Applicable



Water and Air Resources statute	NCGS Chapter 143, Article 21	Public policies of the State to maintain, protect, and enhance water quality with North Carolina.	Applicable
	Part 1	Organization and Powers Generally; Control of Pollution	Applicable
	Part 6	Floodway Regulation	Applicable
	NCGS 143-215.54(c)	New solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities are prohibited in the 100-year floodplain.	Potentially Applicable
Oil Pollution and Hazardous Substances Control Act of 1978	Part 7	Water and Air Quality Reporting	Potentially Applicable
	NCGS Chapter 143, Article 21A	Establishes criteria for protecting the land and the waters over which this State has jurisdiction from pollution by oil, oil products, oil by-products, and other hazardous substances.	Applicable
	Part 1	General Provisions	Applicable
	Part 2	Oil Discharge Controls	Applicable

Air Pollution Control	NCGS Chapter 143, Article 21B	Public policies of the State to maintain, protect, and enhance air quality with North Carolina.	Applicable
NC Division of Waste Management, Solid Waste Section	<i>Procedure and Criteria for Waste Determination</i>	PCB wastes of 50 ppm or greater content are excluded from NC landfills through waste determination and rule	To Be Considered
Inactive Hazardous Sites Program	<i>Guidelines for Assessment and Cleanup</i>	Guidance document for the assessment and cleanup of hazardous sites, including the protection of groundwater.	To Be Considered

State Location-Specific ARARs:

<b>Standard, Requirement, Criteria, or Limitation</b>	<b>Citation</b>	<b>Requirements Synopsis</b>	<b>Comment</b>
Discharges to Isolated Wetlands and Isolated Waters	15A NCAC 2H .1300	Discharges To Isolated Wetlands And Isolated Waters	Potentially Applicable
Coastal Management	15A NCAC 7	Protects natural resources and manages development in high hazard areas to achieve quality coastal waters. Provides public access for recreation and redevelopment of urban waterfronts. Assures that the public and local governments have a say in coastal decision making and assist in developing a plan for and managing living marine resources.	Relevant and Appropriate
NC Hazardous Waste Management Rules	15A NCAC 13A .0100	Establishes standards for characterization, storage, treatment, and disposal of hazardous waste.	Applicable

Solid Waste Management	15A NCAC 13B .0100 .0300 .0500 .0600 .1600	General Provisions  Treatment And Processing Facilities  Disposal Sites  Monitoring Requirements  Requirements For Municipal Solid Waste Landfill Facilities (MSWLFs)	Applicable  Potentially Applicable  Applicable  Applicable  Potentially Relevant and Appropriate
Coastal Area Management Act of 1974	NCGS 113A Article 7	Protects natural resources and manages development in high hazard areas to achieve quality coastal waters. Provides public access for recreation and redevelopment of urban waterfronts. Assures that the public and local governments have a say in coastal decision making and assist in developing a plan for and managing living marine resources.	Relevant and Appropriate
NC Recordation of Inactive Hazardous Substance or Waste Disposal Sites Statute	NCGS 130A-310.8	State requirement for recordation of inactive hazardous sites.	Applicable

State Chemical-Specific ARARs:

<b>Standard, Requirement, Criteria, or Limitation</b>	<b>Citation</b>	<b>Requirements Synopsis</b>	<b>Comment</b>
Surface Water and Wetlands Standards	15A NCAC 2B .0100	Procedures For Assignment Of Water Quality Standards	Applicable
	.0200	Classifications And Water Quality Standards Applicable To Surface Waters And Wetlands Of North Carolina	Applicable
	.0300	Assignment Of Stream Classifications	Applicable
	.0400	Effluent Limitations	Potentially Applicable
	.0500	Surface Water Monitoring: Reporting	Potentially Applicable
Air Pollution Control Requirements	15A NCAC 2D .0100	Definitions And References	Potentially Applicable
	.0200	Air Pollution Sources	Potentially Applicable
	.0300	Air Pollution Emergencies	Potentially Applicable

	.0400 .0500 .0600 .0900 .1100 .1200 .1600 .1700	Ambient Air Quality Standards  Emission Control Standards  Monitoring: Recordkeeping: Reporting  Volatile Organic Compounds  Control Of Toxic Air Pollutants  Control Of Emissions From Incinerators  General Conformity  Municipal Solid Waste Landfills	Potentially Applicable Potentially Applicable Potentially Applicable Potentially Applicable Potentially Applicable Potentially Applicable Potentially Applicable Potentially Applicable
Groundwater Classification and Standards	15A NCAC 2L .0100 .0200 .0300	General Considerations  Classifications And Groundwater Quality Standards  Assignment Of Underground Water Classifications	Applicable  Applicable  Applicable

Air Quality Permits Procedures	15A NCAC 02Q .0703 & .0711	Allowable PCB and Mercury Emission Rates	Potentially Applicable
Solid Waste Management	15A NCAC 13B .0542(e)	PCBs are prohibited in Construction and Demolition Debris Landfills	Applicable
	15A NCAC 13B .1626(1)(b)(ii)	PCBs are prohibited in Municipal Solid Waste Landfills	Applicable
NC Drinking Water Act	NCGS 130A 311-327	Regulates water systems within the state that supply drinking water that may affect the public health. Provides the state with the authority needed to assume primary enforcement responsibility under the federal act.	Applicable
Inactive Hazardous Sites Program	<i>Guidelines for Assessment and Cleanup</i> Health-Based Soil Remediation Goals	Provides numerical standards, based in part on EPA guidance, for allowable levels of contaminants in soil, for both direct contact exposure to soils as well as the protection of groundwater.	To Be Considered
NC Division of Waste Management, Solid Waste Section	<i>Procedure and Criteria for Waste Determination</i>	PCB wastes of 50 ppm or greater content are excluded from NC landfills through waste determination and rule	To Be Considered


NC DENR – Department of Health and Human Services (DHHS)	Fish Consumption Advisory For Mercury	Provides advisory for the consumption of fish due to the presence of elevated levels of mercury in fish tissue.	To Be Considered
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Ms. Samantha Urquhart-Foster  
June 25, 2007  
Page 16

The NC DENR Superfund Section appreciates the opportunity to participate in the remediation of this site. If you have any questions or comments, please feel free to contact me at (919) 508-8466.

Sincerely,

A handwritten signature in black ink that reads "David B. Mattison/dg". The signature is written in a cursive, flowing style.

David B. Mattison  
Environmental Engineer  
NC DENR Superfund Section

cc: Jack Butler, NC DENR Superfund Section  
Wallace Finlator, NC DENR Superfund Section

**ATTACHMENT D**

**ENFORCEMENT ADDENDUM**

**CONFIDENTIAL**