STATEMENT OF BASIS/FINAL DECISION AND RESPONSE TO COMMENTS SUMMARY

REGION IV
ID # 6961
MSD 057 226 961

Cavenham Forest Industries, Inc.
Gulfport, Mississippi
(Not Signed)

Facility/Unit Type:	**Production of treated wood products**
Contaminants:	**Polycyclic Aromatic Hydrocarbons (PAHs) and Phenolic Compounds, as found in the residues of Creosote and Pentachlorophenol (PCP)**
Media:	**Groundwater, Soil**
Remedy:	**Groundwater: Recovery wells, Injection wells, Monitoring wells, Fixed-film biological treatment, Infiltration trenches, Air sparging** **Soil: Closure cover system, Gas collection/venting system**

FACILITY DESCRIPTION

The facility known as Cavenham Forest Industries Inc. (Cavenham) produced treated wood products in Gulfport, Mississippi, from approximately 1906 to 1987. It was owned successively by Captain J. T. Jones, various local persons under the name Gulfport Creosoting Company, the Crown Zellerbach Corporation, and Cavenham. In November 1987, the manufacturing operations stopped, the former plant facilities were demolished, and commercial operations at the site ceased.

The 82.16-acre site occupies a gently sloping point of land on the banks of Bayou Bernard between the Harrison County Industrial Seaway and Turtle Creek, North of Gulfport, Mississippi. The site is bounded on the west by Creosote Road and on the south by Rippy Road and Turkey Creek.

The wood treatment process used the preservatives creosote and pentachlorophenol (PCP), and required on-site available water for process contact cooling and facilities to handle process wastewater. A Surface Impoundment was constructed for this purpose sometime between 1920 and 1942. Wastewater sludge accumulated in the bottom of the impoundment, and is designated a K001 RCRA hazardous waste. Prior to closure, it was estimated that there was approximately 225,000 gallons of K001 sludge in the impoundment, which measured approximately 240 feet long by 75 feet wide, and varied in depth from five to eight feet.

After the mid-1970s, K001 hazardous waste was generated from the flocculation of wood preserving process wastewater in the wastewater flocculation tanks. The accumulated bottom sludge from five or six batches of treated wastewater were removed at one time and applied to the previously existing sand filtration beds. Once dry, the sludge was disposed of off-site. Excess water seepage from the drying sludge flowed into the former Surface Impoundment.

Closure of the Surface Impoundment began in December 1986, according to the State approved closure plan. Activities included the removal and treatment of water contained in the impoundment; solidification/stabilization of remaining sludge; demolition and solidification of the sand filtration beds; installation of a gas collection/venting system; and the installation of a closure cover system which included a 40 millimeter thick high density polyethylene liner; a three foot thick compacted clay liner; a topsoil drainage layer; and seeding of an eighteen inch thick topsoil layer. Property restrictions were placed in a Property Deed Notice recorded in October 1987, and in January 1988, Cavenham submitted closure certification as required by their Post-Closure Permit.

EPA issued a HSWA permit pursuant to Section 3004(u) of RCRA on August 8, 1988, concurrent with the issuance of the RCRA Post Closure Permit by the Mississippi Department of Environmental Quality (MDEQ). According to EPA and MDEQ approved work plans, Cavenham

conducted an evaluation of the nature and extent of the hazardous waste and constituent releases. This investigation included a thorough geological characterization, identification of groundwater movement, and a study of the groundwater interaction with potential contaminants. Cavenham currently conducts groundwater remediation based on post-closure activities performed during the time period July 1988, through October 1992, and subsequent field and monitoring investigations and actions, in accordance with the approved Interim Measures Work Plan of June 1, 1991, and the RFI Workplan of December 18, 1989, and Addenda of July 31, 1991, and November 16, 1992.

