U.S. Environmental Protection Agency
Superfund Proposed Plan for Remedial Action
Holtrachem Site
Riegelwood, Columbus County, North Carolina

August 2016

1.0 INTRODUCTION

The Region 4 office of the U.S. Environmental Protection Agency (**EPA**[1]) is issuing this **Proposed Plan** for the Remedial Action as part of the **Superfund Cleanup Process** at the Holtra chem / Honeywell Inc. site (**Holtrachem site**). The Holtrachem site is in **Riegelwood, Columbus County, North Carolina**. **EPA** is the lead agency for the Holtrachem site; the North Carolina Department of Environmental Quality (**NCDEQ**)[2] is the support agency. **Honeywell** is the current owner of the property and responsible party for conducting cleanups and investigations at the site.[3]

How You Can Participate

- ☑ Read this **Proposed Plan**
- ☐ Read documents in the **AR**
- ☐ Attend a Public Meeting on August 23, 2016 at 7:00 p.m. at Riegelwood Community Center
- ☐ Send comments to Samantha by September 14, 2016.
- ☐ Call Ron at 404-562-9591 if you have any questions.

EPA is issuing this **Proposed Plan** as part of its public participation responsibilities under section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (**CERCLA** or **Superfund**) and section 300.430(f)(2) of the National Oil and Hazardous Substances Contingency Plan (**NCP**).

The **Proposed Plan** summarizes information from the Remedial Investigation (**RI**), Feasibility Study (**FS**), Human Health Risk Assessment (**HHRA**), **Ecological Risk Assessment** and other documents. These documents are in the Administrative Record (**AR**) file, located in the **Information Repository**. The local Information Repository is the **East Columbus Public Library**, located at 103 Church Road in Riegelwood, NC.

In addition, the **Proposed Plan** provides **EPA**'s rationale for the preferred cleanup plan. **EPA**'s preferred cleanup plan reduces ecological and human health risks associated with buried waste, contaminated soil, contaminated sediment and surface water. **EPA**'s preferred alternative, in part, includes constructing a landfill; which will require a waiver of the Toxic Substance Control Act (**TSCA**) requirement regarding depth to groundwater. Equivalency with the TSCA requirements will include an engineered underdrain or a redundant dual-liner system to maintain separation between groundwater and the bottom of the

[1] Words/abbreviations in bold font are included in the Glossary at the end and/or include hyperlinks to websites.
[2] In September 2015, the North Carolina Department of Environment and Natural Resources (NCDENR) changed its name to the North Carolina Department of Environmental Quality (**NCDEQ**).
[3] Throughout this document, "Honeywell" refers to the company and its consultants/contractors that have performed work at the site, under **EPA** oversight since 2002.

primary waste containment liner, because a spacing of 50 feet above groundwater as specified in the TSCA requirements[4] is not naturally available at the site.

EPA, in consultation with **NCDEQ**, will select the final remedy after the public comment period has ended. **EPA** may change the preferred cleanup plan or select another alternative if **EPA** receives public comments or additional data that support a change. **EPA** will publish its final decision regarding the selected remedy in a Record of Decision (**ROD**), which will include a Responsiveness Summary that will address public comments. **EPA** will add the **ROD** to the **AR**.

2.0 SITE BACKGROUND

2.1 Site History

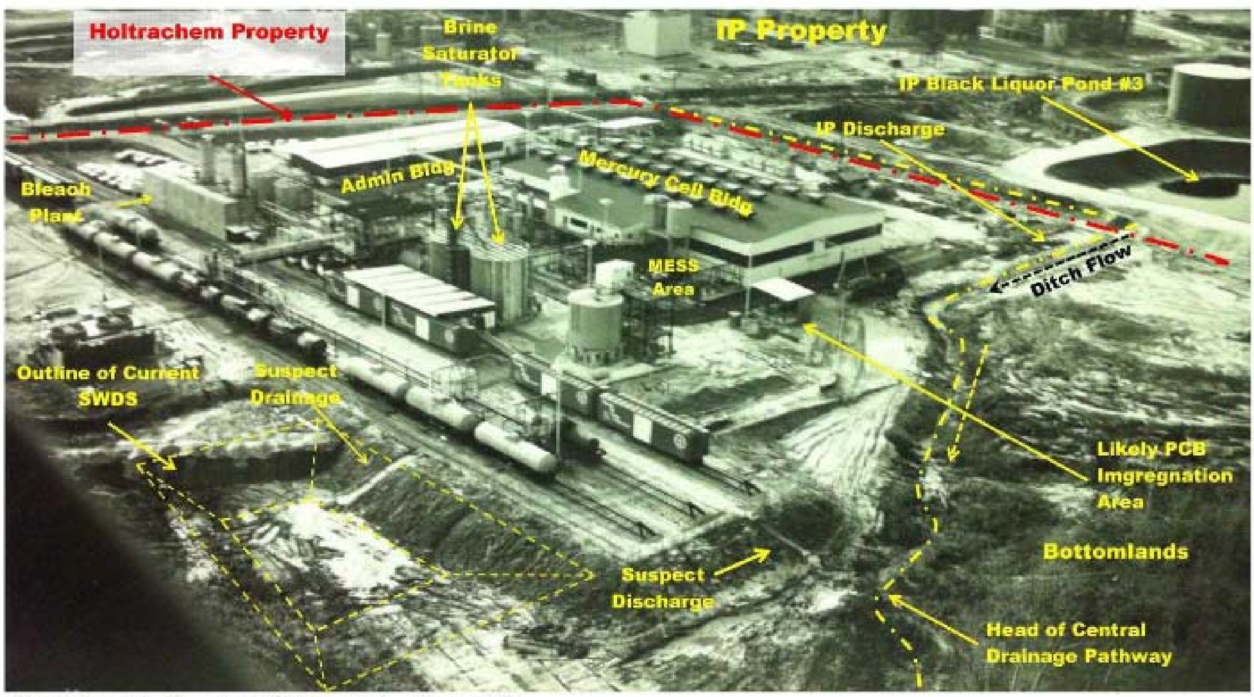


Illustration 1-3: Site Aerial Photograph - circa 1965

In August 1963, Riegel Paper Corporation (now known as International Paper (**IP**) Riegelwood Mill) transferred 26.26 acres of its land to Allied Chemical Corporation. Allied Chemical Corporation (Allied) developed the site as a **chlor-alkali** manufacturing facility that made chemicals such as sodium hydroxide, liquid chlorine, hydrogen gas, liquid bleach and hydrochloric acid using a **mercury** cell process. The facility transferred most of the products to **IP** by pipeline, sold the remaining products to other companies, and shipped them by railcars and tanker trucks.

[4] Title 40 of the Code of Federal Regulations (**CFR**) Section 761.75(b)(3)

2.2 Site Ownership

Property ownership has changed multiple times. In 1979, Allied sold the facility to LCP Chemicals (LCP) and in the mid-1980s, the facility sold approximately two acres back to **IP**. LCP filed for bankruptcy in 1994 and Holtrachem acquired the site in 1994 and operated the facility until 2000. Honeywell International, Inc. (**Honeywell**) became the site owner when Holtrachem was dissolved in 2001. The site currently occupies 24.4 acres, and is surrounded by IP and the Cape Fear River. The property has been vacant with the exception of a few people who perform site inspections, maintenance and storm water treatment. Currently, the plant treats and releases about 400,000 gallons of storm water each week.

2.3 Historical Operations and Releases

Historical operations and releases of hazardous substances resulted in waste areas, contaminated soil, sediment, ground water and surface water. While operating, environmental evaluations focused on compliance with the Resource Conservation and Recovery Act (**RCRA**) and the Occupational Safety and Health Act (**OSHA**). In January 2002, the RCRA program referred the site to the Superfund program. Since 2002, the Superfund program conducted and oversaw several investigations and cleanup actions under the **Superfund Alternative Approach**.

2.4 Previous Cleanup Actions

In September 1999, **EPA** helped the facility during Hurricane Floyd. The estimated 24 inches of rain caused a release of about 2.2 million gallons of storm water potentially containing 4.9 pounds of **mercury** into the Cape Fear River. EPA's help included sandbagging the damaged retention basin and pumping storm water to IP.

During 2003-2004, Honeywell performed a removal action with EPA oversight. The work included collecting and disposing of spilled mercury and containerized wastes, and taking apart and disposing of contaminated structures. Contractors collected over 34,000 pounds of mercury waste.

During 2008, contractors dug sediment containing polychlorinated biphenyls (**PCBs**) out of a former wastewater treatment lagoon at IP. Contractors placed approximately 23,700 cubic yards (**yd^3**) of this contaminated sediment, also called Waste Water Treatment Solids (**WWTS**), in two stockpiles on the Holtrachem site.

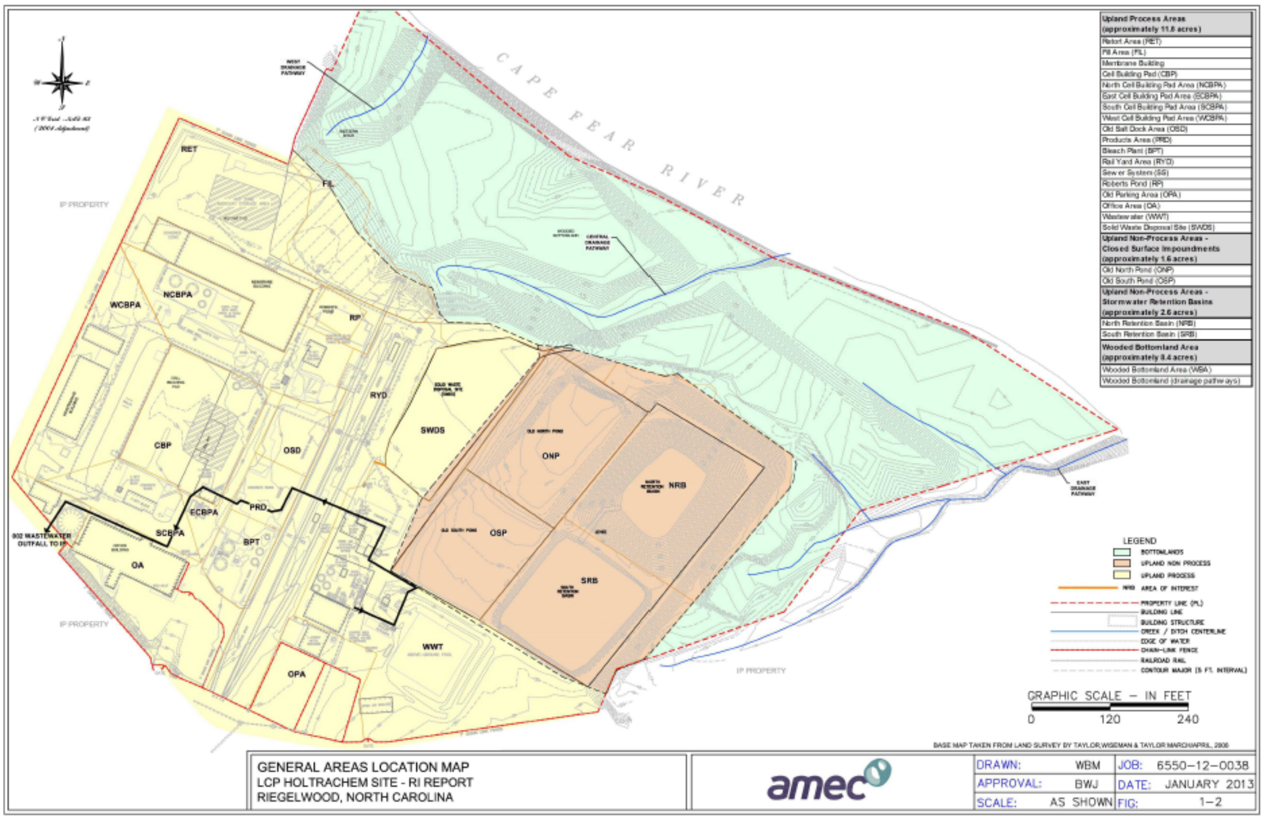
The storage piles were temporary solutions until a final remedial action. EPA's preferred alternative includes treatment/disposal of the **WWTS** as part of the proposed cleanup plan.

2.5 Public Participation Activities Prior to Issuance of the Proposed Plan

No major public participation activities have been initiated prior to the issuance of the Proposed Plan. **EPA** conducted community interviews, established a local information repository, prepared a Community Involvement Plan and hosted a RI/FS kick-off meeting. The next planned public involvement activities will include issuing a Proposed Plan Summary Fact Sheet and making additional documents available for review in the Administrative Record. EPA will host a public meeting on August 23, 2016 to present the Proposed Plan and receive public comments.

3.0 SITE CHARACTERISTICS

FIGURE 1: FUNCTIONAL AREAS LOCATION MAP (RI FIGURE 1-2)



The site consists of three general areas: the Upland Process Area (about 11.8 acres), the Upland Non-Process Area (about 4.2 acres) and the Wooded Bottomland Area (about 8.4 acres). These areas are color coded in **Figure 1**. The main chemicals of concern (**COCs**) are **mercury** and **PCBs**. The concentration of mercury ranges up to 11,000 milligrams per kilogram (**mg/kg**) in soil and 126 mg/kg in sediment. The concentration of PCBs ranges up to 2,700 mg/kg in soil and up to 1,500 mg/kg in sediment. Data is not available for beneath the former mercury cell building or the former retort pad, but based on experience with similar site, these areas may include highly contaminated mercury soil, which EPA may classify as Principal Threat Waste (**PTW**).

The Upland Process and Non-Process Areas (shaded yellow and orange in Figure 1) are flat with a slight slope to the north-northeast. These areas include a few remaining buildings and structures, a partial rail line and storm water collection and treatment basins. There is a steep slope from the Upland Areas to the Wooded Bottomland Area. The Wooded Bottomland Area contains eight discrete **jurisdictional**

wetlands and slopes to the north-northeast toward the Cape Fear River. Surface water at the site becomes contaminated as it comes in contact with contaminated soils and sediments.

The Atlantic Ocean tides influence the Cape Fear River. The river is approximately 200 miles long and flows southeast to enter the Atlantic Ocean south of Wilmington, North Carolina. Near the site, the river is over 300 feet across and about 26 feet deep. According to the 2010 North Carolina Division of Water Resources Environmental Sensitivity Map, the Cape Fear River near the site is classified as Class C: Aquatic Life, Secondary Recreation, Fresh Water and Class Sw: Swamp Waters.

Minor ground water contamination is limited to the uppermost aquifer units which have insufficient yield for drinking water use. Therefore, there is not a completed ground water pathway. Drinking water for the Riegelwood area comes from river water collected about 0.3 miles upstream of the site (see figure on page 5). **IP** treats process and storm water and releases it through their National Pollutant Discharge Elimination System (**NPDES**) permitted outfall into the Cape Fear River downstream of the site.

