NOAA Hazardous Waste Site Report

American Creosote Works (IV-19)
Pensacola, Florida
April 13, 1984

Nature and Location of Site:

American Creosote Works is located on an 18-acre site in a moderately dense commercial-residential area of Pensacola, Florida. Pensacola Bay and Bayou Chico are about 600 yards directly south of the plant site (Figure 1).

American Creosote Works was a facility which treated wood with creosote and pentachlorophenol (PCP) from the early 1900s to late 1981. Prior to 1970, wastewater in the ponds was allowed to overflow through a spillway and follow a drainage course into Bayou Chico. After water pollution control laws were inacted, wastewater was drawn off the ponds whenever pond levels were high and discharged onto three designated areas of the plant property.

Wastewater and sludges typical of wood preserving plants contain many compounds which are toxic, carcinogenic, mutagenic and teratogenic (4). Examples of such compounds from pentachlorophenol treatment include phenols and chlorinated phenols. Compounds from creosote preserving plants produce polynuclear aromatic hydrocarbons, benzene and tolulene. The phenolic compounds from wood preserving in some cases may be bioaccumulative.

Proximity of Chemical Hazard to Marine Resources:

Bayou Chico is a small creek which drains the residential area south of Pensacola. The shoreline is mixed seawalls, sandy beaches, and marshes. Jones Creek, a freshwater swamp, drains into the Bayou. A channel was dredged for a distance of one mile each way up the Bayou and into Pensacola prior to 1970.

There are no natural water courses crossing the site, however, runoff from the site enters the Bayou about 0.75 miles from the bay. A drainage ditch extends northward from Pensacola Bay to within 600 feet of the site.

Pentachlorophenol contaminated waste was discharged into two unlined 80,000 gallon percolation ponds. When water levels in the main pond and overflow pond rose nearly to the crest of the dikes, the liquid was drawn off and spread on the property where it either evaporated or percolated into the ground. Several pond drainages of this type have been recorded in previous years.

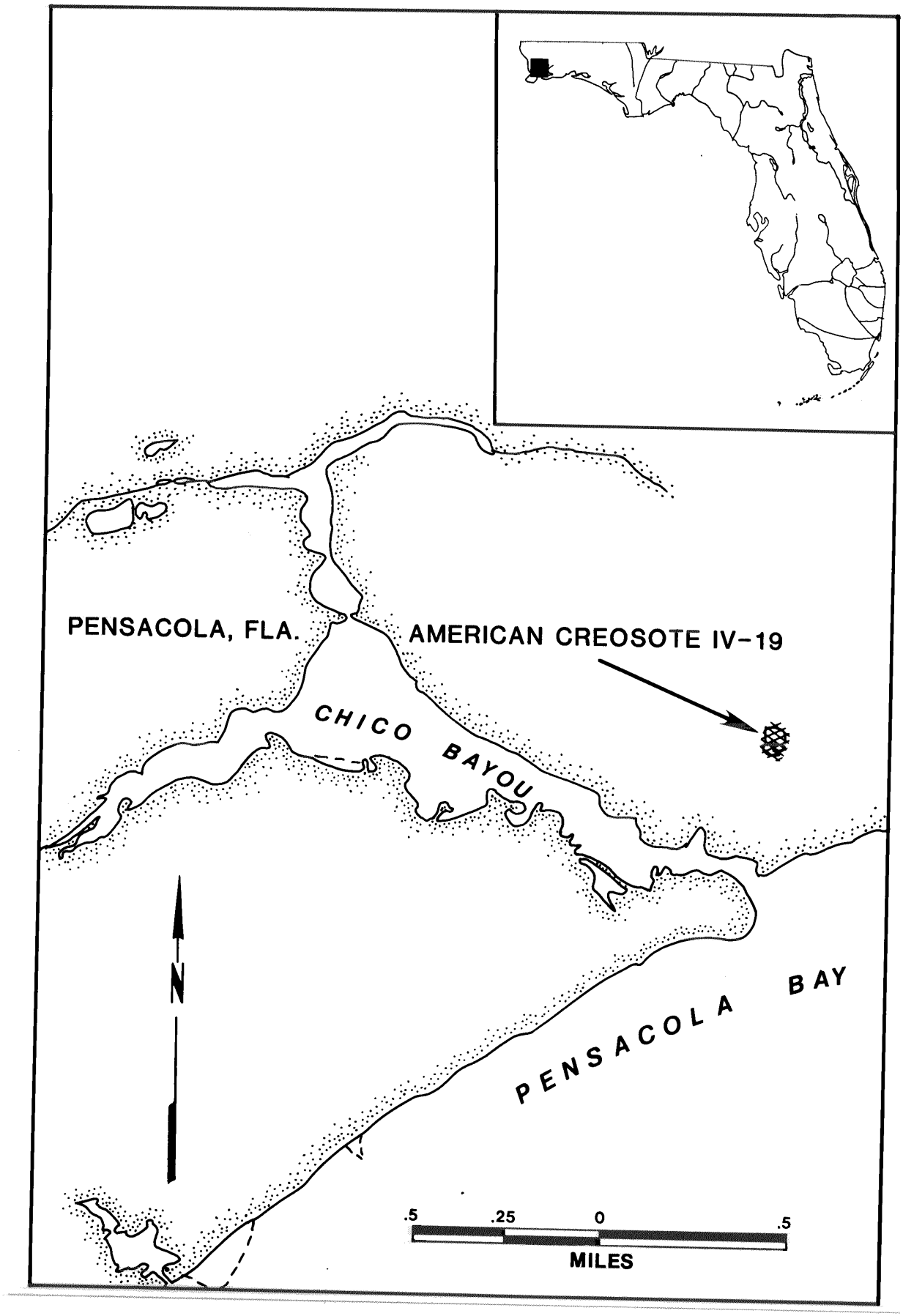

FIGURE 1. Site location.

