

# Explanation of Significant Differences Picayune Wood Treating Superfund Site

Site Name:	Picayune Wood Treating Superfund Site	
CERCLA ID #:	MSD065490930	A Sur
Site Location:	Picayune, Pearl River County, Mississippi	
Support Agency:	Mississippi Department of Environmental Quality (MDEQ)	
Lead Agency:	U.S. Environmental Protection Agency, Region 4	



## I. Introduction

This decision document presents an Explanation of Significant Differences (ESD) for the Picayune Wood Treating Superfund Site (Site), located in Picayune, Mississippi. The Record of Decision (ROD) addressed by this ESD was signed in September 2007.

This ESD is issued in accordance with § 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.435(c)(2)(i). In EPA Region 4, the Director of the Superfund Division has been delegated the authority to sign this ESD.

This ESD will become part of the Administrative Record for the Picayune Wood Treating Superfund Site, which has been developed in accordance with § 113(k) of CERCLA, 42 U.S.C. § 9613 (k) and the NCP, 40 C.F.R. § 300.825(a)(2). The Administrative Record is available for review at:

Margaret Reed Crosby Memorial Library 900 Goodyear Blvd, Picayune, MS 39466 Phone: (601) 798-5081 Hours: Monday: 9:00 am - 7:00 pm Tuesday: 9:00 am - 5:00 pm

Tuesday.	9.00 am - 5.00 pm
Wednesday:	9:00 am - 5:00 pm
Thursday:	9:00 am - 6:00 pm
Friday:	9:00 am - 5:00 pm
Saturday:	9:00 am - 1:00 pm

and at U.S. EPA Region 4, 11th Floor Library, 61 Forsyth Street SW, Atlanta, Georgia 30303, Monday - Friday, 7:30 a.m. to 4:30 p.m.

#### II. Statement of Purpose

The purpose of this ESD is to document a change of the cleanup level established in the 2007 ROD for pentachlorophenol (PCP) in soil for protection of groundwater. As the EPA conducted the remedial action at the Site, it became evident that the original cleanup level was very conservative and did not completely reflect the site-specific conditions.



The area being impacted by the default PCP value is extensive and unnecessary for the risk this contaminant presents from the Site remediation. The original cleanup level for PCP was established to control the migration and leaching of PCP from soil to groundwater, which could result in groundwater contamination in excess of its Maximum Contaminant Level (MCL). The new cleanup level in this ESD will also control the migration of PCP from soil to groundwater, is protective of human health and the environment, and achieves the remedial action objectives of the ROD.

This ESD also adds a Remedial Action Objective (RAO) for certain areas of contaminated groundwater.

EPA prepares an ESD when the Agency makes changes to the original selected remedy that are significant, but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost.

## III. Site History and Contamination

#### Background

The Picayune Wood Treating Site (Site) is a former wood treating facility located in Picayune, Mississippi. The Site consists of approximately 30 acres located at 403 Davis Street in the city of Picayune, Pearl River County, Mississippi. The wood preserving plant was constructed in 1945 and operated continuously until 1999, under various owners. Operations included bark removal, wood preserving, and product storage. The facility pressure treated wood products (primarily utility poles and piling lumber) with wood preservatives including creosote oil and pentachlorophenol (PCP) solutions. Waste generated by the wood preserving process included wastewaters and condensate generated during the conditioning cycle, spent preservative, preservative drips and spills, preservative sludges that collected in the tanks and retorts, and rainwater runoff.

## Regulatory History

The Mississippi Department of Natural Resources and the Mississippi Department of Environmental Quality inspected the Site several times starting in 1981. Groundwater contamination was discovered in 1985.

In April 1988, the EPA issued a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) report that identified ten solid waste management units and one area of concern. The EPA issued a Hazardous and Solid Waste Amendment post-closure permit to Wood Treating, Inc. (WTI), the owner/operator, in September 1989. As part of their permit requirements, a corrective action plan was implemented for remediation of the groundwater contamination.

