STATEMENT OF BASIS/FINAL DECISION AND RESPONSE TO COMMENTS SUMMARY

REGION III
ID # 1958
WVD063461958

Appalachian Timber Services, Inc.

Sutton, West Virginia
(Signed August 9, 1996)

Facility/Unit Type:	**Wood treatment**
Contaminants:	**Arsenic, Benzo(a)anthracene, Benzo(a)pyrene, Naphthalene, Anthracene, Carbazole, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Fluoranthene, Pyrene, Benzene, Toluene, Ethylbenzene, Xylene, and Chromium**
Media:	**Soil, Groundwater, Sediment, and Surface water**
Remedy:	**Install drip pads, conduct bioremediation, excavate soil, construct an asphalt cap, install additional groundwater monitoring wells, perform ecological impact studies, continue current pump and treat system, and comply with groundwater clean-up standards**

FACILITY DESCRIPTION

EPA and the Appalachian Timber Services, Inc. (ATS) entered into an Administrative Consent Order on December 29, 1991 pursuant to Section 3008(h) of RCRA. ATS is located in Sutton, Braxton County, West Virginia and is approximately 15 acres in size. The facility is adjacent to the Elk River and immediately downstream from the Sutton Dam.

ATS was constructed in 1971 and began wood treating operations on February 1, 1972. Approximately ten years earlier, a portion of AST's land was used as a landfill for municipal and household waste refuse. Currently, the facility consists of approximately 9,000 square feet of enclosed single-story structures including: wood treatment buildings, a raw materials storage building, a maintenance shop, a boilerhouse, a saw mill, and an office building. The remaining areas of the facility are used for the storage of raw materials and treated wood.

According to the 1990 Census report of the U.S. Bureau of the Census, in 1990 Sutton, West Virginia had a population of 939 people and 262 housing units. Sutton is a rural area with a racially homogeneous population that is relatively young in age. Approximately 60 percent of the residents are less than 44 years of age.

The facility is located on flood plain alluvium which is no longer within the 100-year flood plain due to the construction of the Sutton Dam. The top layer consists of two to three feet of gravel fill. Beneath the gravel fill is a alluvial layer consisting of brown sandy silt with few distinct strata changes to a depth of about 20 feet. The total thickness of the alluvial layer in the Sutton area ranges from approximately 10 to 40 feet, the average being approximately 30 feet. After the alluvial layer, there is the upper bedrock unit which underlies the facility and is most likely sandstone. This sandstone is generally 30 to 50 feet thick and is a medium-hard, medium-grained, well-cemented, micaceous sandstone. The uppermost aquifer under the facility is a typical river valley alluvial aquifer. Groundwater beneath the facility generally flows from south to north toward the Elk river; however, slight variation in groundwater flow direction exist across the site.

There is one drinking water well within one mile of the facility; however, it is located southeast and upgradient from the facility. In addition, there are three public water supply intakes located on the Elk River within 10 miles of the facility. The three public water supply intakes are as follows: the Flatwoods-Canoe Run Public Service District located approximately 0.2 miles upstream from the facility; the West Virginia-American Water Company Sutton intake, which was closed in mid-1994, is located approximately 0.2 miles downstream from the facility; and the West Virginia-American Water Gassaway plant located approximately seven miles

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminant	Maximum Concentration (mg/kg)	MCL Action Level	MCL Cleanup Goal (ppb)	Point of Compliance
Soil	7,200 cubic yards	Arsenic Benzo(a)-anthracene Benzo(a)pyrene	5.29E+02 1.81E+03 2.59E+01	Not given	33 ppm 7.8 ppm 0.78 ppm	Media clean-up standards
Groundwater	4.2 million cubic feet (or 31 million gallons)	Naphthalene Anthracene Carbazole Indeno(1,2,3-cd)pyrene Dibenz(a,h) anthracene Benzo(a)-anthracene Chrysene Benzo(b) fluoranthene Benzo(k) fluoranthene Benzo(a)pyrene Fluoranthene Pyrene Benzene Toluene Ethylbenzene Xylene Chromium	Not given	Not given	1,500 11,000 3.4 0.2 0.2 0.2 9.2 0.2 0.92 0.2 1,500 1,100 5.0 1,000 700 10,000 50 100	Entire aquifer
Sediment	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Surface water	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

downstream from the facility.