4.0 SCOPE AND ROLE OF RESPONSE ACTION

The **EPA** is addressing the remaining contamination that poses unacceptable risks to human health and/or the environment with this proposed cleanup plan. This includes a combination of excavating and capping contaminated soils and sediment, and treating, via in-situ stabilization, contaminated soil that may potentially be classified as Principal Threat Wastes (**PTW**). PCB remediation waste greater than 50 mg/kg will be managed in accordance with **TSCA** regulations that are identified as applicable or relevant and appropriate requirements. The proposed remedy also includes constructing a **TSCA** equivalent landfill, operation and maintenance (**O&M**), surface water and ground water monitoring, Engineering Controls (**ECs**), Institutional Controls (**ICs**) and Five-Year Reviews (**FYR**). Earlier removal actions in 2003 and 2008 addressed the immediate health hazards. This current proposed action will address the remaining risks and provide for a final remedy for the stockpiled **PCB**-contaminated materials.

5.0 SUMMARY OF SITE RISKS

WHAT IS RISK? HOW DOES EPA CALCULATE RISK?

A Superfund human health risk assessment estimates the "baseline risk". This is an estimate of the likelihood of health problems occurring if no cleanup actions are done at a site. To estimate the baseline risk, EPA conducts a four-step process:

Step 1: Analyze Contamination
Step 2: Estimate Exposure
Step 3: Assess Potential Health Dangers
Step 4: Characterize Site Risk

In Step 1, EPA looks at the concentrations of contaminants found at a site and past scientific studies on the effects these contaminants have had on people or animals. This helps EPA determine which contaminants are most likely to pose the greatest health risks.

In Step 2, EPA considers the different ways that people might be exposed to the contaminants, the concentrations that people might be exposed to, and the potential frequency and duration of exposure.

In Step 3, EPA uses information from Step 2 combined with information on the toxicity of each chemical to estimate potential health risks. EPA considers two types of risk: cancer and non-cancer. The likelihood of any kind of cancer resulting from a Superfund site is expressed as an upper bound probability; for example, a "1 in 10,000 chance." In other words, for every 10,000 people that could be exposed, one extra cancer *may* occur because of exposure to site contaminants. An extra cancer case means that one more person could get cancer than would normally be expected from all other causes. For non-cancer health effects, EPA calculates a "hazard index". The key concept here is that a "threshold level" (measured usually as a hazard index of less than 1) exists below which non-cancer health effects are not predicted.

In Step 4, EPA determines whether site risks are great enough to cause health problems for people at or near the Superfund site.

5.1 Chemicals of Concern

Mercury and **Aroclor 1268** are the primary **COCs** that contaminate the soil, sediment and surface water. Other COCs include Aroclor-1254, benzo(a)pyrene, and **dioxins/furans**. Contractors removed containerized waste from the site during earlier cleanup actions. The contamination that remains is in the soil and sediment and can travel to other areas by rain (overland flow) and air (volatilization). Data is not available for beneath the former mercury cell building or the former retort pad, but based on experience with similar site, these areas may include highly contaminated mercury soil, which EPA would classify as **PTW**.

What are PCBs?

PCBs are manufactured chemicals known as chlorinated hydrocarbons. In the US, companies made PCBs from 1929 until banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other industrial applications.

What is Aroclor?

Aroclor is a **PCB** mixture. At the site, the facility impregnated graphite anodes for the mercury cells with **Aroclor 1268**. The first two digits in the Aroclor name generally refer to the number of carbon atoms in the phenyl rings (for PCBs this is 12), the second two numbers indicate the percentage of chlorine by mass in the mixture. For example, the name Aroclor 1268 means that the mixture contains about 68% chlorine by weight.

What is mercury?

Mercury is a naturally occurring, shiny, silver-white metal that is liquid at room temperature. Mercury is in older thermometers, fluorescent light bulbs and some electrical switches. The facility used the chlor-alkali mercury cell process. When dropped, mercury breaks into smaller droplets that can go through small cracks. At room temperature, mercury can evaporate to become an invisible, odorless toxic vapor.

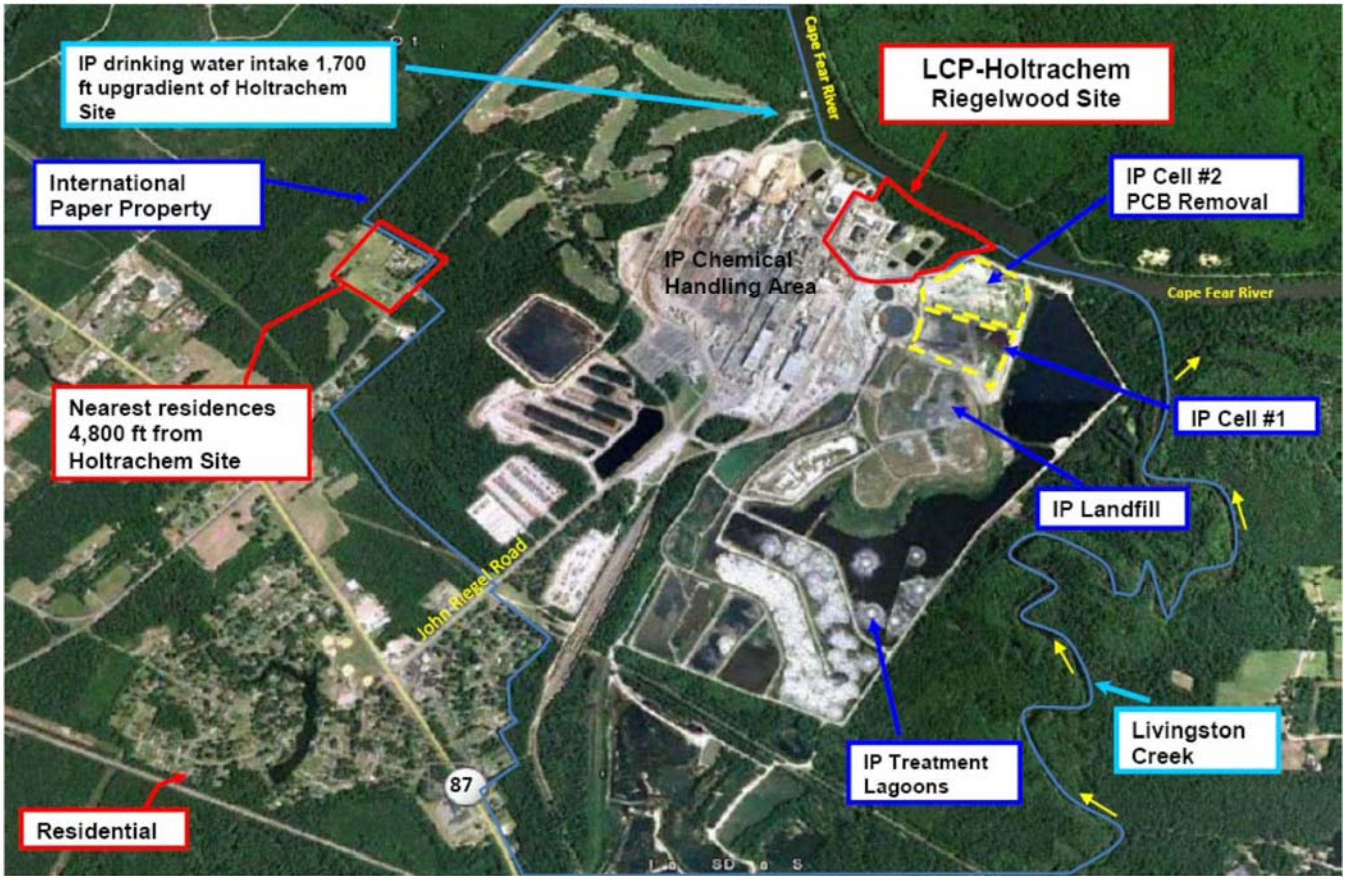


FIGURE 2: LAND USE NEAR THE SITE

5.2 Land Use

The site and surrounding 2-square mile **IP** property are zoned for industrial use. The nearest home is about 0.9 mile from the site. **IP** has operated a pulp and paper mill for over 60 years. In March 2015, **IP** announced in a **press release** that it was going to invest $135 million in the Riegelwood plant to convert it to 100% fluff and softwood pulp production. Therefore, EPA anticipates that the land will remain zoned as industrial for many years into the future.

5.3 Ground Water Use

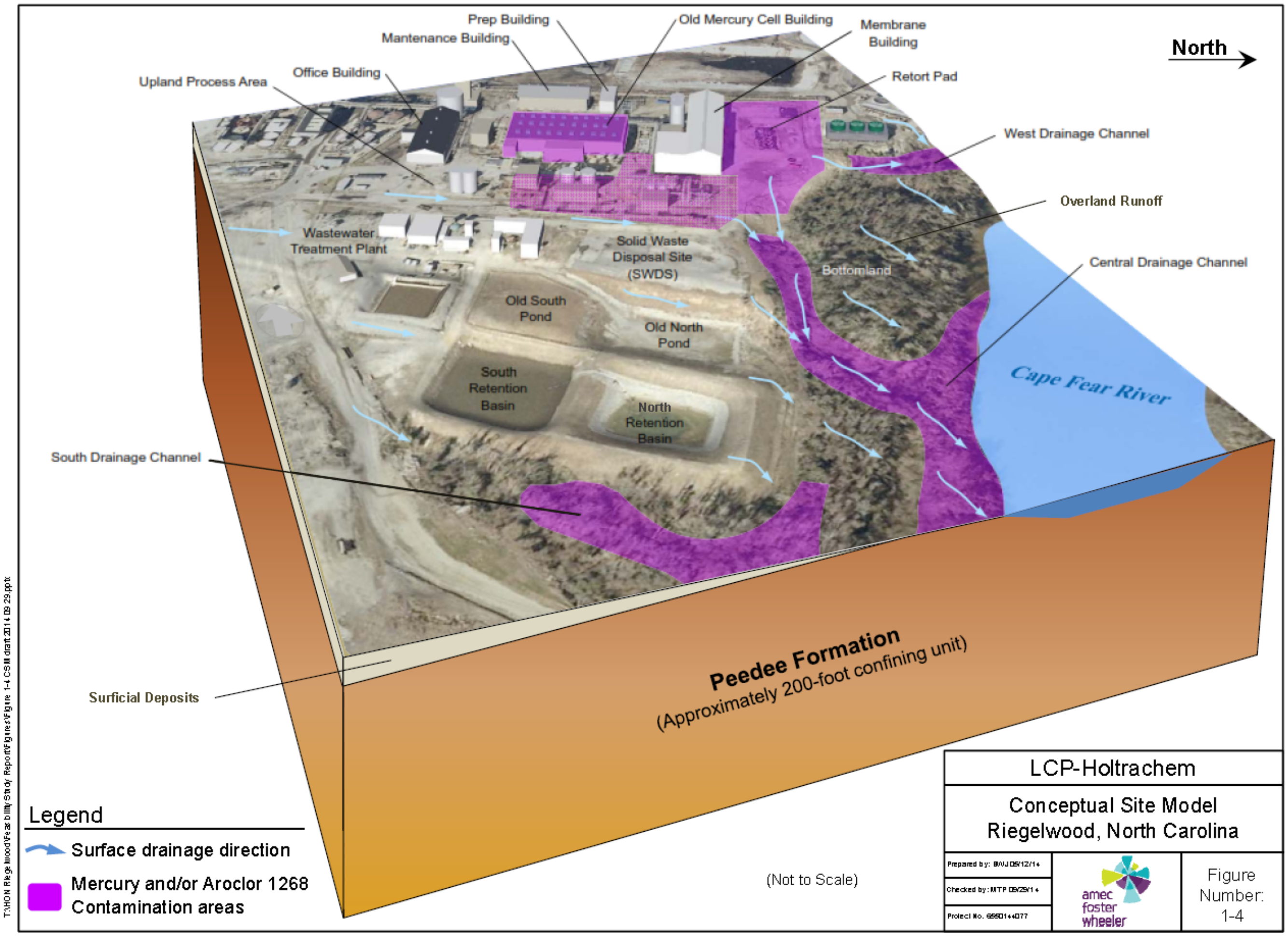
The facility does not use ground water. Minor ground water contamination is limited to the uppermost aquifer units, which have insufficient yield for drinking water use. **IP** provides drinking water to the Riegelwood area from a location about 0.3 mile upstream in the Cape Fear River.

5.4 Exposed Populations

Industrial workers, trespassers, and wildlife are the only currently exposed populations to the site hazards. **EPA** anticipates it will be the same for the future, but with possible addition of construction workers.

5.5 Exposure Pathways

FIGURE 3: CONCEPTUAL SITE MODEL



Exposure to **COCs** for people and animals could occur by touching contaminated soil, sediment and surface water, and eating or drinking contaminated soil, sediment and surface water. Currently, the property is fenced on three sides with the fourth side bordering the Cape Fear River. Access to the site is restricted. There is not a completed pathway for ground water.

5.6 Human Health Risks Summary

The biggest risk posed by the site's **COCs** are to industrial workers, construction workers and adolescent trespassers/recreators. **Table 1** includes a summary of excess cancer risks and non-cancer hazard quotients for each receptor that may be exposed to the site's COCs. The primary risk drivers are mercury and **Aroclor 1268**, which pose non-cancer risks rather than carcinogenic risks. Section 5.1 lists the **COCs** for the site.

TABLE 1: SUMMARY OF HUMAN HEALTH RISKS AND HAZARDS

Timeframe	Receptor	Location	Age	Carcinogenic Risk	Non-Carcinogenic Hazard Quotient
Future	Industrial Worker	Air Compressor Building	Adult	5.00E-05	2.00E+01
Future	Industrial Worker	New Cell Building	Adult	1.00E-04	2.00E+01
Future	Industrial Worker	Office Building	Adult	6.00E-05	2.00E+01
Future	Industrial Worker	Prep Building	Adult	6.00E-05	2.00E+01
Future	Construction Worker		Adult	NA	3.00E+01
Current/Future	Trespasser/Visitor		Adolescent	5.00E-04	7.00E+01

5.7 Ecological Risk Summary

Under EPA oversight, Honeywell's consultants conducted a baseline ecological risk assessment (BERA). The BERA for Bottomland Terrace A, the Upland Non-Process Area, and Wetland B identified hazards associated with exposure of mercury and zinc to terrestrial wildlife. The hazards from zinc are not considered significant given the uncertainties associated with the higher levels found in only two plant tissue samples.

Hazards from mercury are considered low because they are spatially limited, aspects of the analysis were conservative, and field observations indicate significant wildlife use. The low levels of risk from mercury are the result of elevated concentrations at a few locations downgradient or adjacent to facility source areas. EPA calculated an RGO of 3 mg/kg for mercury in soil based on the data collected for the BERA. The value of 0.75 mg/kg was selected as the RGO for sediment based on the Lowest Observed Effects Concentration (LOEC) in the BERA toxicity tests to *R. clamitans* and *H. azteca*.

