

EXECUTIVE SUMMARY

The RI at the Brunswick Wood Preserving (Brunswick Wood) Superfund site, in Brunswick, Georgia was conducted by the United States Environmental Protection Agency (EPA), Science and Ecosystems Support Division (SESD), Environmental Compliance Branch (ECB), Hazardous Waste Section (HWS). The objectives of the remedial investigation were to gather sufficient information to:

- 1) define the nature and extent of soil, surface water, sediment and ground water contamination at the site, and
- 2) aid in the development of remedial alternatives that may be necessary to address any threat identified by the investigation.

Site Setting and Description

The Brunswick Wood Preserving Superfund site is located in north Glynn County, Georgia, north of the city of Brunswick (6.5 miles northwest of the courthouse). The site is located on Perry Lane Road approximately 0.5 miles east of the intersection of Perry Lane Road and Highway 341, New Jesup Highway (see Figure 1-1). The site was originally located in the city of Brunswick, but moved to its present location in 1959-60 due to enticements by the city to move from the downtown location. The total contiguous property comprising the site is approximately 84 acres, however, the portion of the site on which most site activity occurred was restricted to about 50 acres.

The site is about two-thirds of a mile long, from its extreme western corner on Perry Lane Road, to the eastern corner, where an old siding intersects the Norfolk Southern right-of-way. The entire northern perimeter is defined by Perry Lane. A short segment of the southern or southwestern border is defined by the CSX Railroad right-of-way. Most of the southern

property/site boundary, however, is defined by residential properties and wooded areas. The eastern boundary is defined by the Norfolk Southern Railroad right-of-way.

Burnett Creek, a tidally influenced stream, is located at the extreme western corner of the site. At several points, most, if not all, of the drainage from the site flows into Burnett Creek..

Site Ownership and Operational History

Operations at the Brunswick Wood Preserving site ceased in 1991. The following is a summary of ownership and operating history from 1958, when operations began, until the time it ceased operating in 1991. The site was originally operated by American Creosote Company, who constructed the facility at the current location sometime between 1958 and 1960. This fact is based on several site drawings, dating from 1958, which indicate American Creosote Company owned the site. The site was acquired by Escambia Treating Company in 1969 from Georgia Creosoting Company and the Brunswick Creosoting Company, thought to be the same corporate entity. The relationship and nature of transition between American Creosote Company and Georgia Creosoting Company/Brunswick Creosoting Company is not clear. In 1985, a corporate reorganization resulted in the purchase of the facility by the Brunswick Wood Preserving Company, who operated the site until it closed in 1991.

In 1991, Region 4, USEPA began an emergency removal action after a fire occurred at the site. All but a few of the site structures were demolished and removed, with large areas of contaminated soil excavated and stockpiled. In particular, the siding which ran along the southern boundary of the active portion of the facility was removed and soil along almost the entire length was excavated. In addition, large volumes of soil were removed from the creosote/penta and CCA treatment areas, treated pole storage areas and the lagoon area, located west of the office building.

The contaminated material removed during the EPA removal action was placed in four different encapsulated waste cells, three containing PAH-contaminated material and one containing primarily CCA-contaminated material. The contents of the three largest cells, containing the PAH-contaminated material, have since been removed by Georgia EPD. A new rail spur was constructed to facilitate the removal of the cell contents. The spur originates at the CSX line, just east of Burnett Creek, and generally follows a path just north of the old spur line, which is now a series of water-filled excavations.

Sampling Results

Soil, ground water, surface water, sediment and fish tissue were collected and sampled during the Brunswick Wood Preserving In-House Remedial Investigation. This sampling was conducted in two phases, Phase I, in February and March 1997, and Phase II, in October 1997. The fish tissue sampling was performed in April 1997 by the ESAT Biological Assessment Team. The findings of the remedial investigation indicate that the site has, to a certain degree, impacted all aspects of the environment in the vicinity of the Brunswick Wood Preserving site. The following is a summary of the findings, by media.

Soil (Including sediment or bottom material from on-site ponds)

178 surface and subsurface soil samples were collected at 84 on- and off-site locations to characterize the site and surrounding area with respect to any soil contamination that was present.

Sampling results indicate that large areas of soil and shallow pond bottoms are heavily contaminated with polynuclear aromatic hydrocarbon (PAH) compounds, including the carcinogenic PAHs (CPAHs). The shallow pond bottoms are included with the soils for the purpose of this evaluation because at many of the pond locations, the bottom material is actually

an excavated soil base rather than sediment. Additionally, after dewatering, prior to any remedial effort, the shallow pond bottoms would be functionally equivalent to soil, with respect to their ultimate disposition. While the actual soil areas have been successfully characterized, with respect to depth of contamination, the depth of contamination in the ponds has not been attempted.

There are six areas in which soil contamination is significantly greater than the remainder of the site. These areas, listed below, are the areas where some degree of remediation is anticipated.

1) Old penta/creosote treating area - This area is located in the western third of the site and is comprised primarily of two closed lagoons and the treating area, which was heavily stained during the operating period of the facility. Several large oil spills occurred in the area, undoubtedly contributing to the contamination identified during the remedial investigation.

