

Koppers Company Facilities

Newport, Delaware

Region 3

DED980552244

Site Exposure Potential

From 1921 to 1971, the 130-hectare Koppers Company Facilities site in Newport, Delaware was operated as a wood-preserving facility (Figure 1). Telephone poles and railroad ties were pressure-treated with creosote, although pentachlorophenol was used for approximately three years during the period of operations (Silar 1987). In 1971, the property was sold to E.I. DuPont de Nemours Company and most of the existing structures were removed. Currently, only the locations of the fire pond, waste treatment lagoon, and drying areas are evident at the site. The DuPont facility borders the northeastern side of the site.

Koppers is located within the 100-year floodplain of the Christina River. Much of the site is bordered by low-lying freshwater wetlands, and several tributaries of the Christina River. Hershey Run, a small, tidally influenced stream, meanders across the northwestern portion of the site. This stream shortly joins White Clay Creek, which forms the southern

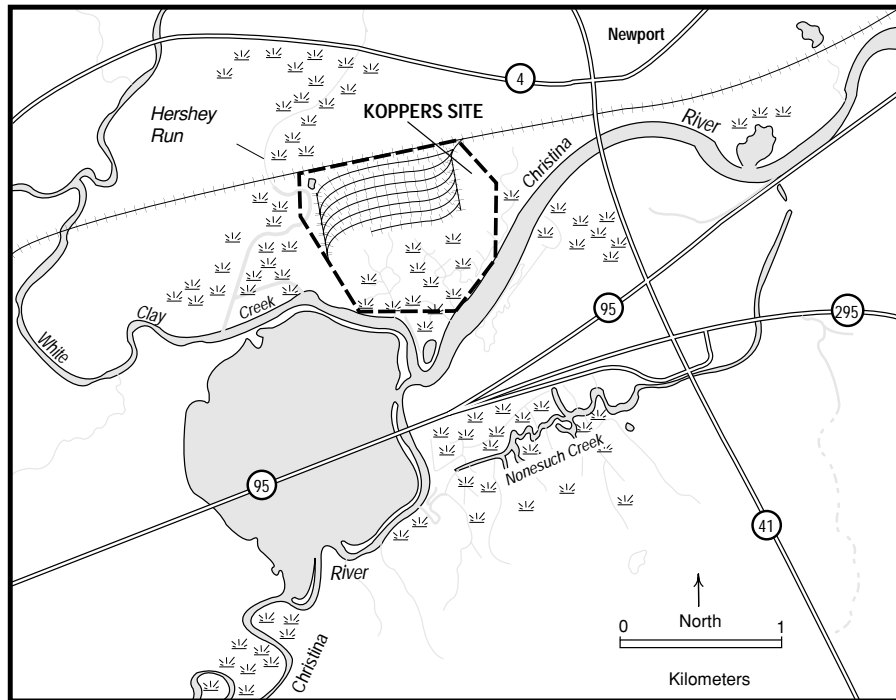
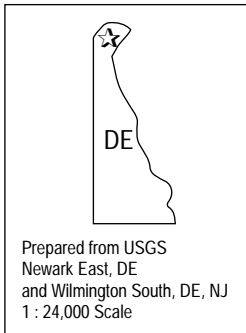


Figure 1.
Koppers Company
site, Newport,
Delaware.

Koppers Company Facilities

Site Exposure Potential, *cont.*

boundary of the site. White Clay Creek enters the Christina River 1 km downstream of the river's confluence with Hersey Run. From its confluence with White Clay Creek, the Christina River flows north along a tidally influenced wetlands area and continues 15 km downstream to join the Delaware River.

Soil in the vicinity of the site is primarily sand and gravel (Lee 1980). The groundwater exists within 3 m of the ground surface. Groundwater movement tends to be toward the streams and the associated wetlands, but high groundwater withdrawal from water supply wells may alter this pattern.

Based on existing data, contaminant transport from the Koppers site to the adjacent surface waters is primarily a function of surface water runoff and associated soil erosion and deposition.

Site-Related Contamination

Surface water, soil, and sediment samples were collected from only four locations during a site inspection conducted in May 1980. PAHs were detected at elevated levels in the soil and sediment collected. No contaminants were detected in surface waters. Maximum concentrations of PAHs detected at the site are shown in Table 1 (Glenn and Lee 1980). (No average U.S. soil values were available for these compounds (Lindsay 1979)).