During the FS, risk calculations for dioxins were updated. Dioxins pose a risk to the Carolina wren and the Green Heron. The concentrations exceeded the No Observed Adverse Effects Level (**NOAEL**) hazard quotient (**HQ**) for both birds, and exceeded the Lowest Observed Adverse Effect Level (**LOAEL**) HQ for the Carolina Wren.

TABLE 2: SOIL AND SEDIMENT DIOXIN RISKS TO AVIAN SPECIES

Avian Species:	Green Heron		Carolina Wren	
	NOAEL HQ	LOAEL HQ	NOAEL HQ	LOAEL HQ
Bird TCDD TEQ (dioxins/furans)	0.17	0.017	36	3.6
Bird TCDD TEQ (DLCs)	2.2	0.22	0.25	0.025
Hazard Index	2.4	0.24	36	3.6

5.8 Risk Conclusion

EPA's current judgement is that the Preferred Alternative identified in this **Proposed Plan**, or one of the other active measures considered in the **Proposed Plan**, is necessary to protect public health or welfare and the environment from actual or threatened releases of hazardous substances into the environment.

6.0 REMEDIAL ACTION OBJECTIVES

Under **EPA** oversight, Honeywell's technical consultants developed Remedial Action Objectives (**RAOs**) to reduce risks posed by the site. The **RAOs** for general functional areas are:

Upland Process and Non-Process Areas

- Reduce risk to construction/industrial workers from exposure through dermal adsorption and incidental ingestion from surface and subsurface soils containing mercury and **Aroclor 1268** by reducing concentrations to levels that are protective for commercial and industrial uses.
- Prevent migration of mercury and Aroclor 1268 from upland surface soils and the solids in the storm water conveyance system to the Wooded Bottomland Area by reducing concentrations to protective levels.
- Treat and/or contain potentially highly contaminated soils in the process Areas F and G.

Wooded Bottomland Areas

- Reduce risk to adolescent trespassers from exposure through dermal adsorption of surface water containing Aroclor 1268 by reducing concentrations to protective levels.
- Reduce risk to adolescent trespassers from exposure through dermal absorption and incidental ingestion of surface soil containing Aroclor 1268 by reducing concentrations to protective levels.
- Reduce risk to ecological receptors from sediment contaminated with mercury and Aroclor 1268 by reducing concentrations to protective levels.
- Reduce risk to ecological receptors from surface soil contaminated with mercury by reducing concentrations to protective levels.

This proposed action will reduce the excess human health cancer risk associated with exposure to contaminated soil, sediment and surface water to 1 in 100,000, and excess non-cancer risk to a hazard index of one. It also reduces the risk to ecological receptors to a hazard index of one. The proposed action will lower the risks by reducing the concentrations of the soil, sediment and surface water contaminants to the cleanup levels in Error! Reference source not found.**Table 4**.

TABLE 3: RANGE OF CONCENTRATIONS DETECTED, REMEDIATION GOALS AND BASIS FOR UPLAND PROCESS AND NON-PROCESS AREAS

Media:	Soil					
	Surface Soil = 0-1 feet			Subsurface Soil = 1-10 feet		
	Detected Concentration Ranges	RG	Basis for RG	Detected Concentration Ranges	RG	Basis for RG
Concentration units:	mg/kg			mg/kg		
Aroclor-1268	ND - 2,700	11	Construction Worker (HI of 1)	NA		
Aroclor-1254 + Aroclor-1268	NA			0.0036 - 2,500	11	Construction Worker (HI of 1)
benzo(a)pyrene	ND - 26	3.1	Industrial Worker (Cancer Target Risk of 10^{-5})	NA		
mercury	0.0184 - 1,300	516	Industrial Worker (HI of 1)	0.00822 - 11,000	926	Construction Worker (HI of 1)

Notes/definitions:

mg/kg = milligrams per kilogram	NA = Not Applicable	RG = Remediation Goal (i.e. cleanup level)
HI = Hazard Index (non-cancerous)	ND = Not Detected	

TABLE 4: RANGE OF CONCENTRATIONS DETECTED, REMEDIATION GOALS AND BASIS FOR WOODED BOTTOMLAND AREAS

Media:	Surface Soil			Drainage Path Sediment			Drainage Path Surface Water		
Depth ranges:	0-0.5 feet for ecological receptor basis 0-1 foot for human receptor basis			0-0.5 feet for ecological receptor basis					
	Detected Concentration Ranges	RG	Basis for RG	Detected Concentration Ranges	RG	Basis for RG	Detected Concentration Ranges	RG	Basis for RG
Concentration units:	mg/kg			mg/kg			µg/L		
Aroclor-1268	NA			0.042 - 390	47	Ecological Receptor (HI of 1) LOAEL risk to the green blue heron	0.062 - 17	0.44	Adult Trespasser/Recreator (HI of 1)
Aroclor-1254 + Aroclor-1268	0.0045 - 1,267	21	Adult Trespasser/Recreator (HI of 1)	NA			NA		
mercury	NA			0.038 - 44.7	0.75	LOEC in amphibian and macroinvertebrate toxicity testing	NA		
mercury compounds	0.136 - 92	3	Ecological Receptor (HI of 1)	NA			NA		
2,3,7,8-TCDD TEQs (dioxins/furans)	2.42E-06 - 2.12E-03	8.54E-05	Ecological Receptor - LOAEL risk to the Carolina wren (HQ = 0.90)	NA			3.38E-06 - 3.38E-04	8.70E-06	Adult Trespasser/Recreator (Cancer Target Risk of 10^{-5})
2,3,7,8-TCDD TEQs (PCBs)	8.10E-07 - 9.67E-04	1.96E-04	Ecological Receptor - LOAEL risk to the Carolina wren (HQ = 0.10)	NA			3.24E-06 - 1.19E-04	9.50E-06	Adult Trespasser/Recreator (Cancer Target Risk of 10^{-5})
2,3,7,8-TCDD TEQs (dioxins/furans + PCBs)	1.48E-06 - 1.66E-03	9.36E-04	Adult Trespasser/Recreator (Cancer Target Risk of 10^{-5})	NA			NA		

Notes/definitions:

mg/kg = milligrams per kilogram	LOAEL = Lowest Observed Adverse Effects Level	RG = Remedial Goal (i.e. cleanup level)
µg/L = micrograms per liter	LOEC = Lowest Observed Effects Concentration	2,3,7,8-TCDD = 2,3,7,8-tetrachlorodibenzo-p-dioxin
HI = Hazard Index (non-cancerous)	NA = not applicable	TEQ = Toxic Equivalent Quotient
HQ = Hazard Quotient	PCBs = polychlorinated biphenyls	

7.0 SUMMARY OF REMEDIAL ALTERNATIVES

The **FS** divided the site into 13 areas with concentrations of contaminants that exceed risk-based cleanup goals and therefore need remedial action. **Table 5** includes a description for the 13 areas. **Figure 4** shows the areas labeled A through M. Due to different characteristics at the site the FS evaluated subareas F and G separately from the other areas. **EPA** will select one remedial alternative (or cleanup plan) from each of the following two categories.

- A- Alternatives: Overall Site
  - o areas A through M
  - o alternatives A-1 through A-6
- S- Alternatives: Soil associated with the Retort Area and Cell Building Pad
  - o areas F and G
  - o alternatives S-1 through S-4

TABLE 5: AREA DESCRIPTIONS

Remedial Area	Area Description	Alternative Category
A	Area west of Cell Building Pad (PCB 25-49 mg/kg)	A
B	Southwest corner of Waste Water Treatment Plant	A
C	Membrane Plant Ancilliary Areas (PCB 25-49 mg/kg)	A
D	Fill Area (PCB >50 mg/kg)	A
E	Areas Northeast of Cell Building Pad	A
F	Retort Area	A + S
G	Cell Building Pad	A + S
H	Waste Water Treatment Solids	A
I	Stormwater Conveyance System	A
J	Wooded Bottomland Areas (Including Drainage Pathways)	A
K	Wooded Bottomland Area (North of Fill Area)	A
L	Areas Northeast Corner of Old North Pond and Southeast Corner of North Retention Basin	A
M	Wooded Bottomland Area (North of Fill Area)	A

FIGURE 4: REMEDIAL FOOTPRINT

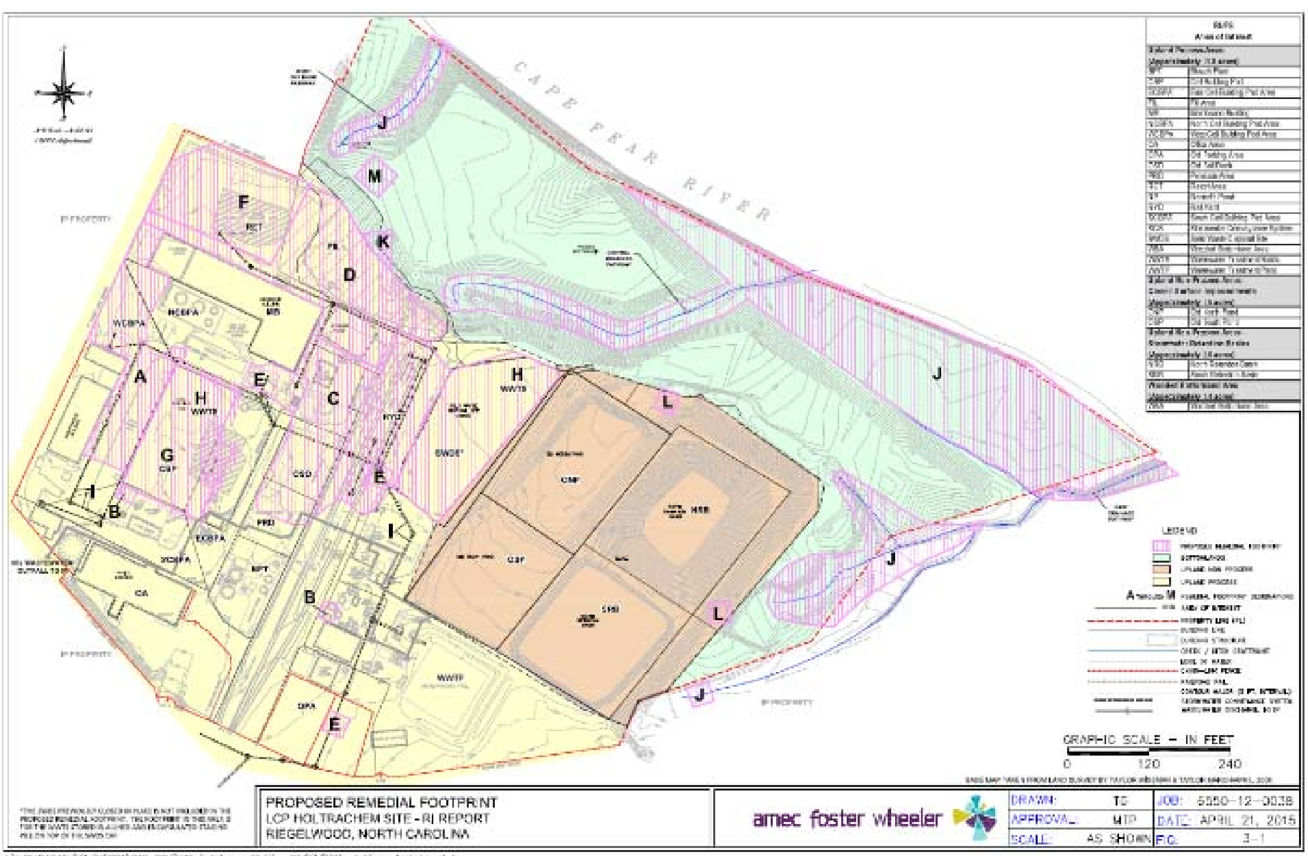


Table 6 lists the alternative designations and titles. Sections 7.1 and 7.2 provide more details about each alternative.

TABLE 6: LIST OF REMEDIAL ALTERNATIVES

Area	RI/FS Designation	Description
Overall Site	A-1	No Action
	A-2	Capping With Limited Excavation, Off-Site Disposal or On-Site Treatment, and Institutional Controls (ICs)/Engineering Controls (ECs)
	A-3	Combination of Capping and Excavation, On-Site Disposal, and ICs/ECs
	A-4	Combination of Capping and Excavation, Off-Site Disposal, and ICs/ECs
	A-5	Excavation, On-Site Disposal, and ICs/ECs
	A-6	Excavation, Off-Site Disposal, and ICs/ECs
Areas F and G	S-1	No Action
	S-2	Capping with Vertical Impermeable Barrier Installation and ICs
	S-3	Treatment with In-Situ Stabilization/Solidification, Capping and ICs
	S-4	Excavation, Off-Site Treatment and Disposal, and ICs

7.1 Overall Site Alternatives

The six **FS** remedial alternatives for the overall site are presented in sections 7.1.1 through 7.1.6. These alternatives address soil (with the exception of the soils beneath the Cell Building pad (Area G) and Retort Area (Area F)[5]), sediment, surface water, ground water, **WWTS** and the storm water conveyance system solids.

Common Elements: Many of these alternatives include common components. All of the alternatives, with the exception of the No Action alternative, require

- capping/erosion control along the berm (Area L) of the Upland Non-Process Area[6],
- cleaning out and closing the storm water conveyance system (Area I),
- dewatering and off-site disposal of the materials from the conveyance system,
- decommissioning the existing storm water treatment system,
- ground water and surface water monitoring,
- operation and maintenance (**O&M**),
- Institutional Controls (**ICs**),
- Engineering Controls (**ECs**), and
- Five-Year Reviews (**FYR**).

[5] Four separate alternatives to address soil associated with Areas F and G are presented in section 7.2.

[6] The L Areas are isolated locations where mercury concentrations were above the bottomland ecological mercury PRG of 3 mg/kg. These two samples fell well below the industrial worker PRG for the upland area of 516 mg/kg, but were above the ecological PRG for the Bottomlands. Therefore, the L areas above 3 mg/kg will be capped to protect ecological receptors from potential runoff or erosion into the Bottomlands.

7.1.1 Alternative A-1: No Action

TABLE 7: A-1 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs:	
Capital Cost	$0
Annual O&M Cost	$0
Total Cost	$0
Total Present Worth Cost	$0
Estimated Timeframes:	
Construction Timeframe	0 months
Time to Achieve RAOs	beyond our lifetime

No Action includes no new remedial measures or **ICs**. According to section 300.430(e)(6) of the **NCP** (Title 40 of the **CFR**), "No Action" is retained for detailed analysis and used as a baseline in comparing alternatives. The No Action alternative assumes **EPA** would not require any monitoring and the facility would stop operating the existing storm water treatment system.

Alternative A-1 does not meet the threshold criteria of protecting human health and environment and compliance with Applicable or Relevant and Appropriate Requirements (**ARARs**). It is not is not effective in the short or long term, and does not reduce toxicity, mobility, or volume. There is no cost associated with this alternative, it is easy to implement and most likely will never achieve **RAOs**.