Hazardous material from the American Creosote Facility could impact biological systems through surface and subsurface pathways. Surface flows created by heavy rainfalls could cause flooding which would transport these materials to an adjacent stormwater channel leading to Pensacola Bay and Bayou Chico estuary. Subsurface flow could enter this stormwater channel downhill from the site or could emerge near the estuarine shoreline. The uppermost groundwater in the plant vicinity is within three to four feet of the ground surface and generally flows southward towards Pensacola Bay. The near surface soils are mostly sandy and permeable. The potential for offsite migration of contaminants is great because of these conditions. The U.S. Geological Survey is presently studying and modeling this area for its subsurface transport potential.

Marine Resources at Risk:

Pensacola Bay and Bayou Chico are critical environmental systems. The estuarine environment near the site consists of a shallow, sandy bottom close to Sanders Beach and drops off quickly to 30 feet near the center of the bay. Seagrass beds have recently disappeared from much of the Pensacola Bay system.

Industrial and sewage-related discharges into the Bayou Chico have resulted in 14 reported fish kills during the period 1970 throuth 1974, and eight fish kills in Pensacola Bay. It is unknown whether any of these fish kills were caused by releases from American Creosote Works.

Although there are no commercial fisheries in Bayou Chico, Pensacola Bay has a significant commercial interest. Oysters, clams, and blue crabs are commercially and recreationally harvested throughout Pensacola Bay. Nine species of marine fishes are harvested from the bay, including flounder, mullet, Gulf sturgeon, Spanish mackeral, and whiting. Numerous diving ducks (loons, grebes, scoters) and wading birds are common. Creosote tends to attach to sediments and sink to the bottom where it is very toxic to benthic organisms and can have severe local impact.

Published data indicates very high biological sensitivity to phenolic and related compounds. Draft criterion to protect marine life for pentachlorophenol is listed as 6.2 ug/l on the average and not to exceed 14 ug/l.[2] Acute toxicities to fish have been recorded as low as 38 ug/l for pentachlorophenol to pinfish and 40 ug/l for the eastern oyster (3). Groundwater monitoring data has shown as much as 36,000 ug/l of total phenols offsite in wells near the estuary.

Pensacola Bay is a very important spawning and nursery area for many marine organisms, and there is considerable recreational and commercial fishing in the Bay and adjacent nearshore waters (Table 1).

The commercial and recreational fisheries in Pensacola Bay are very important to the local economy, and the entire Bay area is used by many marine organisms as a nursery habitat. The Atlantic sturgeon, a species of special concern, resides in the Bay and migrates through it to freshwater spawning areas during the spring.

Table 1. Fishery Resources of Pensacola Bay (1,2,3).

Finfish Species	Adult Habitat	Spawning Area	Nursery Area	Comm. Fish.	Rec. Fish	Migr. Route
Anadromous						
Atlantic sturgeon	X					X
Non-anadromous						
Thread herring				x		
Seatrout	X	X	X	X	X	
Spot	X		X		X	
Croaker	X		X		X	
Whiting	X		X		X	
Flounder	X		X		X	
Pompano	X			X	X	
Bluefish	X		X		X	X
White grunt	X		X	X	X	
Mullet	X	X	X	X	X	X
Shellfish					X	
Blue crab	X	X	X	X	X	
White shrimp			X	X		
Brown shrimp			X	X		
Eastern oyster	X	X	X	X	X	X

Many wading birds, shorebirds, and seabirds are present here all year, as are bottlenose dolphin. Manatee are occasionally sited here; Pensacola Bay is considered to be the western boundary of their distribution in the northern Gulf of Mexico.

Summary of Site Related Actions:

The U.S. Environmental Protection Agency (EPA) is the lead agency at this site. Currently the site is in the first phase of remedial investigation to determine the extent of the problem. An immediate removal was performed to remove liquid wastes and sludge from the ponds. The ponds have been capped to control future releases from rainfall. EPA is presently conducting a remedial investigation which includes soil sampling, groundwater monitoring and surface water sampling. A feasibility study will be initiated pending results of this sampling.

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References:

1. National Marine Fisheries Service, 1974. Anglers Guide to the United States Atlantic Coast

2. U.S. Fish and Wildlife Service, 1980. Atlantic Coast Ecological Inventory.

3. Research Planning Institute, Environmental Sensitivity Index. West Florida.

4. U.S. Environmental Protection Agency, "Listing Background Document - Wood Preserving"

5. U.S. Environmental Protection Agency. Federal Agency, Vol. 45, No. 231, November 28, 1981.

6. U.S. Environmental Protection Agency. "Pentachlorophenol Health and Environmental Effect". No. 143, April 30, 1980.