Table 1.
Maximum concentrations of PAHs in surface water, soil, and sediment collected at the site.

	Soil	Sediment	
	Soil mg/kg	Sediment mg/kg	ER-L ¹ mg/kg
ORGANIC COMPOUNDS			
benzo(a)anthracene	42	3.9	0.230
anthracene	25	7.4	0.085
benzo(a)pyrene	63	11.0	0.400
pyrene	76	1.8	0.350
benzo(b)fluoranthene	91	8.5	NA
fluoranthene	76	1.9	0.600
fluorene	ND	0.9	0.035
phenanthrene	11	2.5	0.225
chrysene	55	6.3	0.400
Total PAH	440	44.0	4.0
1:	Effective range-low; the concentration representing the lowest 10 percentile value for the data in which effects were observed or predicted in studies compiled by Long and Morgan (1990).		
NA	Screening level not available		
ND	Not detected at method detection limit, detection limit not available		

Koppers Company Facilities

Site-Related Contamination, *cont.*

The highest concentrations of individual PAHs were found in soil sampled from the old wastewater treatment pond. The maximum total PAH concentrations in soil exceeded 400 mg/kg. PAHs were elevated in sediment collected from areas upstream and downstream from the Koppers site, at levels approximately one tenth those found in soil. Based on the limited sampling conducted, PAH contamination of sediment may not be solely due to past wood-treating operations at the site.

NOAA Trust Habitats and Species

The Christina River supports a wide variety of anadromous, catadromous, and estuarine species (Table 2; Miller personal communication 1990; Saveikis personal communication 1990; Shirey personal communication 1990). Blueback herring, alewife, white perch, striped bass, American eel, Atlantic menhaden, bay anchovy, and spot are species of particular interest to NOAA in the Christina and Delaware rivers due to their commercial importance or abundance. Alewife, blueback herring, and white perch spawn in the Christina River, and striped bass use it as a nursery area (Miller personal communication 1990).

Table 2.
Species and habitat use in the Christina River near the site.

Table available in hardcopy

Juvenile life stages of estuarine-dependent species such as Atlantic menhaden, bay anchovy, and spot use the Christina River seasonally. The catadromous American eel is present throughout the entire Delaware basin, and uses a variety of habitats as adult foraging grounds (Shirey personal communication 1990). Blue crab are common in the Christina and Delaware rivers.

Koppers Company Facilities

NOAA Trust Habitats and Species, *cont.*

Blue crab, American shad, and striped bass are fished commercially in the Delaware River near its confluence with the Christina River. Important recreational fisheries for blue crab, American shad, striped bass, and white perch occur in the Christina River and in the lower reaches of the Delaware River (Miller personal communication 1990). In addition, large freshwater fisheries on both rivers harvest channel catfish, large-mouth bass, yellow perch, black crappie, and sunfish.

References

Glenn, G. and C. K. Lee. 1980. Koppers/DuPont Inspection, 30 May 1980 Memorandum. Dover, Delaware: Ecology and Environment.

Lee, C. K. 1980. Resample Koppers Hazardous Waste Site, 22 September 1980 Memorandum. Dover, Delaware: Ecology and Environment.

Lindsay, W.L. 1979. Chemical Equilibria in Soils. New York: John Wiley & Sons. 449pp.

Long, E.R., and L.G. Morgan. 1990. The potential for biological effects of sediment-sorbed contaminants tested in the National Status and Trends Program. Seattle: Coastal and Estuarine Assessment Branch, NOAA. NOAA Technical Memorandum NOS OMA-52. 175 pp.+ Appendices.

Miller, R., Delaware Department of Natural Resources, Division of Fish and Wildlife, Little Creek, Delaware, personal communication, February 28, 1990.

Saveikis, D., Delaware Department of Natural Resources, Division of Water Resources, Dover, Delaware, personal communication, February 28, 1990.

Shirey, C. Delaware Department of Natural Resources, Division of Fish and Wildlife, Little Creek, Delaware, personal communication, February 28, 1990.

Silar, T. 1987. A hazard ranking system for Koppers Company facilities site. Washington, D.C.: U.S. Environmental Protection Agency, Hazardous Site Control Division.