7.1.2 Alternative A-2: Capping With Limited Excavation, Off-Site Disposal or On-Site Treatment, and ICs/ECs

TABLE 8: A-2 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs	A-2a (off-site disposal of **WWTS**)	A-2b (on-site treatment of **WWTS**)
Capital Cost	$ 18,647,700	$ 20,180,300
Annual O&M Cost	$ 31,500	$ 31,500
Total Cost	$ 19,700,000	$ 21,300,000
Total Present Worth Cost	$ 19,000,000	$ 20,600,000
Estimated Timeframes		
Construction Timeframe	12 months	12 months
Time to Achieve RAOs	12 months	12 months

Alternative A-2 includes

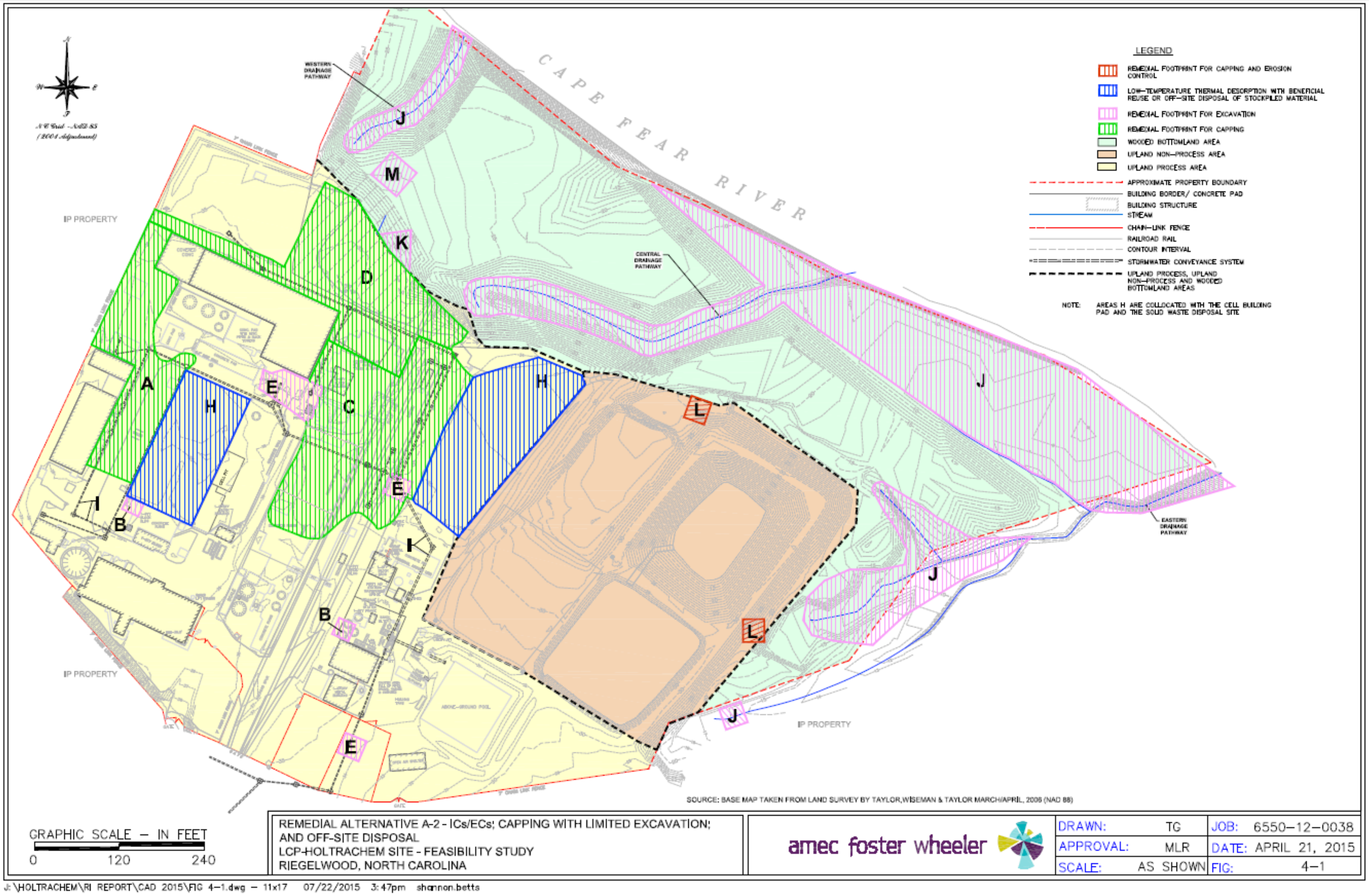
- the common elements described in Section 7.1
- capping most of the Upland Process Areas (Areas A, C and D)[7]
- excavation of about 10,900 yd^3 of soil from the Wooded Bottomland Area and isolated Upland areas (Areas B, E, J, K and M)
- off-site disposal of excavated material, and
- one of the following options for the approximate 23,700 yd^3 of **WWTS** (Area H)
  - A-2a: transport the WWTS to an off-site EPA-approved landfill for disposal, or
  - A-2b: treat the WWTS on-site using Low Temperature Thermal Desorption (**LTTD**) technology.

  [Note: If EPA selects Alternative A-2, the **ROD** will specify which of the two options will be used for the WWTS.]

Figure 5 on the following page is color-coded to differentiate between the areas that will be capped, excavated and treated/disposed off-site.

[7] Capping includes placing a membrane-soil cap system with a vegetated cover over the remediation area. A protective soil layer and geotextile membrane would be placed over the area to isolate the PCB-containing soil. Another layer of protective soil would be placed on top of the membrane, plus a layer of topsoil that would be vegetated for final restoration and erosion control. The actual cap composition and soil layer thicknesses would be evaluated during the remedial design.

FIGURE 5: ALTERNATIVE A-2



7.1.3 Alternative A-3: Combination of Capping and Excavation, On-Site Disposal, and ICs/ECs

TABLE 9: A-3 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs:	
Capital Cost	$12,122,700
Annual O&M Cost	$36,500
Total Cost	$13,300,000
Total Present Worth Cost	$12,600,000
Estimated Timeframes:	
Construction Timeframe	18-24 months
Time to Achieve RAOs	18-24 months

Alternative A-3 is EPA's preferred remedy for the overall site. A-3 includes:

- the common elements in Section 8.1
- capping Areas A and C [see Footnote 7]
- excavation of about 15,400 yd^3 of contaminated soil from the Wooded Bottomland Area and other isolated Upland Process areas (Areas B, D, E, J, K and M),
- construction of an on-site **TSCA**-equivalent landfill
- disposal of about 39,100 yd^3 of excavated material and **WWTS** (Area H) in an on-site TSCA-equivalent landfill.

Figure 6 on the following page is a conceptual illustration of a TSCA-equivalent landfill**. Figure 7** depicts the lettered areas. The on-site TSCA-equivalent landfill will meet the TSCA chemical waste landfill requirements that are identified as **ARARs**. However, a waiver of some of the technical requirements related to connection with groundwater and surface water will be necessary due to site conditions. The basis for the waiver is that equivalency with the TSCA requirements will include an engineered underdrain or a redundant dual-liner system to maintain separation between groundwater and the bottom of the primary waste containment liner, because a spacing of 50 feet above groundwater as specified in the TSCA requirements[8] is not naturally available at the site. **Figure 8** illustrates the draft proposed location of the landfill[9].

[8] Title 40 of the Code of Federal Regulations (**CFR**) Section 761.75(b)(3)

[9] This is a conceptual figure to illustrate that the landfill can be constructed on-site. The actual location will be determined during the Remedial Design.