In April 1997, the facility submitted an Interim Measures Remediation Plan. In January 1998, the EPA notified WTI that implementation of additional investigative activities should begin within 30 days. The facility ceased operations in 1999.

#### **EPA Early Actions**

From October 1999 through June 2000, the EPA conducted an emergency response action. Product was removed from all tanks, vats, and ditches where waste product leaked or had the potential to leak.

The EPA conducted an additional soil and sediment removal action in 2007. Soil and sediment was removed from the adjacent Mill Creek and local residential properties that border the creek. Approximately 40,000 cubic yards of soil and sediment was staged on site from the removal action. The contamination addressed included creosote constituents and dioxin.

#### Nature and Extent of Contamination

From January of 2003 to July of 2006, five phases of remedial investigations were designed and implemented at the Site. During these investigations, groundwater, surface soil, subsurface soil, surface water, and sediment samples were collected and analyzed to characterize the Site and select a remedy to control risk to human health and the environment.

## Surface Soil

Evidence of surface soil contamination linked to the former wood treating operations was found predominantly in the former operations area. The contaminants detected were carcinogenic polycyclic aromatic hydrocarbons (cPAHs) (expressed as benzo(a)pyrene toxicity equivalents [BaP TEQ]); other wood treating related chemicals including naphthalene, PCP, and dioxins were also detected. These contaminants were found comingled in the process areas, drip pads, staging areas and from runoff to the drainage ditches and creek.

#### Subsurface Soil

Most of the subsurface soil samples were collected within the confines of the former processing facility. The data showed that the subsurface soil (3 to 24 ft bgs) was contaminated with BaP TEQ and PCP.

#### Groundwater

The groundwater was found to have been impacted in both the shallow and deep zones, by the wood treating operations, especially beneath the former cooling water pond and the waste-filled trench impoundments. The shallow zone begins approximately 35 feet below ground surface (bgs) down to the deep zone of 70 feet. The primary contaminants in the groundwater are creosote constituents.

The groundwater has been impacted by the wood treating operations in both the shallow and deep zones. The sources of the groundwater contamination have created two distinct plumes, referred to as the Eastern Plume and the Western Plume.

The source of the Eastern Plume, the larger of the two, is under the main processing area and the former cooling water pond. The closed trench impoundments are the source of contamination for the Western Plume. The extent of contamination in the deep zone (54 to 74 feet bgs), as indicated by the presence of naphthalene, is much greater than was found in the shallow zone (35 to 55 feet bgs).

# **IV. Selected Remedy**

The ROD was signed on September 26, 2007. It is available for review in the local repository and in the Administrative Record held at the EPA.

The Remedial Action Objectives (RAOs) developed in the ROD for contaminated soils are:

- Prevent ingestion, inhalation, or direct contact with surface soil that contain concentrations in excess of the RGs.
- Control migration and leaching of contaminants in soil to groundwater that could result in groundwater contamination in excess of Maximum Contaminant Levels (MCLs) or health-based levels.
- Prevent ingestion or inhalation of soil particulates in air that contain concentrations in soil in excess of the RGs.
- Permanently and/or significantly reduce the mobility/toxicity/volume (M/T/V) of characteristic hazardous waste with treatment.
- Control future releases of contaminants to ensure protection of human health and the environment.

The RAO in the original ROD for contaminated groundwater is to:

• Prevent ingestion or direct contact with groundwater containing constituents at concentrations in excess of current federal regulatory drinking water standards (MCLs), current MDEQ MCLs, total HIs greater than 1, and a cumulative excess lifetime cancer risk of greater than 1 E-06.

This ESD adds the following RAO for groundwater contaminated at levels above the MCLs but that is not part of the containment remedy:

• Restore contaminated groundwater in the aquifer that is a potential source of drinking water to current federal or state regulatory

drinking water standards (MCLs), total HI less than 1, and/or a cumulative excess lifetime cancer risk less than  $1 \times 10^{-6}$  within a reasonable time frame.

