

# **EPA Superfund Explanation of Significant Differences:**

**CAPE FEAR WOOD PRESERVING  
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EXPLANATION OF SIGNIFICANT DIFFERENCE  
TO THE REMEDIAL ACTION  
FOR THE CAPE FEAR WOOD PRESERVING SITE  
FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA

PREPARED BY:

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# EXPLANATION OF SIGNIFICANT DIFFERENCE TO THE REMEDIAL ACTION FOR THE CAPE FEAR WOOD PRESERVING SITE FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA

## 1.0 INTRODUCTION

The function of this Explanation of Significant Difference (ESD) is to relate to all parties of concern that the Environmental Protection Agency (EPA) is enacting a significant alteration to a component of the Remedial Action (RA) for the Cape Fear Wood Preserving Superfund site. Requirements of the original RA can be found in the Record of Decision (ROD), dated June 30, 1989 which is summarized below. The necessity of this modification to the RA is based on information gathered since the completion of the Remedial Design (RD) stage of the Superfund process. The requirement for this ESD is specified in Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

A copy of this ESD will be added to the Cape Fear Wood Preserving Superfund site Administrative Record and Information Repository. The Administrative Record and Information Repository can be found in the Cumberland County Public Library and in EPA's, Region IV Information Center. The public is encouraged to review both the Administrative Record and the Information Repository during normal working hours.

## 2.0 SITE LOCATION AND DESCRIPTION

The Cape Fear site is located on the western side of Fayetteville in Cumberland County, North Carolina. Primary access to the Site is directly off State Road 1403 (Reilly Road) approximately 1.6 miles north of the intersection of State Road 1403 and U.S. Highway 401 (Raeford Road). Of the approximately 41 acres comprising the Site, less than 10 acres were developed. The remainder of the Site is heavily wooded with coniferous trees with a small swampy area northeast of the developed area. The swampy area consists of a seasonally flooded wetland dominated by rushes. The upland section of the Site is sandy and well-drained. No endangered flora and fauna species were found during a Site survey made in the Summer of 1990.

The terrain of the Cape Fear site is predominantly flat, with drainage provided by a swampy area on the northeast side of the Site and a man-made ditch to the southeast that extends southeastwardly to an impoundment that use to be diked. A variety of land uses exist around the Site. The properties to the north include an undisturbed pine forest, an abandoned concrete plant, and a few residential properties. To the east is a continuation of the undisturbed pine forest, and to the west is farmland used for growing crops and raising livestock as well as additional residences. To the south is another concrete plant as well as a subdivision named "Southgate". This subdivision is approximately a quarter of a mile south of

the Site and houses approximately 1,000 people. Several potable wells within the boundaries of this subdivision supply these homes with drinking water.

Buildings on the Site are abandoned and in various states of disrepair. Soils in and around the plant facility areas are contaminated with inorganic chemicals (primarily copper, chromium, arsenic) and polycyclic aromatic hydrocarbons (PAHs). Some volatile organic chemicals (primarily benzene and toluene) are also present in the soils, but are not as widespread nor as significant in concentration as the inorganics and PAHs. In general, the most contaminated areas of the Site are in the process area, the northeast seasonal swamp, along the access road to the back storage area, the drainage ditch running south of the former process area, the impoundment area receiving runoff from this drainage ditch, the area adversely impacted when the impoundment's dike was breached, and the spoil piles created by the excavation of the drainage ditches.

The Site is underlain by two aquifers which are separated by an aquitard. An aquitard is a geologic formation that permits some movement of groundwater through it, however, does not provide sufficient groundwater in order to complete a well in this formation. Flow in the lower aquifer is generally southwestward while flow in the upper aquifer is radial, moving in all directions from the Site. Flow also occurs downward through the aquitard from the upper to the lower aquifer. Groundwater is contaminated by a variety of inorganic and organic chemicals including several PAHs. Elevated concentrations of benzene, carcinogenic PAHs, arsenic, and chromium were found in the upper aquifer, and arsenic in the lower aquifer.

### **3.0 SITE HISTORY**

Operations at the Cape Fear Wood Preserving site commenced in 1953 and continued until 1983. Creosote-treated wood was produced from 1953 until 1978 when demand for creosote-treated products declined. Wood was then treated by a wolmanizing process using salts containing sodium dichromate, copper sulfate, and arsenic pentoxide. This treatment process is known as the copper-chromium-arsenic (CCA) process.