FIGURE 6: CONCEPTUAL TSCA-EQUIVALENT LANDFILL

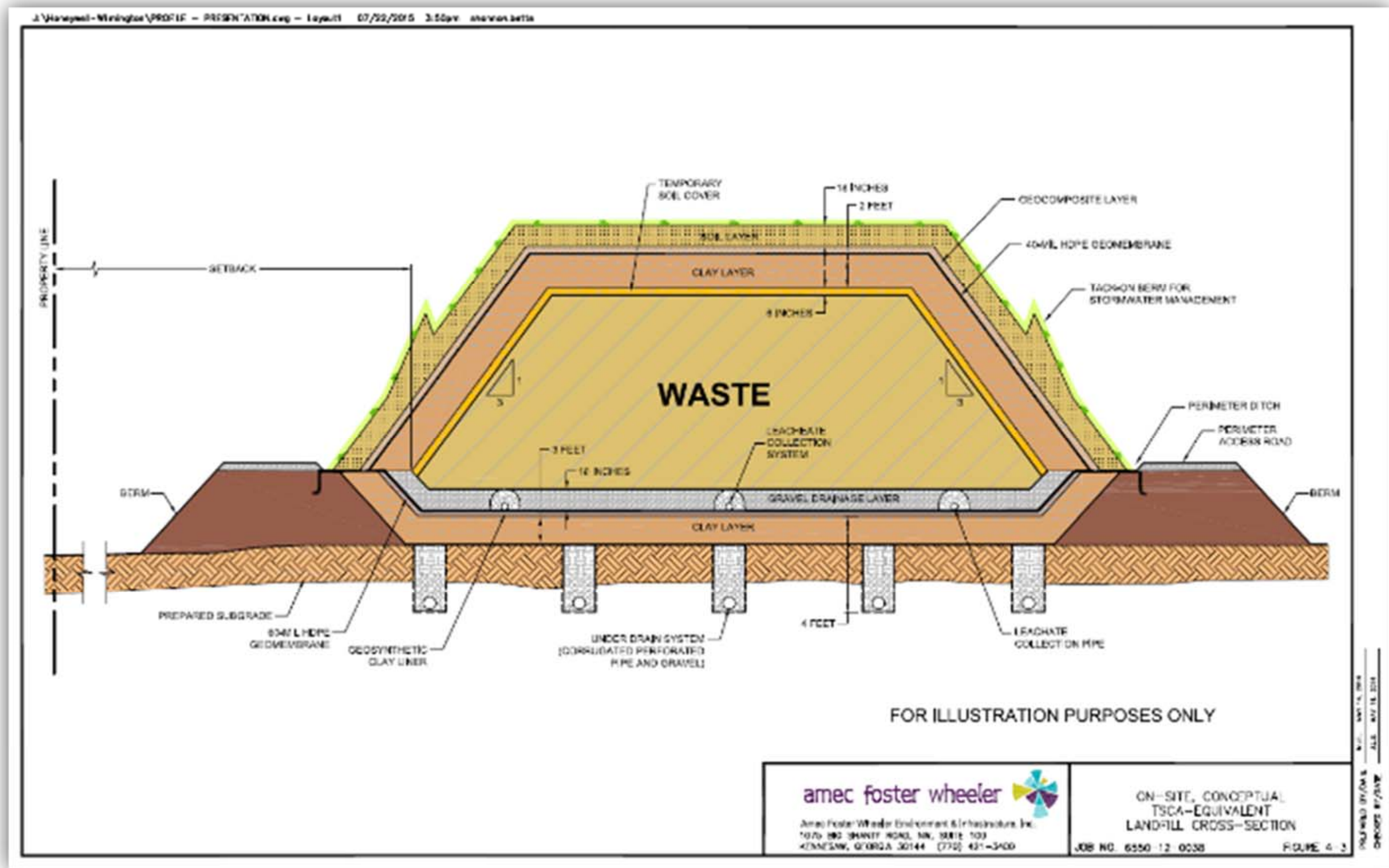


FIGURE 7: ALTERNATIVES A-3 AND A-4

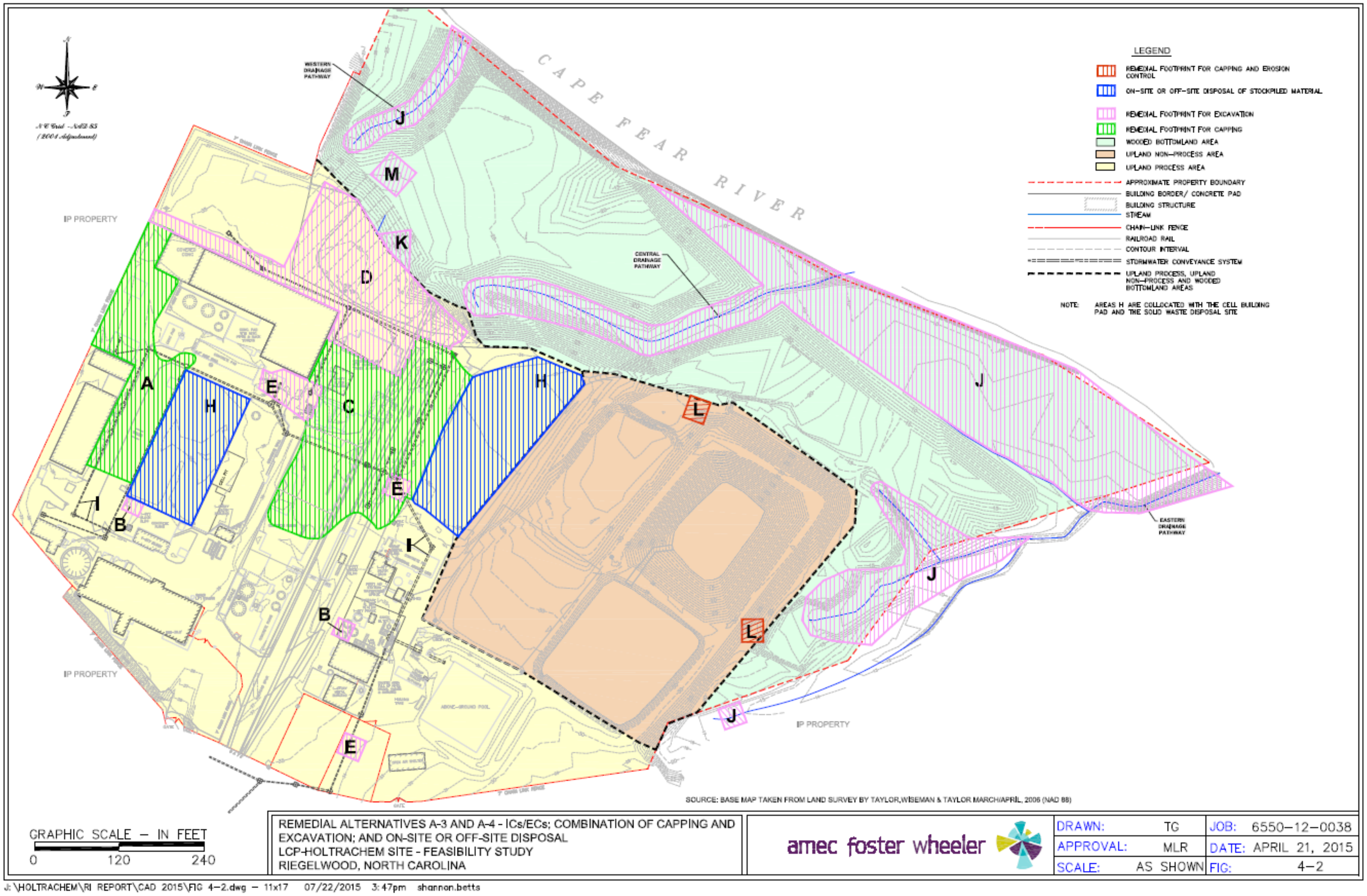
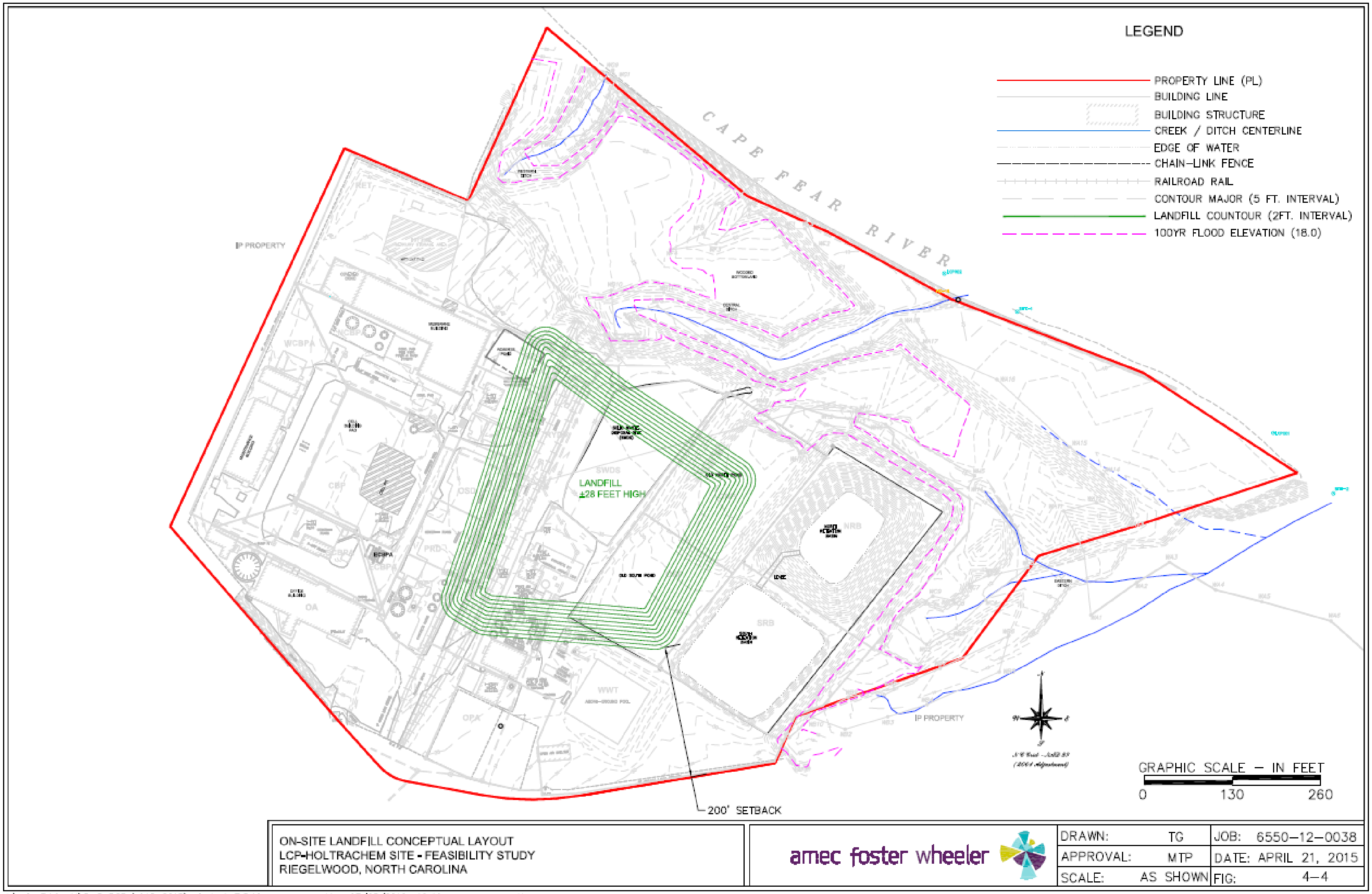


FIGURE 8: CONCEPTUAL LAYOUT LOCATION FOR ON-SITE LANDFILL



J:\HOLTRACHEM\RI REPORT\CAD 2015\FIG 4-4-7.5.16.dwg – Layout1 07/05/2016 12:19pm shannon.betts

7.1.4 Alternative A-4: Combination of Capping and Excavation, Off-Site Disposal, and ICs/ECs

TABLE 10: A-4 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs:	
Capital Cost	$20,453,700
Annual O&M Cost	$31,500
Total Cost	$21,600,000
Total Present Worth Cost	$20,900,000
Estimated Timeframes:	
Construction Timeframe	12 months
Time to Achieve RAOs	12 months

Alternative A-4 is similar to Alternative A-3. The only difference is that Alternative A-4 includes off-site disposal at an EPA-approved facility, instead of on-site disposal.

Alternative A-4 includes:

- the common elements described in Section 8.1
- capping areas A and C [see Footnote 7],
- excavation of the Wooded Bottomland Area and other isolated Upland Process areas (B, D, E, J, K and M),
- Transportation and disposal of excavated material and WWTS (Area H) to an EPA-approved off-site landfill.

7.1.5 Alternative A-5: Excavation, On-Site Disposal, and ICs/ECs

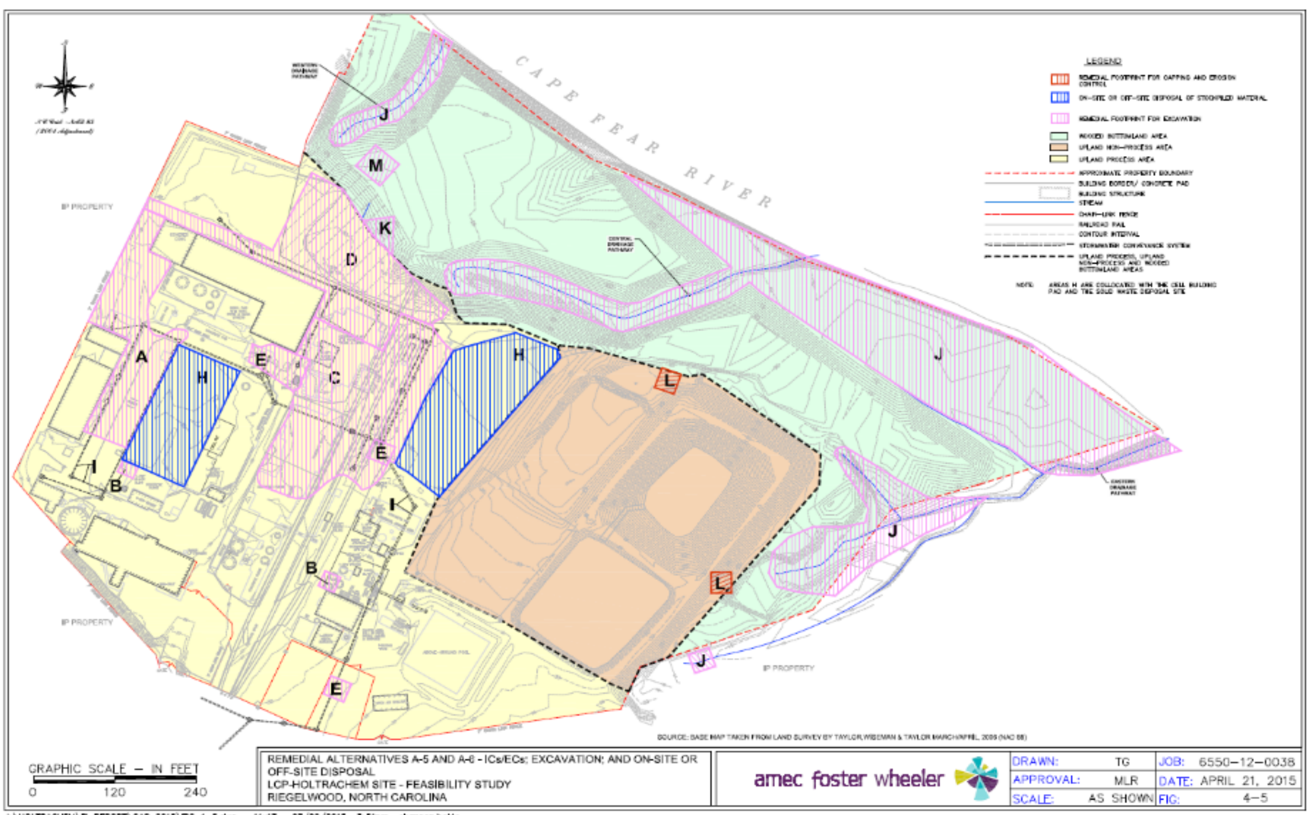
TABLE 11: A-5 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs:	
Capital Cost	$12,851,800
Annual O&M Cost	$31,500
Total Cost	$14,000,000
Total Present Worth Cost	$13,300,000
Estimated Timeframes:	
Construction Timeframe	18-24 months
Time to Achieve RAOs	18-24 months

Alternative A-5 includes:

- the common elements described in Section 8.1
- excavation of Upland Process and Wooded Bottomland Areas (A-E, J, K and M),
- construction of a TSCA-equivalent on-site landfill
- disposal of excavated material and WWTS (H) in an on-site TSCA-equivalent landfill

FIGURE 9 ALTERNATIVES A-5 AND A-6



7.1.6 Alternative A-6: Excavation, Off-Site Disposal, and ICs/ECs

TABLE 12: A-6 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs:	
Capital Cost	$25,000,000
Annual O&M Cost	$29,000
Total Cost	$25,900,000
Total Present Worth Cost	$25,400,000
Estimated Timeframes:	
Construction Timeframe	12 months
Time to Achieve RAOs	12 months

Alternative A-6 is similar to A-5. The only difference is that alternative A-6 includes transportation of the excavated material and WWTS to an EPA-approved off-site location for disposal instead of construction of an on-site landfill.

7.2 Retort and Cell Building Pad Area Soil

Honeywell developed remedial alternatives for soil associated with the Retort Area and Cell Building pad, which may be considered **PTW**. These are areas F and G on **Figures 9-11**. All alternatives include **O&M**, **ICs**, ground water monitoring and **FYR**. The costs for these items are included in the A-alternatives and not repeated in the S- alternatives.

7.2.1 Alternative S-1: No Action

TABLE 13: S-1 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs:	
Capital Cost	$0
Annual O&M Cost	$0
Total Cost	$0
Total Present Worth Cost	$0
Estimated Timeframes:	
Construction Timeframe	0 months
Time to Achieve RAOs	beyond our lifetime

No Action includes no remedial measures or **ICs**. Alternative S-1 does not meet the threshold criteria of protecting human health and the environment and compliance with **ARARs**. It is not effective in the short or long term. There is no cost associated with this alternative, it is easy to implement and most likely will never achieve **RAOs**.

7.2.2 Alternative S-2: Capping with Vertical Impermeable Barrier Installation and ICs

TABLE 14: S-2 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs:	
Capital Cost	$1,300,000
Annual O&M Cost	see A alternatives
Total Cost	$1,300,000
Total Present Worth Cost	n/a
Estimated Timeframes:	
Construction Timeframe	6-12 months
Time to Achieve RAOs	6-12 months

Alternative S-2 consists of

- construction of a **vertical barrier**, surrounding the retort pad area and the cell building pad Areas F and G
- capping of contaminated soils associated with the retort area and cell building pad in Areas F and G.

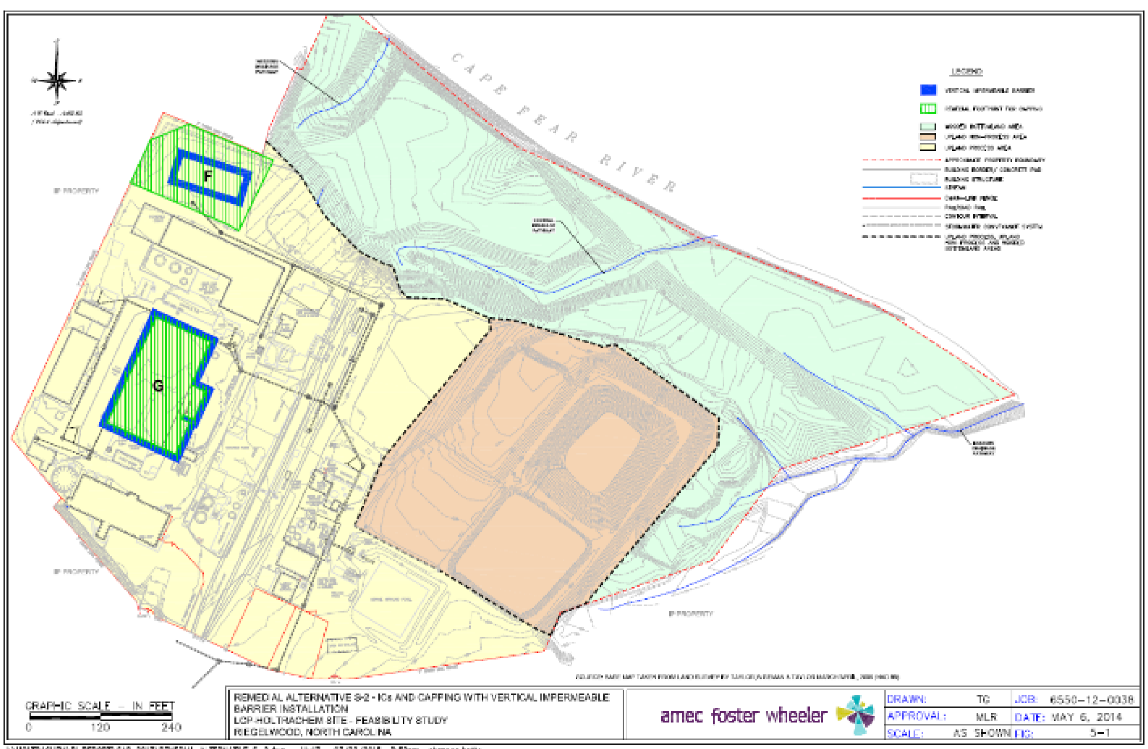
Alternative S-2 consists of the installation of a vertical impermeable barrier around the outside of the pads. A vertical barrier would span a combined linear distance of approximately 1,100 feet around the areas of the pads. The barriers would be constructed using augers or other soil mixing equipment to inject and mix low permeability slurry (e.g., bentonite-cement) into the soil in sequential, overlapping vertical sections. The barriers would be keyed into the underlying Peedee Formation. Depths to the Peedee Formation are approximately 15 and 10 feet in Areas F and G, respectively.