The remedy selected in the ROD included:

- Excavation of contaminated soil and sediment (220,000 yd<sup>3</sup>).
- Confirmation sampling and analysis of the excavated areas to ensure that the cleanup goals are met.
- Compaction of excavated soils/sediments in the disposal area.
- Backfill of clean soil into areas where contaminated soil and sediment were removed (220,000 yd<sup>3</sup>).
- Placement of a low profile composite cover over the disposal site (16 acres).
- Placement of a 6-inch topsoil cover and grass seeding over disposal cell and soil excavation area (37 acres).
- Land use/deed restrictions to limit construction over the disposal area.
- Long term monitoring to assess the effectiveness of the remedial action.
- Groundwater remedy is a combination of containment and treatment.
- Vertical barrier walls to be installed to contain the two sources of groundwater contamination.
- Contaminant plumes outside barrier walls to be treated using a combination of in situ flushing to enhance mobility of contaminant non aqueous phase liquid, in situ chemical oxidation to oxidize high concentration groundwater contaminants and in situ enhanced bioremediation.
- Monitored Natural Attenuation (MNA) will be the final phase for assessing the effectiveness of the groundwater remedy.

Starting in November 2011, EPA mobilized to the Site to undertake the remedial actions outlined in the ROD. To date, the subsurface barrier walls have been installed and contaminated soil is being excavated and stockpiled in the future containment cells.

# V. Description of Significant Differences and Basis for the ESD

## **Protection of Groundwater Calculations**

The 2007 ROD adopted a generic default value from EPA's Regional Screening Level (RSL) tables (EPA, 2007) for protection of groundwater from PCP in soils. That value was 0.001 milligrams per kilogram (mg/kg).

This value was not based on a site-specific value that reflects the site conditions and current area geology. The default PCP value is an overly conservative value that will result in the unnecessary disturbance of surrounding areas through excavation of surface and subsurface soils. The PCP in soil does not present a direct contact risk or any risk for dermal exposure. The PCP value is established to protect potential migration of PCP through the soil and into the groundwater. Currently, no one is consuming the contaminated groundwater. Drinking water wells in place for the City of Picayune are not located near the Site and are not affected by the Site's groundwater contamination. In addition, the depth of the City wells is approximately 1000 feet bgs. The Site groundwater contamination extends to a maximum depth of 70 feet, which a defining clay layer prevents any contamination from migrating below this depth. The cleanup level is in place for groundwater protection due to an applicable, relevant and appropriate requirement. The State of Mississippi considers all groundwater to be classified as drinking water and therefore all MCLs must be met, regardless of anyone using the groundwater.

The current PCP value is a default screening value adopted in 2007 and included in the ROD. There was minimal indication that PCP posed a significant issue from the remedial investigation. A sitespecific value was deemed unnecessary prior to the ROD. Since remedial actions have been underway and additional site discoveries have been encountered, which include subsurface PCP contamination, the PCP has been more prevalent than originally identified. As such, the decision to calculate a site-specific value was made in an effort to reduce the unnecessary impact to the area soil using the screening value, which is conservative, reduce the containment cell volume, and backfill material that would be transported for miles into the City. This approach allows the EPA to be more "green" and reduces the carbon footprint.

EPA temporarily halted excavation to calculate a site-specific cleanup value that reflected the actual soil conditions at the Site. The calculations took into account such site-specific factors as (1) the hydraulic conductivity of the aquifer; (2) the hydraulic gradient or general direction of groundwater flow; (3) the infiltration or recharge rate; (4) the distance the plume has extended from the sources of contamination; and (5) the thickness of the sand, gravel, and clay that make up the aquifer. The site-specific value for the Site has been calculated and protective of groundwater at 0.118 mg/kg of PCP in soil. This value is a calculation based on factors relevant to the Site. Some of the specific equation factors that derive the PCP value include parameters such as the target soil-water leachate concentration. dilution attenuation factor, soil-water partition coefficient, and soil porosity. The site-specific PCP value is derived from USEPA guidance and technical documents for chemical contaminants at Superfund Sites such as this Site.

