

**Abex Corporation
Portsmouth, Virginia
Region 3
VA980551683**

Site Exposure Potential

Abex Corporation formerly operated a brass and bronze foundry on a 0.8-hectare site in a residential area of Portsmouth, Virginia (Figure 1). From 1928 to 1978, Abex produced parts, such as brake shoes and ball bearings, for railroad cars. Lead was released to the air at about 4.5 kilograms per day from the 0.4-hectare process area and 2,680 m³ of lead-laden furnace sands were dumped into an adjoining 0.4-hectare landfill. Holland Investment & Manufacturing Co. of Portsmouth now owns the former process area. Abex still owns most of the landfill (EPA 1987).

Investigations in 1984 and 1986 found high levels of lead in soil from the process area, the landfill, and the adjacent residential properties. On August 11, 1986, EPA and Abex signed a CERCLA Emergency Consent Order. Abex graded the site and covered much of the old landfill area with asphalt. Some areas adjacent to the landfill were excavated, filled in, and revegetated (EPA 1987).

The Abex site is 900 meters east of the South Branch of the Elizabeth River (NUS 1986). The river discharges into Chesapeake Bay 14 km from the site. The major contaminant pathways of concern to NOAA trust resources include groundwater and surface water runoff to the South Branch and Main Branch of the Elizabeth River.

Site-Related Contamination

The major contaminants of concern to NOAA at the Abex Corporation site are trace metals and cyanide. Seven trace metals were measured in on-site soil at concentrations up to 1,600 times the average levels observed in natural soils (Table 1) (NUS 1986). No data were reported on groundwater or surface water either on- or off-site.

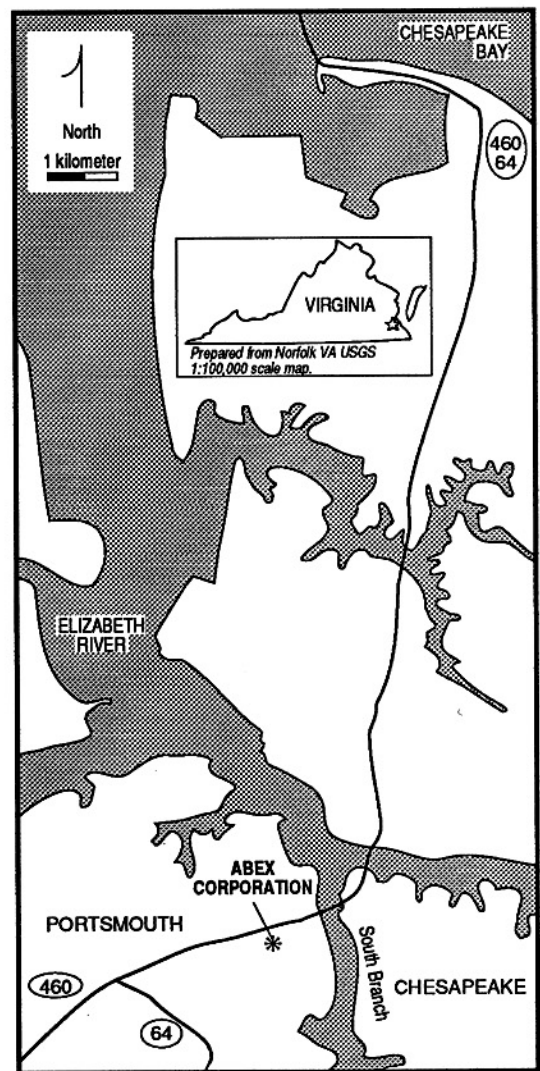


Figure 1. The Abex Corporation site in Portsmouth, Virginia.

Table 1. Maximum concentrations of selected contaminants at the Abex Corporation site (NUS 1986); natural soils (EPA 1983); concentrations in mg/kg.

Contaminant	On-site Soil	Levels in Natural Soil	
		Range	Average
INORGANIC SUBSTANCES			
<u>Trace metals</u>			
cadmium	6.0	0.01-0.7	0.06
copper	23,400	2-100	30
lead	16,100	2-200	10
mercury	0.54	0.01-0.3	0.03
silver	6.25	0.01-5	0.05
tin	2,980	2-200	10
zinc	19,600	10-300	50
<u>Other</u>			
cyanide	0.5	N/A	N/A
N/A: Not available			

NOAA Trust Habitats and Species in Site Vicinity

Habitats of concern to NOAA include the South Branch and Main Branch of the Elizabeth River. The South Branch of the Elizabeth River is a tidal estuary 100 meters wide and dredged to a depth of 12 meters (Colvellis 1988). The salinity ranges from 0.5 to 5 ppt and the tide ranges from 0.8 to 1.1 meters. Where the South Branch flows through an industrial area near the site, the water quality is generally poor. The mainstem of the Elizabeth River contains a diverse population of anadromous and marine fish, benthic organisms, and zooplankton. These species have also been observed near the mouth of the South Branch. However, the numbers are reduced due to low flow and poor water quality in the vicinity of the Abex Corporation site (Table 2).

Table 2. Selected NOAA trust resource use of the South and Main branches of the Elizabeth River (USFWS 1980; VIMS 1983; Colvellis 1988).

Species	Spawning Area	Nursery Area	Adult Area	Commercial Fishery	Recreational Fishery
INVERTEBRATES					
blue crab			X		
oysters	X	X	X		
FISH					
American eel			X		X
American shad			X		
Atlantic croaker		X	X	X	X
Atlantic menhaden		X			
bay anchovy	X	X	X		
blueback herring			X		
chain pickerel	X	X	X		X
gizzard shad			X		
spot		X	X	X	X
striped bass			X		
weakfish		X	X	X	X
white catfish			X	X	X

Response Category: State Enforcement Lead

Current Stage of Site Action: RI/FS Workplan

EPA Site Manager

Terry Stilman 215-597-0984

NOAA Coastal Resource Coordinator

Alyce T. Fritz 215-597-3636

References

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NUS Corporation. 1986. Field Trip Report for Abex Company, TDD No. F3-8606-04. Philadelphia: U.S. Environmental Protection Agency, Region 3.

USFWS. 1980. Atlantic coast ecological inventory: Norfolk. Washington, D.C.: U.S. Fish and Wildlife Service. 1: 250,000 scale map.

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