A significant amount of oily, contaminated soil still remains in this area. Numerous PAH and CPAH compounds were detected, each in the thousands of ug/kg range; some were present in percent concentrations. Benzo(a)pyrene equivalents (BAPEs) in excess of 3,100 ug/kg were calculated for the soil in this area and dioxin TEQs of 300 ng/kg to 400 ng/kg were calculated.

2) Treated Product Storage Area, South Area Rail Spur - Another area of significant contamination is the area coinciding with the historical treated product storage area along the southern rail spur. Aerial photographs indicate heavy soil staining in this area, apparently due to drippage from wet, freshly treated poles and pilings. Although EPA removed substantial volumes of soil from this area during the emergency removal, significant contamination remains in this area.

PAH concentrations are generally not as high as detected in old treating area, but still are on the order of thousands of ug/kg for many of the PAH and CPAH compounds. BAPes range from about 500 ug/kg to over 1,100 ug/kg and dioxin TEQs range from 1,200 ng/kg to 2,000 ng/kg.

3. Storage Area West of Main Entrance - This area is a small storage area west of the main entrance, with significant stained soil on the surface. The main contaminants are benzo(b and/or k)fluoranthene and chrysene. Other PAH and CPAH compounds are present but at generally lower concentrations.

BAPes calculated for these soils are in the 700 mg/kg to 800 mg/kg range. An extremely high dioxin TEQ, 13,000 ng/kg, was calculated for the sample from grid 31, located in this area.

4. IM-3 and Adjacent Storage Area - This area is located along the northern border of the site, at approximately the location where the wooded area begins on the south side of Perry Lane Road. A small sedimentation basin and an open treated product storage area was located in this area.

5. Small Treated Product Storage Area - This relatively small area is located in the eastern part of the site, just south of the large pond complex (ponds IM4/5). It is located within one of several treated product storage areas on site, in the vicinity of the northern branch of the rail spur entering the site from the east.

6. The IM4/IM5 pond complex - This is a large area of significant contamination at the far eastern extent of the site, adjacent to the heavily wooded area. The entire ponded area is contaminated with large amounts of oily, PAH contaminated soil and other material.. Concentrations of various CPAH and non-CPAH compounds were detected in the tens of

thousands of ug/kg to percent concentration range. BAPE values calculated for the samples from these ponds ranged from approximately 1,000 ug/kg to over 99,000 ug/kg. Dioxin TEQs of 2,700 ng/kg and 12,000 ng/kg were calculated for samples from two locations in this area.

Ground Water

Ground water was investigated in two phases. During Phase I activities, 15 temporary monitoring wells were installed and sampled. Three existing potable wells were also sampled. These results indicated the presence of at least two distinct contaminant plumes at the site. During Phase II, 46 samples were collected at several depths at 19 locations using direct push technology. This sampling was conducted to provide areal and vertical characterization of the plumes identified during Phase I.

Two separate plumes, contaminated primarily with polynuclear aromatic hydrocarbons (PAHs) and benzene, toluene, ethylbenzene and xylene (BTEX) were identified during the remedial investigation. One plume extends westward from the area of the IM4/IM5 ponds in the eastern portion of the site. In this area, the worst contamination is restricted to the interval immediately above the widespread confining clay unit (approximately 30 feet below land surface) identified during the investigation. Trace concentrations, however, were detected in samples collected from beneath this clay. The levels that were detected do not appear significant enough to characterize the contamination in this zone as a plume, at least in the area sampled. A shallow plume may be present, but it is most likely very limited in its extent, restricted to the immediate area of the ponds.

The other plume is located in the western portion of the site and is associated with the old penta and creosote treating area, including the locations of ponds IM-1 and IM-2. The significant fact about the ground water contamination in this area is its presence throughout the sampled intervals. The confining clay present in the eastern portion of the site is absent in the extreme western end of the site, allowing the PAH and BTEX contamination to migrate both

horizontally, towards Burnett Creek, and vertically, to depths at least 40 feet below ground surface.

Surface Water

Surface water samples were collected at 22 on-site and off-site locations during the remedial investigation. Based on these samples, it appears surface water has been impacted by the site, by PAH and BTEX compounds, at locations either on-site or immediately adjacent to the site. At most of the locations where these compounds were detected, the concentrations are relatively low. The location near the Burnett Creek culvert discharge point, however, appears to be significantly impacted by both PAH and BTEX contamination.

Sediment (Excluding pond samples, which are included with the soil summary)

Sediment samples were collected at 29 on-site and off-site locations to characterize the sediment and identify any potential contamination. With respect to ditch and stream sediment quality, virtually all locations were found to have detectable concentrations of PAH compounds. At most locations, however, the concentrations were low and, in many cases appear to be due to the presence of railroad cross-ties, etc. Sample concentrations in on-site ditches were generally in the same range as samples collected from ditches bordering the railroad tracks. One sample, however, collected near the Burnett Creek culvert discharge, contained significant concentrations of various PAH compounds, including the site-related PAH compounds.

Fish

Four fish tissue samples, comprised of processed whole body fish samples, were collected and analyzed for dioxin/furan compounds. Whereas most of the samples contained very little in the way of detectable dioxin/furan compounds and had extremely low toxicity equivalents (TEQ), one sample, collected near the Burnett Creek culvert discharge, contained significantly higher concentrations of these compounds and had a distinctly higher calculated TEQ value. This correlates with the sediment results.