In the summer of 1977, the State of North Carolina determined the Site was contaminated with constituents of coal tar and coal tar creosote and ordered the owner/operator to comply with North Carolina law. As a result, the owner/operator changed operations to limit further releases, installed a new potable water well for a neighbor west of the site, and removed 900 cubic yards of creosote-contaminated soil from the treatment yard and the drainage ditch that parallels the railroad. Between 1979 and 1980, a new closed-circuit CCA plant was installed and the old creosote and CCA facilities were decommissioned. The new CCA plant was regulated under the Resource Conservation and Recovery Act (RCRA) as a small generator until 1983, at which time the company went out of business.

The Site was proposed for the National Priorities List (NPL) in June 1986 and was finalized in July 1987 as site number 572. A Remedial Investigation (RI) and a Feasibility Study (FS) were completed in October 1988 and February 1989, respectively.

In the fall of 1988 and at the sanction of a Cumberland County building/construction inspector, the new owner of the property retrenched the majority of the drainage ditch, dug several new drainage trenches and breached the diked pond. Both the drainage ditch and the sediments within the drainage ditch and the diked pond and the sediments within the diked pond were areas targeted for remediation.

The June 1989 ROD mandated the following remedial activities:

#### Remediation of Hazardous Materials, Tanks and Piping

- Off-site disposal of sodium dicromate - copper sulfate - arsenic pentoxide (CCA) salt crystals, the solidified creosote and asbestos-containing pipe insulation. The CCA crystals and solidified creosote will be disposed of at a RCRA permitted landfill. The asbestos containing pipe insulation will be disposed of at the Cumberland County Solid Waste Facility pursuant to the facilities specifications.
- The tanks and associated piping, above and below ground, will be emptied, flushed and cleaned, including triple rinsing, to render the metal non-hazardous. The metal will then be cut and either sold to a local scrap metal dealer or disposed of at the Cumberland County Solid Waste Facility. For those tanks and/or piping that cannot be cleaned sufficiently to render them non-hazardous they will be transported to a RCRA permitted landfill for disposal.
- The contents of the tanks and associated piping contains approximately 50,000 gallons of 3 percent CCA solution and 15,000 gallons of CCA contaminated wastewater. A buyer of the 50,000 gallons of 3 percent CCA solution will first be pursued. If no buyer can be found, then the 50,000 gallons of 3 percent (3%) CCA solution along with the 15,000 gallons of CCA contaminated wastewater will be treated on-site through the water treatment system set up for treating the pumped surface waters and extracted groundwater. All wastewater (i.e., cleaning equipment, etc.) generated by on-site activities will also be directed to the treatment system.

#### Source Control (Remediation of Contaminated Soils)

- The preferred alternative for the remediation of contaminated soils/sediment is soil washing. The alternate source control alternative is a low thermal desorption process to remove the organic contaminants from the soil followed by either soil washing or a soil fixation/solidification/stabilization process to address the inorganics. The decision as to which source control alternative will be implemented will be based on data generated by the soil washing treatability study to be conducted during the remedial design.
- Contaminated soils/sediment will be excavated, treated and placed back in the excavation. All wastewater generated will either be reused or treated on-site. Following completion of on-site remedial activities, those areas disturbed will be revegetated

### Migration Control (Remediation of Contaminated Groundwater)

- Groundwater extraction will be accomplished through the use of well points in the upper (surficial) aquifer. Groundwater removal will be conducted in 10,000 square foot subareas at a time, until the entire contaminated surficial aquifer is addressed. The well points will be moved from one area to another for subsequential dewatering.
- Due to local contamination of the lower aquifer, the lower aquifer will be pumped following remediation of the overlying upper aquifer in this area. This will prevent potential contaminant drawdown to deeper depths.
- A water treatment system will be established on-site. The system's influent will include contents of the tanks and piping, all wastewater generated due to remedial actions implemented, pumped surface water, and extracted groundwater. The level and degree of treatment will depend on 1) the level of contaminants in the influent and 2) the ultimate discharge point of the treated water. There are two water discharge alternatives for the treated water. The optimal choice is the local sewer system. The other alternative is to discharge the effluent to a surface stream. The range of treatment for the contaminated water includes biological degradation, air stripping, filtration through activated carbon filters, and metal removal through flocculation, sedimentation and precipitation. The point of discharge and the degree of treatment will be determined in the Remedial Design stage. The effluents, including both discharged water and/or air, will meet all applicable and relevant or appropriate requirements (ARARs). [For details of the technologies mentioned above, please review the Feasibility Study which is in the Information Repository.]