ATS treated wood with creosote or CCA in wood treatment cylinders until July 1993. ATS ceased the CCA wood treatment portion of its operations at this time. ATS operated an unlined lagoon for collection of contaminated water produced as a result of wood treatment operations until 1979. The lagoon was closed in 1979 under a pre-RCRA closure plan. Sludge contained in the lagoon was removed as part of the closure plan and placed in the Clay Encapsulated Disposal Area on the northeast corner of the property. ATS replaced the lagoon with a clay-lined evaporation spray pond. From 1980 to 1985, wastewater was treated in a creosote separator tank and the treated effluent from the tank was discharged to the spray pond.

On June 15, 1984, the West Virginia Department of Environmental Protection (WVDEP) investigated ATS in response to two complaints which stated that an oily sheen was observed on the bank of the Elk River immediately adjacent to the facility. Although no sheen was observed during the inspection, WVDEP documented the presence of a creosote-like material seeping into the river adjacent to the facility during another inspection conducted on July 31, 1984. EPA later confirmed the seepage and WVDEP request the facility to install booms on the river to prevent the creosote-like material from

migrating further down the river. ATS installed the booms and constructed an interceptor trench next to the river in order to prevent contaminated groundwater from entering the river. In 1985, the spray pond was replaced with a complete wastewater treatment/recycle system. In early 1988, ATS installed groundwater monitoring wells in order to study the groundwater conditions at the facility. The study concluded that groundwater contamination had occurred at ATS and that the sources of contamination were the spray pond and the old closed unlined lagoon. The groundwater was contaminated with creosote compounds which were found both as a separate dense immiscible phase, and as a dissolved phase plume. The plume was defined both vertically and horizontally as part of the assessment. On December 15, 1989, WVDEP issued a post-closure permit for the spray pond requiring ATS to monitor the level of contamination in the groundwater and to recover and treat the contaminated groundwater in the vicinity of the closed spray pond.

Pursuant to the 1991 consent order, the RCRA Facility Investigation (RFI) investigated three solid waste management units (SWMUs) for releases of hazardous waste and hazardous constituents and evaluated site-specific conditions and characteristics that could affect potential contaminant migration. The three SWMUs investigated were the Clay Encapsulated Disposal Area, Tram Track Area, and Treated Wood Storage Area. During the RFI, two additional areas (Debris Burning Pile and Potential Additional Waste Management Unit) were added to the investigation.

Based on the finding of the RFI, EPA determined that the soils beneath the Tram Track Area, Treated Wood Storage Area, and Debris Burning Pile have been contaminated by creosote and/or CCA constituents associated with wood treating operations. The Tram Track Area and Treated Wood Storage Area appear to be the sources of contamination found in sediments and surface water on-site and at one sample point in the Elk River. Soil from beneath the Debris Burning Pile may also be contributing to the on-site and Elk River sediment and surface water contamination. The groundwater investigation conducted as part of the RFI focused specifically on the Clay Encapsulated Disposal Area. The RFI required the installation of a monitoring well down gradient of the disposal area, and sampling of the well for hazardous constituents. Groundwater sampling results from this well did not indicate the presence of any creosote compounds or volatile organic compounds. After the installation of this monitoring well, it was determined that groundwater flows in both a northern and eastern direction in the vicinity of the Clay Encapsulated Disposal Area. While this well is located north of the Clay Encapsulated Disposal Area, there is no well on the eastern side of the unit. Approximately 4.2 million cubic feet (or 31 million gallons) of groundwater was contaminated. The contaminated area was equal to 500 x 400 x 21 feet deep. Also, approximately 7,200 cubic yards of soil was contaminated.

The groundwater plume that exists at the facility has been characterized by installation of the monitoring wells in the alluvial aquifer. Analysis of the samples taken from the two deep bedrock monitoring wells demonstrated that the contamination is confined vertically to the alluvial aquifer, and that the upper bedrock aquifer is not contaminated. The contaminants of concern include the following: arsenic, benzo(a)anthracene, benzo(a)pyrene, naphthalene, anthracene, carbazole, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, fluoranthene, pyrene, benzene, toluene, ethylbenzene, xylene, and chromium.