A cap would be installed following vertical perimeter barrier installation. The total cap area for this alternative is estimated to be approximately 1.3 acres. The final cap area footprint would be confirmed during remedial design sampling and may be expanded from that shown in Figure 5-1, as appropriate. Capping would be achieved by placing a clay/geomembrane or equivalent cap system with a vegetated cover over Areas F and G. Before cap placement, the area would be prepared by leveling in-ground structures. The cap composition assumed for costing is a protective underlayment of fill soil (compacted in place), a geosynthetic liner, a protective layer of fill soil on top of the liner soil, plus up to six inches of topsoil to support revegetation. The actual cap composition and soil layer thicknesses would be evaluated during the remedial design.

The remedial footprint shown in the figure may be expanded during remedial design to include adjacent areas, such as the Mercury Elimination Sewer System (**MESS**).

This alternative would provide containment of soils contaminated with mercury or **PCB** concentrations that exceed risk based cleanup goals for industrial or construction workers in accordance with the **RAOs** in these areas. It would also serve to protect the Wooded Bottomland Area by preventing migration of contaminated soil and surface water into the Wooded Bottomland Area. The purpose of the cap and vertical barrier would be to isolate the contaminated soils associated with the retort and cell pads both horizontally and vertically. Historically, these soils have not served as a source of mercury or **PCBs** to groundwater. This alternative would serve as an added measure so that they do not become a source in the future.

FIGURE 10: ALTERNATIVE S-2



7.2.3 Alternative S-3: In-situ Stabilization/Solidification, Capping, and ICs

TABLE 15: S-3 ESTIMATED COSTS AND TIMEFRAMES

Estimated Costs:	
Capital Cost	$2,900,000
Annual O&M Cost	see A alternatives
Total Cost	$2,900,000
Total Present Worth Cost	n/a
Estimated Timeframes:	
Construction Timeframe	6-12 months
Time to Achieve RAOs	6-12 months

Alternative S-3 is **EPA**'s preferred alternative for Areas F and G. Alternative S-3 consists of In-situ Stabilization/Solidification (**ISS**) of the soil under and around Retort Area and Cell Building pads in Areas F and G. Followed by capping. The remedial footprint shown in **Figure 11** may be expanded during remedial design to include adjacent areas, such as the **MESS**.

The footprint of the both ISS areas would be capped to minimize infiltration and potential for leaching. ISS reagents such as portland cement or lime/pozzolans (e.g., fly ash and cement kiln dust) or other agents would be selected to reduce the leachability of **COCs** through encapsulation, binding, and/or limiting the hydraulic conductivity of the final solidified matrix. A treatability study would be performed during remedial design to develop a suitable mix design to achieve post-solidification leachability goals and establish parameters for field performance testing (e.g., compressive strength, hydraulic conductivity, and /or wet/dry cycle durability). Various mix agents, such as sulfides and activated carbon, will be evaluated during the treatability study to select the optimum mixing agent.

During field implementation, the ISS agents are injected into the subsurface environment and mixed with the soil using augers or other soil mixing equipment. The outside clean perimeter of the ISS area may be augured first to act as a vertical barrier and avoid migration of COCs during implementation. Performance sampling is conducted at a pre-specified frequency, with samples collected from various depth intervals during mixing. The individual samples are visually examined to confirm mix homogeneity and then composited into cylinders representing the depth range of the aliquots. The cylinders are cured and analyzed per the performance testing plan.

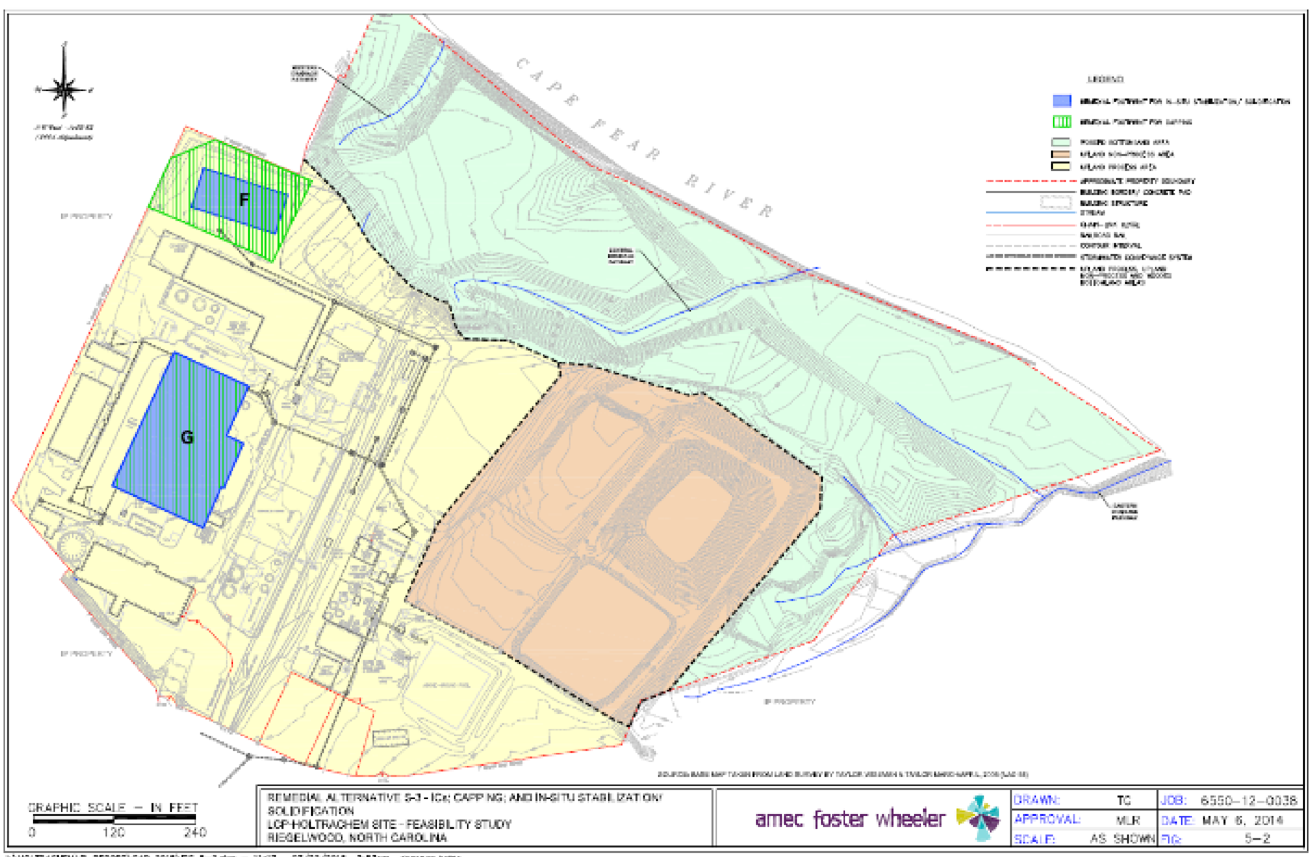
The cell pit in Area G would be drained and the collected stormwater would be managed through the existing stormwater collection and treatment system. The pit concrete would be pulverized and solidified as part of the ISS area. The addition of solidification agents and physical mixing may increase the volume of the treated soils, and this volume would be solidified and remain within the treated area footprint. The potential increase in volume will be considered during the design phase. The total treated in-situ volume is estimated to be 15,500 yd3.

A cap would be installed over Areas G and F following ISS implementation (note that the ISS for the former Retort Pad footprint is a subarea within Area F, and the cap would cover both this subarea and the remainder of Area F as shown on Figure 5-2). The total cap area for this alternative is estimated to be approximately 1.3 acres. The final cap area footprint would be confirmed during remedial design sampling and may be expanded from that shown in Figure 5-2, as appropriate.

Capping would be achieved by placing a clay/geomembrane or equivalent cap system with a vegetated cover over Areas F and G. Before cap placement, the area would be prepared by leveling in-ground structures. A composite clay/geomembrane/cover soil or equivalent cap would be placed over the area to isolate the soil. The cap composition assumed for costing is a protective underlayment of fill soil (compacted in place), a geosynthetic liner, a protective layer of fill soil on top of the liner soil, plus up to six inches of topsoil to support revegetation. The actual cap composition and soil layer thicknesses would be evaluated during the remedial design. Cap placement activities would be conducted using standard construction equipment (e.g., backhoes, bulldozers, graders, drill augers, etc.). Topographic survey and GPS instrumentation would be used to confirm extents and final grades of cap emplacement.

This alternative would treat soils under and around the pads including a 10-foot buffer beyond the pad edge. It would cap soil outside this buffer zone in Area F. Together, **ISS** and capping would protect industrial/construction workers from exposure to mercury or **PCB** concentrations that exceed risk based cleanup goals for industrial or construction workers in accordance with the RAOs in these areas. It would also serve to protect the Wooded Bottomland Area by preventing migration of contaminated soil and surface water into the Wooded Bottomland Area. The purpose of the **ISS** would be to treat and isolate the contaminated soils through encapsulation. Historically, these soils have not served as a source of mercury or **PCBs** to ground water. This alternative would serve as an added measure so that they do not become a source in the future.

FIGURE 11: ALTERNATIVE S-3



7.2.4 Alternative S-4: Excavation and off-site treatment and disposal

TABLE 16: S-4 ESTIMATED COSTS AND TIMEFRAMES

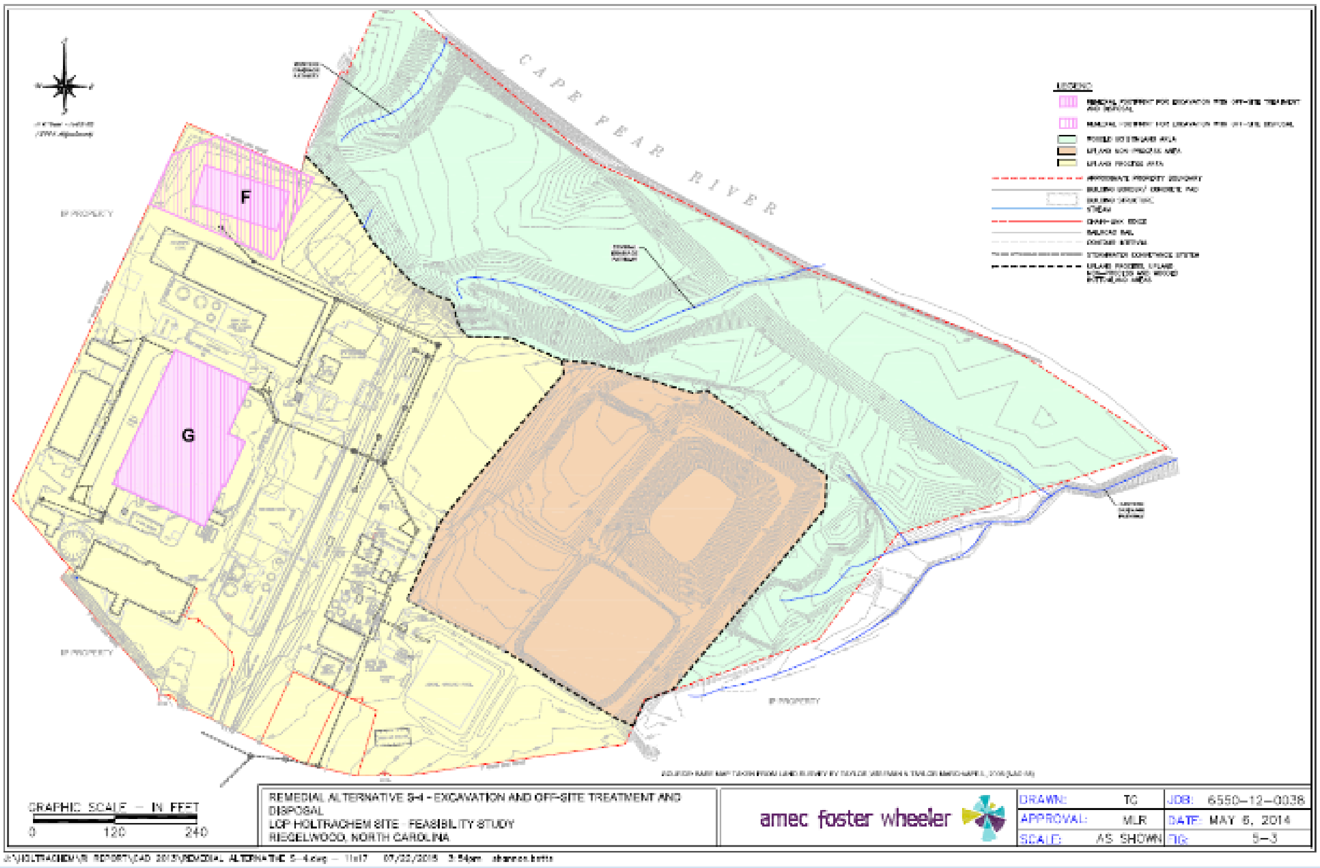
Estimated Costs:	
Capital Cost	$56,000,000
Annual O&M Cost	see A alternatives
Total Cost	$56,000,000
Total Present Worth Cost	n/a
Estimated Timeframes:	
Construction Timeframe	7-8 years
Time to Achieve RAOs	7-8 years

This alternative includes excavation of the contaminated soils associated with the Retort Area and Cell Building pads in Areas F and G, and off-site treatment and disposal of excavated material. **Figure 12** illustrates the remedial footprint of these areas. This alternative would involve removal, temporary staging and characterization of the wastes, off-site treatment, and off-site disposal of waste and soils with mercury or **PCB** concentrations that exceed risk based cleanup goals for industrial or construction workers in accordance with the RAOs in these areas. It would also serve to protect the Wooded Bottomland Area by preventing migration of contaminated soil and surface water into the Wooded Bottomland Area.

The volume of waste estimated for excavation and transportation off-site is approximately 25,000 cubic yards (yd^3).

The majority of the costs (~$50 million), are due to the likely need to transport the waste to a mercury retort facility for treatment prior to disposal. If excavated soils are hazardous by characteristic and mercury is present at concentrations greater than or equal to 260 mg/kg, **EPA** requires treatment by retorting/incineration before disposal in accordance with RCRA land ban restrictions for mercury characteristic hazardous waste as defined in 40 CFR §268.40 and §268.48. Therefore, contractors would transport the excavated material to an off-site RCRA-permitted retort/incineration and disposal facility approved by **EPA** to accept both mercury- and **PCB**-containing wastes. The number of such facilities in the U.S. is very limited. Honeywell has identified one retort facility operated by Waste Management Mercury Waste, Inc. in Union Grove, Wisconsin, as willing to accept mixed waste containing both mercury and **PCBs** if the **PCB** concentrations are less than 50 mg/kg. This facility is approximately 985 miles from the site and has a maximum capacity of 40 yd^3 of material per week. If the **PCB** concentrations are greater than 50 mg/kg and regulated for disposal as TSCA PCB waste, off-site treatment and disposal may not be possible.