The Remedial Design (RD) was initiated following the signing of the ROD and was completed in September 1990. The design is performance based requiring the Remedial Action (RA) contractor to achieve the clean-up goals specified in the ROD for each contaminant in each environmental medium. Two treatability studies were conducted as part of the RD. The decisions and changes made to the remedial action during the RD precipitated the need for the first ESD in September 1991.

The September 1991 ESD accomplished the following:

- \* the selected soil washing over low thermal desorption as the primary remedial technology to address soil contamination at the Site;
- \* acknowledged the potential need to solidify some soil using a cement/ash mixture to address the elevated concentrations of the metals, arsenic and chromium;
- \* selected activated carbon adsorption as the primary treatment technology for treating groundwater;
- \* recognized the potential need for pretreatment of the contaminated water stream to remove suspended solids and oxidized iron prior to activated carbon filtration; and
- \* selected Bones Creek as the discharge point for the treated water.

#### **4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCE AND BASIS FOR THE DIFFERENCE**

The RA has been divided into four phases.

**Phase I** includes clearing and grubbing the Site; installation of an access control fence; emptying, flushing, cleaning, and disposing of nine tanks and associated piping; excavating and stockpiling contaminated soil for railroad relocation; treatment of contaminated water (surface water, storage tank liquids, rinse water, water from dewatering excavation, etc) by means of a temporary treatment facility; removal and off-site disposal of debris/hazardous waste material [copper-chromium-arsenic (CCA) crystals, solidified creosote] and asbestos-containing insulation; and transportation of debris/hazardous/asbestos waste material to a municipal landfill or Resource Conservation and Recovery Act (RCRA)-permitted hazardous waste landfill (as appropriate).

**Phase II** includes relocating railroad track to uncontaminated soil and restore railroad track and remove bypass track.

**Phase III** includes discharge pipeline installation; dismantle/demolition and disposal of building structures; excavation and treatment of contaminated soils; treatment and discharge of contaminated water; backfill and restoration of disturbed areas.

**Phase IV** includes installation of groundwater extraction wells, monitoring wells, and piezometers; construction of groundwater treatment plant; operation and maintenance of groundwater treatment plant.

The issuance of this second ESD is warranted for the following reason:

- the need to discharge of Phase I and II treated water into the drainage ditch on the southeast side of the Site.

Activities conducted during Phases I and II will generate small amounts of contaminated water. Since the discharge pipeline will not be installed until Phase III, the contaminated water generated during these two phases will be treated and discharged on-site. The water discharged on-site will be treated to meet the substantive requirements of an National Pollutant Discharge Elimination System (NPDES) permit. In accordance to Section 300.400(e)(1) of the National Oil and Hazardous Substances Pollution Contingency Plan (National Contingency Plan or NCP) an actual permit is not required. Section 300.400(e)(1) of the NCP states, "No federal, state, or local permits are required for on-site response actions conducted pursuant to CERCLA sections 104, 106, 120, 121, or 122."

#### **5.0 AFFIRMATION STATUTORY DETERMINATIONS**

The Agency and the State of North Carolina Department of Environment, Health, and Natural Resources believe that the change made to the selected remedy has not altered the protectiveness for human health and the environment, compiles with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is

cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

## **PUBLIC PARTICIPATION ACTIVITIES**

This ESD will be added to the Cape Fear Wood Preserving Superfund site Administrative Record. Copies of the Administrative Record are kept at

Cumberland County Public Library & Information Center  
300 Maiden Lane  
Fayetteville, North Carolina 28301

and

Environmental Protection Agency  
Region IV - Records Center  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365.

These Records are available for public review during normal working hours.

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Richard D. Green

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Date