This new value for PCP in soil continues to be protective of groundwater at this Site. The hydro geologists from Technical Services for the EPA and the U.S. Army Corps of Engineers have reviewed the Site information and concluded that the sitespecific value is protective of groundwater. The groundwater remedy, as outlined in the ROD, will not change and continues to be implemented.

## **Basis for Change**

Using all the available information from the Remedial Design and Remedial Action, EPA determined that developing a site-specific soil cleanup level for PCP in soil for the protection of groundwater is more appropriate than using the default value which was based on a screening level. The document supporting EPA's decision is the Site Specific Pentachlorophenol (PCP) Protection of Groundwater Calculation report dated July 9, 2012. The site-specific calculation report identifies the defining parameters that exist on site and is the most reliable information for addressing the PCP contamination since the sole basis is on specific geological information from the Site and not based upon generic values, assumptions or characteristics from a host of wood treating sites with common factors. This document is available in the Administrative Record and reflects the basis and rationale for deriving a site-specific value.

As stated previously the PCP soil cleanup level was based on a screening level. This screening level is not a site-specific value and is generally not used as a default cleanup level. The remedial investigation did not indicate PCP contamination was excessive and EPA therefore relied on the default value.

Based on the ROD cleanup level the soil volume originally estimated for remediation was approximately 220,000 cubic yards. This volume was based primarily on soil contamination for creosote and dioxin and not PCP. The volume of PCP contamination was estimated to be small based on the remedial investigation and the small volume of PCP treatment conducted by the operator during the facility operations. Creosote was the predominant preservative used by the facility and not PCP during the 55 years of operation.

The contaminated soil volumes that will be contained or placed inside the two containment cells are not expected to exceed the estimated volume of 220,000 cubic yards identified in the 2007 ROD. The creosote and PCP contaminated soil is now estimated to be approximately 175,000 cubic yards. EPA is required by the NCP, 40 C.F.R. §300.430(f)(1)(ii)(D), to ensure that the remedy selected is cost effective, in addition to being protective of human health and the environment and complying with all applicable and relevant state and federal laws.

EPA has determined that a site-specific PCP in soil value is appropriate for the final remedy. The site-

specific PCP value will continue to be protective of groundwater, and does not change the groundwater remedy.

## Addition of Remedial Action Objective

The groundwater remedy at the Site was always designed to restore groundwater to its beneficial use as a potential source of drinking water, but the original ROD failed to clearly state this objective. This ESD also presents the opportunity to officially include this RAO. The groundwater remedy will not change.

# VI. Support Agency Comments

EPA consulted with the MDEQ and provided the State an opportunity to comment on this ESD in accordance with Section 121(f) of CERCLA, 42 U.S.C. § 9621(f), and the NCP, 40 C.F.R § 300.435(c)(2) and § 300.435(c)(2)(i). The MDEQ concurs with this ESD.

# VII. Statutory Determinations

EPA has determined that the significant change to the cleanup value for PCP in soil complies with the statutory requirements of CERCLA § 121, 42 U.S.C. § 9621, are protective of human health and the environment, comply with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, are costeffective, and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

# VIII. Public Participation

The public participation requirements set out in the NCP, 40 C.F.R. § 300.435(c)(2), have been met by publishing this ESD, making it available to the public in the Administrative Record, and publishing

a notice summarizing the ESD in a major local newspaper.

This Administrative Record, including this ESD, is available for public comment at the repository listed in Section I. Please direct any written comments on this ESD to:

Mr. Michael Taylor Remedial Project Manager Superfund Remedial Branch U.S. Environmental Protection Agency Region 4 61 Forsyth Street, SW Atlanta, Georgia 30303-3104 EMAIL: taylor.michael@epa.gov TELEPHONE: (404) 562-8762

# IX. Authorizing Signature

I have determined the remedy for the Site, as modified by this ESD, is protective of human health and the environment, and will remain so provided the actions presented in this report are implemented as described above.

This ESD documents the significant changes related to the remedy at the Site. U.S. EPA selected these changes with the concurrence of MDEQ.

U.S. Environmental Protection Agency

Franklin E. Hill

Bv:

Director Superfund Division

Date: 6/12