FIGURE 12: ALTERNATIVE S-4



8.0 EVALUATION OF ALTERNATIVES

The **EPA** uses nine criteria to assess individual alternatives prior to selecting a remedy. The nine criteria are broken into three groups:

- **Threshold Criteria**:
    1. Overall Protection of Human Health and the Environment
    2. Compliance with **ARARs**
- **Primary Balancing Criteria**:
    3. Long-Term Effectiveness and Permanence
    4. Reduction of Toxicity, Mobility or Volume Through Treatment
    5. Short-Term Effectiveness
    6. Implementability
    7. Costs
- **Modifying Criteria**:
    8. State Acceptance
    9. Community Acceptance

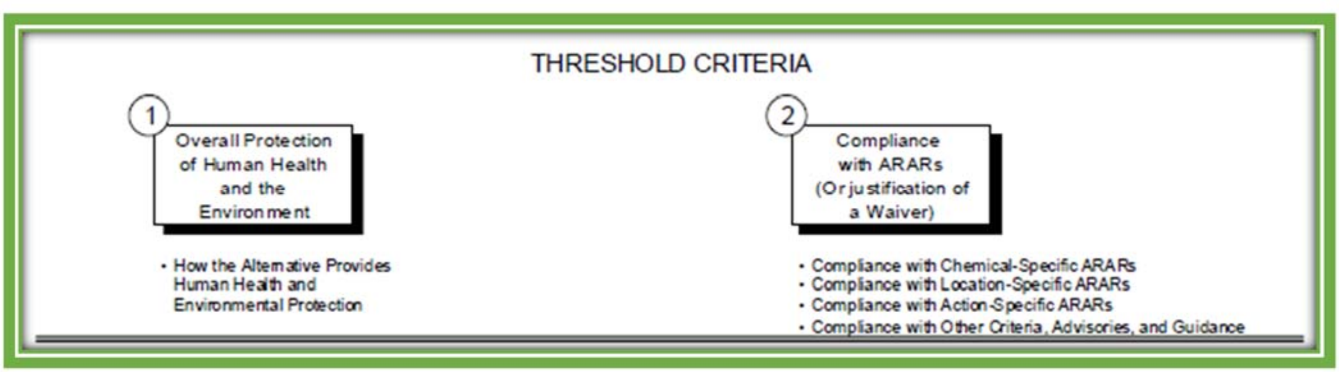
8.1 Threshold Criteria

Threshold criteria are requirements that each alternative must meet in order to be eligible for selection. Alternatives A-1 and S-1 are No Action alternatives. **EPA** has determined that alternatives A-1 and S-1 do not meet the Threshold Criteria and will not be discussed further in the evaluation section.

8.1.1 Overall Protection of Human Health and the Environment

Alternatives A-2 through A-6 are protective of human health and the environment. Excavation/backfilling protects human and ecological receptors from exposure to **COCs**. Capping isolates and prevents erosion and exposure to COCs. **ICs** control access and further limit exposure to humans.

Alternatives S-2 through S-4 are protective of human health and the environment. All three include ICs, which are protective measures that control access and limit human exposure to COCs. The difference regarding protectiveness for S-2 through S-4 are technology based. For alternative S-2, capping isolates and prevents erosion of and exposure to COCs in soil. For Alternative S-3, ISS treats the soil to reduce mobility and prevent erosion of and exposure to COCs in soil. For Alternative S-5, excavation/backfilling prevents exposure to COCs in soil.



8.1.2 Compliance with ARARS (or justification of a waiver)

Section 121(d) of **CERCLA**, as amended, specifies in part that remedial actions for cleanup of hazardous substances must comply with requirements and standards under federal or more stringent state environmental laws and regulations that are applicable or relevant and appropriate (**ARARs**) to the hazardous substances or particular circumstances at a site unless such ARAR(s) are waived under CERCLA Section 121(d)(4). [See also 40 CFR 300.430(f)(1)(ii)(B).]

Alternatives A-2 through A-6 comply with ARARs. Alternative A-2 complies with ARARs but requires a waiver under the Toxic Substances Control Act (**TSCA**) to allow **PCB**-containing material greater than 50 mg/kg to be disposed in an on-site landfill that meets TSCA chemical waste landfill requirements. Alternatives A-3 and A-5 comply with ARARs but also require demonstration of meeting TSCA chemical waste landfill requirements identified as ARARs.

Alternatives S-2 and S-3 comply with ARARs but require a waiver under the TSCA chemical landfill regulations to allow siting the landfill for **PCB**-containing waste greater than 50 mg/kg to remain on site. S-4 complies with ARARs.

8.2 Primary Balancing Criteria

EPA uses primary balancing criteria to weigh major tradeoffs. Alternatives A-1 and S-1 did not meet the threshold criteria and will not be discussed in this section. There are five categories under the Primary Balancing Criteria.

8.2.1 Long-Term Effectiveness and Permanence

Alternatives A-2 through A-6 and S-2 through S-4 are all effective in the long term.

8.2.2 Reduction of Toxicity, Mobility or Volume through Treatment

Alternatives A-2 through A-6 would reduce mobility and exposure to toxicity of **COCs** in the soil. Alternatives A-2, A-4 and A-6 would reduce volume on-site, but only A-2 would reduce a portion of the contaminated material by treatment if **LTTD** is used.

Alternatives S-2 through S-4 would reduce mobility and exposure to toxicity of **COCs** in soil. For Alternative S-3, the volume may increase slightly through treatment due to binding the contaminants into a solidified matrix. Alternative S-4 would reduce the volume by off-site treatment/disposal.

8.2.3 Short-Term Effectiveness

Alternatives A-2 through A-6 provide risk reduction, minimal risk to workers, localized short-term impacts on ecological receptors. Alternatives A-2, A-4 and A-6 would also have short-term risk of releases and public exposure during transportation of contaminated material over long distances to disposal sites.

Alternatives S-2 and S-3 provide risk reduction and minimal exposure to workers during implementation. Alternative S-4 has increased exposure to workers during implementation and increased risk to the public through transportation of contaminated soils over long distances to disposal sites.

8.2.4 Implementability

Alternatives A-2 through A-6, S-2 and S-3 are easily implementable through readily available equipment and materials.

Alternative S-4 would be difficult to implement because of extensive excavation/shoring required to excavate to a depth of about 15 feet, extremely long-haul distances, and the limited availability of treatment and disposal facilities within the United States that will process wastes and soils that contain both mercury and **PCBs**.

8.2.5 Costs

The cost estimates range from $13.3 million to $25.9[10] million for alternatives A-2 through A-6. The cost estimates range from $1.3 million to $56 million for alternatives S-2 through S-4. Alternatives A-3 and S-2 are the least expensive, while A-6 and S-4 are the most expensive.

8.3 Modifying Criteria

The two modifying criteria are State acceptance and Community Acceptance. **EPA** cannot complete the evaluation of these two criteria until after the public comment period ends and **EPA** receives public comments on the **Proposed Plan**.

Your opinion counts! Please attend the public meeting and/or submit comments to **EPA** about your preferences for the cleanup plans for the site. **EPA** will evaluate the information provided by the public and include the evaluation in the ROD.

[10] **EPA** expects that the cost estimate at this point in the Superfund process are within +50% to -30% accuracy. A more detailed cost estimate with better accuracy during the Remedial Design.

TABLE 17: COMPARISON OF ALTERNATIVES

Remedial Area	Area Description	A-1 No Action	A-2a CAPPING WITH LIMITED EXCAVATION, OFF-SITE DISPOSAL, AND ICs/ECs	A-2b same as 2a except for H area	**A-3 COMBINATION OF CAPPING AND EXCAVATION, ON-SITE DISPOSAL, AND ICs/ECs**	A-4 COMBINATION OF CAPPING AND EXCAVATION, OFF-SITE DISPOSAL, AND ICs/ECs	A-5 EXCAVATION, ON-SITE DISPOSAL, AND ICs/ECs	A-6 EXCAVATION, OFF-SITE DISPOSAL, AND ICs/ECs	S-1 No Action	S-2 CAPPING WITH VERTICAL IMPERMEABLE BARRIER INSTALLATION AND ICs	**S-3 ISS, CAPPING, AND Ics**	S-4 EXCAVATION AND OFF-SITE TREATMENT AND DISPOSAL
A	Area west of CBP (PCB 25-49 mg/kg)	nothing	cap				excavate, on-site landfill	excavate, off-site disposal	*see A columns*			
B	Southwest corner of WWTP	nothing	excavate, off-site disposal		excavate, on-site landfill	excavate, off-site disposal	excavate, on-site landfill	excavate, off-site disposal				
C	Membrane Plant Ancilliary Areas (PCB 25-49 mg/kg)	nothing	cap				excavate, on-site landfill	excavate, off-site disposal				
D	Fill Area (PCB >50 mg/kg)	nothing	cap		excavate, on-site landfill	excavate, off-site disposal	excavate, on-site landfill	excavate, off-site disposal				
E	Areas Northeast of Cell Building Pad	nothing	excavate, off-site disposal		excavate, on-site landfill	excavate, off-site disposal	excavate, on-site landfill	excavate, off-site disposal				
F	Retort Area	*see S columns*							nothing	capping, vertical barrier	capping, ISS	excavate, off-site Treatment and disposal
G	Cell Building Pad											
H	Waste Water Treatment Solids	nothing	off-site disposal	LTTD treatment	on-site landfill	off-site disposal	on-site landfill	off-site disposal	*see A columns*			
I	Stormwater Conveyance System	nothing	cleaned and sealed									
J	Wooded Bottomland Areas (Including Drainage Pathways)	nothing	excavate, off-site disposal		excavate, on-site landfill	excavate, off-site disposal	excavate, on-site landfill	excavate, off-site disposal				
K	Wooded Bottomland Area (North of Fill Area)	nothing	excavate, off-site disposal		excavate, on-site landfill	excavate, off-site disposal	excavate, on-site landfill	excavate, off-site disposal				
L	Areas Northeast Corner of ONP and Southeast Corner of NRB	nothing	cap/erosion control									
M	Wooded Bottomland Area (North of Fill Area)	nothing	excavate, off-site disposal		excavate, on-site landfill	excavate, off-site disposal	excavate, on-site landfill	excavate, off-site disposal				
Threshold criteria	1. Protectiveness	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	2. ARAR compliance	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Balancing criteria	3. Long-term	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	4. TMV	No	TMV	TMV	TM	TMV	TM	TMV	No	TM	TM	TMV
	5. Short-term	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	6. Implementa bility	0 months	12 months	12 months	18-24 months	12 months	18-24 months	12 months	0 months	6-12 months	6-12 months	7-8 years
	7. Cost	$ -	$ 19,700,000	$ 21,300,000	$ 13,300,000	$ 21,600,000	$ 14,000,000	$ 25,900,000	$ -	$ 1,300,000	$ 2,900,000	$ 56,000,000
Modifying Criteria	8. State Acceptance	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	9. Community Acceptance	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Notes:

ECs =	Engineering Controls
ICs =	Institutional Controls
mg/kg =	milligrams per kilogram
TBD =	To Be Determined
TMV =	Toxicity, Mobility, Volume

9.0 PREFERRED ALTERNATIVE

The **EPA**'s preferred remedial alternatives for the Holtrachem site are A-3 and S-3. These alternatives consists of a combination of capping, construction of an on-site **TSCA**-equivalent chemical waste landfill, excavation of contaminated soils and stockpiled **WWTS** and with disposal into the on-site landfill, in-situ stabilization/solidification, and Institutional Controls to prevent exposure to contamination remaining on-site as well as monitoring and maintenance of the capped areas and the landfill. These alternatives are protective of human health and the environment, are effective both in the short and long term with no short-term exposure resulting from hauling excavated materials over long distances, are implementable using standard equipment, and reduce mobility of and exposure to contaminants through treatment. The **ISS** remedy component for Areas F and G also meets EPA's preference for treatment of **PTW**.

TABLE 6: PREFERRED ALTERNATIVE

Remedial Area	Area Description	A-3 **COMBINATION OF CAPPING AND EXCAVATION, ON-SITE DISPOSAL, AND ICs/ECs**	S-3 **ISS, CAPPING, AND Ics**
A	Area west of CBP (PCB 25-49 mg/kg)	cap	
B	Southwest corner of WWTP	excavate, on-site landfill	
C	Membrane Plant Ancilliary Areas (PCB 25-49 mg/kg)	cap	see A-3
D	Fill Area (PCB >50 mg/kg)	excavate, on-site landfill	
E	Areas Northeast of Cell Building Pad	excavate, on-site landfill	
F	Retort Area	see S-3	capping, ISS
G	Cell Building Pad		
H	Waste Water Treatment Solids	on-site landfill	
I	Stormwater Conveyance System	cleaned out and sealed	
J	Wooded Bottomland Areas (Including Drainage Pathways)	excavate, on-site landfill	
K	Wooded Bottomland Area (North of Fill Area)	excavate, on-site landfill	*see A-3*
L	Areas Northeast Corner of ONP and Southeast Corner of NRB	cap	
M	Wooded Bottomland Area (North of Fill Area)	excavate, on-site landfill	
Threshold criteria	1. Protectiveness	Yes	Yes
	2. ARAR compliance	Yes	Yes
Balancing criteria	3. Long-term	Yes	Yes
	4. TMV	TM	TM
	5. Short-term	Yes	Yes
	6. Implementa bility	18-24 months	6-12 months
	7. Cost	$ 13,300,000	$ 2,900,000
Modifying Criteria	8. State Acceptance	TBD	TBD
	9. Community Acceptance	TBD	TBD

The estimated cost for the combined alternatives is approximately $16.2 million. It will take approximately two years to implement the combined alternatives.

The EPA's preferred alternatives, however, may change in response to public comment or new information. **NCDEQ** concurs with the EPA's preferred alternatives.

Based on information currently available, the EPA believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing criteria. EPA expects the Preferred Alternative will satisfy the following statutory requirements of **CERCLA** §121(b): (1) be protective of human health and the environment; (2) comply with **ARARs** via a waiver; (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element, or explain why the preference for treatment will not be met.

This remedy will result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure; therefore in accordance with CERCLA Section 121(c) and the NCP at 40 CFR300.430 (f)(4)(ii) a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment. If the remedy is determined not to be protective of human health and the environment additional remedial actions would be evaluated by the EPA and the PRP may be required to undertake additional remedial action.

10 COMMUNITY PARTICIPATION

Community members can participate in the Superfund process in several ways. Community members can read information that **EPA** provides, attend public meetings, submit comments to **EPA**, form a Community Advisory Group and receive a Technical Advisor Grant in order to hire a professional to explain the technical details to the community.

EPA and **NCDEQ** provide information regarding the cleanup of the Holtrachem site to the public through public meetings, the Administrative Record file for the site, announcements published in the *Star News* and on **EPA**'s website. **EPA** and **NCDEQ** encourage the public to gain a better understanding of the site.