Pursuant the consent order, ATS was required to continue the groundwater pumping and treatment activities and to install two recovery wells near the Elk River as interim measures.

EXPOSURE PATHWAYS

Soil and groundwater are identified as the exposure pathways via ingestion, inhalation, and dermal contact. Individuals in close proximity of the ATS site include neighboring residents and employees. Approximately 100 people are located withing a one-half mile radius of the facility. There are no schools or retirement centers within this area. ATS employs 50 people, many of whom are resident of Sutton. These individuals are full-time employees, and most of their work is performed outdoors.

There is little or no vegetation in the immediate vicinity of the Treated Wood Storage and Tram Track Areas. Wildlife does not currently inhabit these areas, and is unlikely to do so in the future. Wildlife is, therefore, not considered a potential receptor. Fish populations in the Elk River

are also not considered a potential receptor because of the following reasons: low or non-detectable concentration in surface water and sediment, fish migration patterns, and concentration dilution. However, the U.S. Fish and Wildlife Service identified 14 species of freshwater mussels that were not originally included in the RFI that need to evaluated.

SELECTED REMEDY

The selected remedy for the groundwater and soil consists of the following: 1) prevent further creosote contamination from the wood treating operations by installing drip pads at the opening of the wood treating cylinders in accordance with the provisions of West Virginia Code of State Regulation, Title 47- Series 35, Section 7; 2) perform in-situ land treatment (bioremediation) on creosote-contamination soil at the facility, including conducting a bench-scale test to evaluate the waste media and optimum operation conditions; soil areas that do not meet clean-up standards after bioremediation will be capped with asphalt; 3) excavate or asphalt cap CCA contaminated areas which exceed the media cleanup standards; 4) restrict the facility deed to require future land owners to maintain the asphalt cap and limit future land use of the property to industrial uses; 5) install an additional monitoring well on the east side of the existing Clay Encapsulated Disposal Area, to provide sufficient groundwater monitoring coverage for this unit; 6) perform additional ecological impact studies of contaminated media on additional identified endangered species; 7) continue implementation of the current pump and treat system; and 8) comply with groundwater clean-up standards for the facility. The capital cost associated with the selected remedy is $600,000 and the annual operational and maintenance cost is $100,000. The drip pad cost is an additional capital cost of $160,000 and an additional annual operational and maintenance cost of $200,000. Therefore, the total present worth of the selected remedy is $1,060,000.

INNOVATIVE TECHNOLOGIES CONSIDERED

The other innovative technology considered as a potential corrective measure was soiling washing. Soil washing is a water-based process for mechanically scrubbing excavated soils suspending the contaminants in the wash solution or by concentrating them into a smaller volume of soil through particle size separation techniques. This corrective measure alternative was not selected. In-situ bioremediation, which was selected as the final remedy, is also an innovative technology.

PUBLIC PARTICIPATION

A thirty-day public comment period was held from August 16 to September 17, 1996. On August 16, 1996, EPA placed an announcement in the *Braxton Democrat* and *Citizens' News* to notify the public of the preferred corrective measure alternative and of the location of the Administrative Record. All of the comments received were reviewed and considered by EPA during the selection of the final corrective measure. Comments received did not propose additional corrective measure alternatives and did not suggest the need to change EPA's preferred corrective measure. In addition, comments did not propose additional alternatives that had not been previously considered in the Corrective Measure Study.

NEXT STEPS

Implementation of the selective corrective measures at ATS.

KEY WORDS:
groundwater, soil, surface water, sediment; ingestion, inhalation, dermal contact; arsenic, benzo(a)anthracene, benzo(a)pyrene, naphthalene, anthracene, carbazole, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, fluoranthene, pyrene, benzene, toluene, ethylbenzene, xylene, and chromium, creosote, CCA, volatile organic compounds; bioremediation, excavation, capping, in-situ treatment, groundwater monitoring, ecological impact studies, innovative technology considered: soil washing; innovative technology selected: in-situ bioremediation; interim remedy.

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