Areas of specific soil contamination still exist within the closure area. This is believed to be caused by a source of contamination coming from the Buried Vacuum Pond (SWMU 1b). Other possible sources include the Surface Impoundment (SWMU 1a) and the Storm Drain (SWMU 1c). These units occupy the same area. Based on field and monitoring investigations, two non-aqueous phase liquid (NAPL) plumes were identified. One includes the area where the Buried Vacuum Pond was located and the area of the closed Surface Impoundment. The other is to the southeast of the former Bath House. Due to the chemical nature of the constituents, the rate of movement of these plumes is much less than the rate of groundwater movement.

Groundwater flowing through these heavier plumes stripped contaminants away and created a soluble groundwater plume. This plume migrated approximately 5.7 ft/year in the direction of groundwater flow.

It is believed that these plumes are moving toward the recovery wells, which are located near the sources and structurally downgradient.

CONTAMINATION DETECTED AND CLEANUP GOALS

Detail not given.

EXPOSURE PATHWAYS

Exposure was considered under the industrial scenario of land use; there is a deed restriction to this effect on file with the local courts. This scenario assumes adult direct contact with contaminated soil through consumption and dermal contact 250 days/year. The location of the closed units is well removed from casual contact, there is a fence around the closed units and around the site, which is controlled and has a daily presence of site personnel. The groundwater below the site is not used for potable water or other domestic purposes. Since the units are closed under a RCRA closure cap, groundwater is controlled to prevent migration, and there is no way for the waste to become air borne and possibly inhaled, there is no complete exposure pathway, and the probability of an exposure is therefore very low.

SELECTED REMEDY

The Surface Impoundment was originally identified as one of six SWMUs on the site. Reevaluation identified five additional areas, including the Buried Vacuum Pond and the Storm Drain, which occupy the same area as the Surface Impoundment SWMU. The Surface Impoundment is now identified as SWMU 1a. The proposed remedy addresses the Buried Vacuum Pond (SWMU 1b) and the Storm Drain (SWMU 1c), and considers their proximity to the Surface Impoundment.

When these units were closed, the waste and contaminated soil were contained in the area now surrounded by soil-bentonite cutoff walls. Cavenham also installed and began operating other corrective action components, including 22 groundwater recovery wells within the cutoff walls, four shallow injection wells, groundwater monitoring wells, and a fixed-film biological treatment unit. Implementation of this plan was designed to control groundwater flow and thereby the migration of the plume of concentration ; accelerate source removal and remove the NAPL which is still a source of the soluble contaminant plume; and recover the soluble contaminants in the groundwater and reduce the concentrations to below a level which might pose a threat to human health and the environment.

Several more system components are planned to accelerate cleanup of the soil and groundwater. This will include 12 additional groundwater recovery wells; 10 additional injection wells; six infiltration trenches; and 76 air sparging well points. Groundwater recovery wells will allow for control and maintenance of a lower water table should

contaminants be found migrating laterally and downward, as the unit was closed without a bottom liner. Injection wells will allow for treated water to be returned into the shallow subsurface and flush the soil so that contaminants are mobilized and caught by the groundwater recovery wells. Infiltration trenches will serve a similar function, reintroducing treated water with trace nutrients and oxygen to the subsurface to accelerate contaminant removal. Air sparging wells will provide aeration to the subsurface, helping to move the heavier contaminants and the residual particles toward a recovery well. They will also provide a stable source of oxygen for the existing microorganisms to consume the contaminants as a food source.

INNOVATIVE TECHNOLOGIES CONSIDERED

Air sparging and fixed-film biological treatment are considered innovative.

PUBLIC PARTICIPATION

EPA proposed a remedy during the RCRA Permit reissuance to allow for public review and comment prior to a final decision. A public comment period was scheduled for May 31 through July 15, 1996, and a public hearing was not to be held unless specifically requested.

NEXT STEPS

Cavenham will implement the remedy as described, evaluating and making changes as needed.

KEYWORDS:

groundwater, soil; dermal contact, ingestion; PAHs, creosote, pentachlorophenol (PCP), non-aqueous phase liquid (NAPL); aeration, capping, groundwater recovery wells, infiltration trenches, injection wells, institutional controls (deed restriction), monitoring (groundwater, soil), innovative technology selected (air sparging, bioremediation), soil-bentonite cutoff walls, venting.

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