The dates for the public comment period, the date, location, and time of the public meeting, and the locations of the Administrative Record file, are on the front page of this **Proposed Plan**.

For further information about the Holtrachem site, please contact:

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EPA's Holtrachem webpage:
http://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0403159

11 GLOSSARY AND WEBSITES FOR MORE INFORMATION

AR: Administrative Record. *A set of documents that contain information used by* **EPA** *to make its decision on the selection of a response action/cleanup plan for a Superfund site. The AR for the Holtra chem site is located at East Columbus Public Library and on the internet at* http://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/termsandacronyms/search.do?matchCriteria=Contains&checkedTerm=on&checkedAcronym=on&search=Search&term=administrative record

ARARs: Applicable or Relevant and Appropriate Requirements. *ARARs are any promulgated standards, requirements, criteria, or limitations under federal environmental laws, or any promulgated standards, requirements, criteria, or limitations under state environmental or siting laws that are more stringent than federal requirements, that are either legally 'applicable or relevant and appropriate' under the circumstances. Under CERCLA Section 121(d), a remedial action must comply (or justify a waiver) with ARARs*. http://www.epa.gov/superfund/applicable-or-relevant-and-appropriate-requirements-arars

Aroclor 1268: *Aroclor 1268 is one of the primary hazardous substances that pollute the Holtrachem site. Aroclor is a discontinued registered trademark for a series of polychlorinated biphenyl (***PCB***) compounds. Companies first sold Aroclor in 1930. It was available as viscous oils and thermoplastic solids with high refractive indices. Aroclor production ceased in the United States in 1977.* http://www.atsdr.cdc.gov/toxprofiles/tp17.pdf

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act. *A federal law (also known as Superfund) passed in 1980 and modified in 1986 by the Superfund Amendment and Reauthorization Act (SARA); the act authorizes* **EPA** *to investigate and cleanup uncontrolled or abandoned hazardous-waste sites. The law authorizes the federal government to respond directly to releases of hazardous substances that may endanger public health or the environment.* **EPA** *is responsible for managing the Superfund.* http://www.epa.gov/laws-regulations/summary-comprehensive-environmental-response-compensation-and-liability-act

CFR: Code of Federal Regulations. http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl

Chlor-alkali: *There are three production methods for producing chlorine and sodium hydroxide. The mercury cell method produces chlorine-free sodium hydroxide. In a normal cycle, facilities emit a few hundred pounds of mercury per year. Chlorine and sodium hydroxide produced via the mercury-cell chlor-alkali process are contaminated with mercury. The membrane and diaphragm method use no mercury, but the sodium hydroxide contains chlorine, which the facility must remove.*

COCs: chemicals/constituents of concern. A hazardous substance or group of substances that pose unacceptable risk to human health or the environment at a site.

Dioxin/furans: Dioxins and furans are the short names for a group of toxic substances that share a similar chemical structure. Dioxins in their purest form look like crystals or a colorless solid. Companies do not intentionally manufacture most of the dioxins and furans in the environment. Dioxins and furans are a by-product when facilities make other chemicals or products. 2,3,7,8-tetrachloro-p-dibenzo-dioxin (2,3,7,8 TCDD) is considered the most toxic off all dioxins and furans.

East Columbus Public Library: *The* **EPA** *selected the East Columbus Public Library to store project information about the site in the Riegelwood area.* http://www.yellowpages.com/riegelwood-nc/mip/east-columbus-public-library-4161782

Ecological Risk Assessment: *The application of a formal framework, analytical process, or model to estimate the effects of human actions on a natural resource and to interpret the significance of those effects in light of the uncertainties identified in each component of the assessment process. Such analysis includes initial hazard identification, exposure and dose/response assessments, and risk characterization.*

ECs: engineering controls. *Engineering controls include a wide range of barriers or techniques used to reduce exposure to chemical, physical and biological agents.*

EPA: United States Environmental Protection Agency. *The* **EPA** *has ten regional offices that each cover different geographical areas. Region 4 is responsible for executing* **EPA***'s programs in the eight southeastern states: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee.* **EPA** *Region 4's office is located in Atlanta, GA and is responsible for managing the Holtra chem site.* http://www.epa.gov/aboutepa/about-epa-region-4-southeast

FS: Feasibility Study. *The phase of the Superfund process that evaluates the cost and performance of technologies that could be used to cleanup a site.* http://www.epa.gov/superfund/about-superfund-cleanup-process#tab-3

FYR: Five-Year Review. *Section 300.430(f)(4)(ii) of Title 40 of the CFR states: If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action. Because* **EPA***'s preferred plan will leave waste at the site,* **EPA** *will require FYRs for the site.* http://www.epa.gov/superfund/superfund-five-year-reviews-guidance-and-policy

HHRA: Human Health Risk Assessment. *An evaluation performed in to determine the risk posed to human health by specific contaminants.*

HI: Hazard Index. *The sum of more than one hazard quotient for multiple substances and/or multiple exposure pathways.*

Holtrachem site: *A formerly operating facility that requires cleanup of hazardous waste releases. It is the subject of this* **Proposed Plan***.* http://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0403159

Honeywell: *Honeywell International, Inc. Honeywell currently owns the Holtrachem site and is a Potentially Responsible Party for the site.* http://honeywell.com

HQ: hazard quotient. *The ratio of an exposure level to a substance to a toxicity value selected for the risk assessment for that substance.* https://www.epa.gov/fera/risk-assessment-noncancer-effects

ICs: institutional controls. *Administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.* http://www.epa.gov/superfund/superfund-institutional-controls

Information Repository: *A centralized public location to provide easy access to project information for community members.* http://www.epa.gov/international-cooperation/public-participation-guide-information-repositories

IP: International Paper. *The company that surrounds the Holtrachem site.* http://www.internationalpaper.com

ISS: in-situ stabilization/solidification. *A process used to treat a variety of wastes.* https://clu-in.org/techfocus/default.focus/sec/Solidification/cat/Overview/

Jurisdictional wetlands: *The US Army Corps of Engineers regulates jurisdictional wetlands. Jurisdictional wetlands exhibit all of the following characteristics, at a minimum: hydrology, hydrophytes and hydric soils.* http://www.epa.gov/cwa-404/section-404-clean-water-act-how-wetlands-are-defined-and-identified

LOAEL: lowest observed adverse effects-level. *The lowest level of a chemical evaluated in a toxicity test that shows harmful effects on a plant or animal.* https://www.epa.gov/fera/risk-assessment-noncancer-effects

LTTD: low temperature thermal desorption. *A treatment process that removes organic contaminants from soil, sludge or sediment by heating them in a machine called a "thermal desorber" to evaporate the contaminants.* https://clu-in.org/download/Citizens/a_citizens_guide_to_thermal_desorption.pdf

Mercury: *Mercury is one of the primary hazardous substances that pollute the Holtrachem site. Mercury is a shiny, silver-white metal that is liquid at room temperature. Mercury remaining at the site is primarily in the form of a mercury salt, which is not easily dissolved or volatilized compared to pure mercury.* www.epa.gov/mercury

Mercury Cell Process: In the mercury cell process, sodium forms an amalgam (a "mixture" of two metals) with the mercury at the cathode. The amalgam reacts with the water in a separate reactor called a decomposer. The decomposer produces hydrogen gas and caustic soda. The products are extremely pure. The chlorine gas, produced at the anode, contain a small amount of oxygen and can generally be used without further purification.

MESS: Mercury Elimination Sewer System. *The MESS pretreated wastewater from the chlorine process. This reduced the mercury concentration in the water prior to further treatment in the wastewater treatment plant.*

mg/kg: milligrams per kilogram. A concentration measurement unit. It is also equal commonly referred to as parts per million (ppm).

NA: not applicable

NCP: National Oil and Hazardous Substances Pollution Contingency Plan (**NCP**). *The federal government's blueprint for responding to both oil spills and hazardous substance releases. The government first published the* **NCP** *in 1968; the government last revised the NCP in 1994.* http://www.epa.gov/emergency-response/national-oil-and-hazardous-substances-pollution-contingency-plan-ncp-overview

NCDEQ: North Carolina Department of Environmental Quality http://portal.ncdenr.org/web/guest

Net Present-Value Analysis/Present-Value Cost: A method of evaluation of expenditures that occur over different time periods. By discounting all costs to a common base year, people can compare the costs for different remedial action alternatives. When calculating present worth costs for Superfund sites, capital and operation and maintenance costs are included.

NPDES: National Pollutant Discharge Elimination System. http://www.epa.gov/npdes

NPL: National Priorities List. *The NPL is a list of high priority sites with hazardous waste releases.* **EPA**'*s Superfund program may clean up contaminated sites that are on this list*. https://www.epa.gov/superfund/superfund-national-priorities-list-npl

NOAEL: No observed adverse effect level. *The highest level of a chemical stressor in a toxicity test that did not cause a harmful effect in a plant or animal.* https://www.epa.gov/fera/risk-assessment-noncancer-effects

O&M: Operation and Maintenance. http://www.epa.gov/superfund/operation-and-maintenance-guidance-and-policy-superfund-sites

OSHA: Occupational Safety and Health Act. *Created to assure safe and healthful working conditions for men and women*. https://www.osha.gov/

OU: Operable Unit. Separate activities undertaken as part of a Superfund site cleanup. Often **EPA** divides a superfund site into phases to better address different pathways and areas of contamination. EPA is addressing the Holtrachem site as a single OU.

PCBs: polychlorinated biphenyls. *PCBs are one of the classes of primary hazardous substances that pollute the Holtrachem site. Companies manufacture PCBs in the US from 1929 until banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids.* http://www3.epa.gov/epawaste/hazard/tsd/pcbs/about.htm

PTW: principal threat waste. Principal threats are characterized as waste that cannot be reliably controlled in place such as liquids, highly mobile materials (e.g., solvents), and high concentrations of toxic compounds (e.g., several orders of magnitude above levels that allow for unrestricted use and unlimited exposure). Reference *"A Guide to Principal Threat and Low Level Threat Wastes", U.S. EPA, November 1991 (OSWER 9380.3-06FS)* http://nepis.epa.gov/Exe/ZyNET.exe/9100UHR7.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C91thru94%5CTxt%5C00000026%5C9100UHR7.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

PRGs: preliminary remediation goals.

Proposed Plan: *A document that describes the cleanup alternatives evaluated for a Superfund site and identifies the proposed alternative and the rationale for the preference*. http://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/termsandacronyms/search.do?matchCriteria=Contains&checkedTerm=on&checkedAcronym=on&search=Search&term=proposed plan

PRP: Potentially Responsible Party. *PRPs can be (1) current owners or operators of a facility, (2) past owners or operators of a facility at the time hazardous wastes were disposed, (3) generators and parties that arranged for the disposal or transport of the hazardous substances; (4) transporters of hazardous waste that selected the site where the hazardous substances were brought. Honeywell is a PRP for the Holtrachem site.*

https://compliancegov.zendesk.com/hc/en-us/articles/212102467-Who-can-be-a-potentially-responsible-party-PRP-at-a-hazardous-waste-site-#_ga=1.202768529.1860442790.1437405687

RAOs: Remedial Action Objectives. RAOs provide cleanup goals that guide the comparison and selection of remedial options.

RCRA: Resource Conservation and Recovery Act. *Gives* **EPA** *the authority to control hazardous waste generation, transportation, treatment, storage and disposal. Many RCRA regulations can be identified as* **ARARs** *for response actions addressing RCRA hazardous waste or soil containing such wastes.* http://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act

Remediation: Cleanup or other methods used to remove or contain a toxic spill or hazardous substances that have been released into the environment at a Superfund site.

Responsiveness Summary: A summary of oral and written comments received by **EPA** during a comment period on key EPA documents, and EPA's responses to those comments. The responsiveness summary is a key part of the ROD, highlighting community concerns for EPA decision-makers.

RG: Remediation Goal. *Proposed cleanup levels.*

Riegelwood, North Carolina: *an unincorporated community in Columbus County where the Holtrachem site is located. The 2010 census indicated a population of 579*.
https://www.google.com/maps/place/Riegelwood,+NC+28456/@34.3398888,-78.2427862,14z/data=!3m1!4b1!4m2!3m1!1s0x89aa3ef4d6c81ac7:0xa6bd9cb137ced5e8

RI: Remedial Investigation*. The phase of the Superfund process that determines the nature and extent of contamination at the site.* http://www.epa.gov/superfund/about-superfund-cleanup-process#tab-3

ROD: *The Record of Decision is a document that identifies which cleanup plan the* **EPA** *has chosen for a Superfund site*. http://www.epa.gov/superfund/about-superfund-cleanup-process#tab-4

Superfund: *An* **EPA** *program used to clean up hazardous waste sites, accidents, spills & other emergency releases of pollutants/contaminants into the environment.* http://www.epa.gov/superfund

Superfund Alternative Approach: *The Superfund alternative (SA) approach uses the same investigation and cleanup process and standards that are used for sites listed on the NPL. The SA approach is an alternative to listing a site on the NPL; it is not an alternative to Superfund or the Superfund process. The SA approach can potentially save the time and resources associated with listing a site on the NPL. As long as a PRP enters into an SA approach agreement with EPA, there is no need for EPA to list the site on the NPL (although the site qualifies for listing on the NPL).* https://www.epa.gov/enforcement/superfund-alternative-approach

Superfund Cleanup Process: *a complex and multi-phase process to assess and cleanup Superfund sites.*
http://www.epa.gov/superfund/superfund-cleanup-process

TSCA: Toxic Substances Control Act. TSCA regulations for the management of PCB remediation waste and chemical waste landfill are considered **ARARs** for several remedial alternatives at this site. http://www.epa.gov/laws-regulations/summary-toxic-substances-control-act

Wetlands: *areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.* http://www.epa.gov/cwa-404/section-404-clean-water-act-how-wetlands-are-defined-and-identified

WWTS: wastewater treatment solids

µg/L: micrograms per liter

yd^3: cubic yards

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the **Proposed Plan** for the Holtrachem site is important to **EPA**. Comments provided by the public are valuable in helping EPA select a final cleanup remedy for the site.

You may use the space below to write your comments, then fold and mail. EPA will consider in the ROD comments postmarked by September 14, 2016. If you have any questions about the comment period, please contact Ron Tolliver, Community Involvement Coordinator, at 404-562-9591. Those with electronic communications capabilities may submit their comments to EPA via Internet at the following email address: URQUHART-FOSTER.SAMANTHA@EPA.GOV.

Optional:

NAME:______________________________

ADDRESS:______________________________

CITY, STATE, ZIP:______________________________

PHONE NUMBER:______________________________

EMAIL ADDRESS:______________________________

❑ Please add me to EPA's mailing list for information about the Holtrachem site. I prefer that EPA contact me by:

- ❑ phone
- ❑ email
- ❑ mail