Helena Chemical Company
Fairfax, South Carolina
Region 4
SCD058753971

Site Exposure Potential

The Helena Chemical Company site occupies 5.5 hectares near the southern city limits of Fairfax, South Carolina (Figure 1). There are four buildings on-site: a former powder formulation building, a former liquid formulation building, an office building, and an abandoned residence. From 1971 to 1978, Helena Chemical Company formulated liquid and dry pesticides and herbicides on the site. The major area of concern is a 3,450-m^3, unlined landfill in the northeast corner of the site. Spent drums, buckets, and bags of pesticides and/or herbicides were reportedly buried in the landfill. In the spring of 1984, the company transported some of the waste to an approved hazardous waste facility and capped the landfill with clay. This cap did not extend far enough in all directions to prevent surface water infiltration. In addition, portions of the southern sides of the cap have eroded, exposing the original landfill (EPA 1985). Also of concern on the site are small areas where agricultural chemicals were stored and loaded, and the area around the outfall of a drain from the former liquid formulation building. Continually flowing streams of toxaphene-contaminated liquid have been claimed to exist at the plant at one time (EPA 1986a).

The site slopes at a 5 to 7 percent grade towards a swampy area to the north. A small, unnamed stream 100 meters from the site drains the swampy area and discharges into the

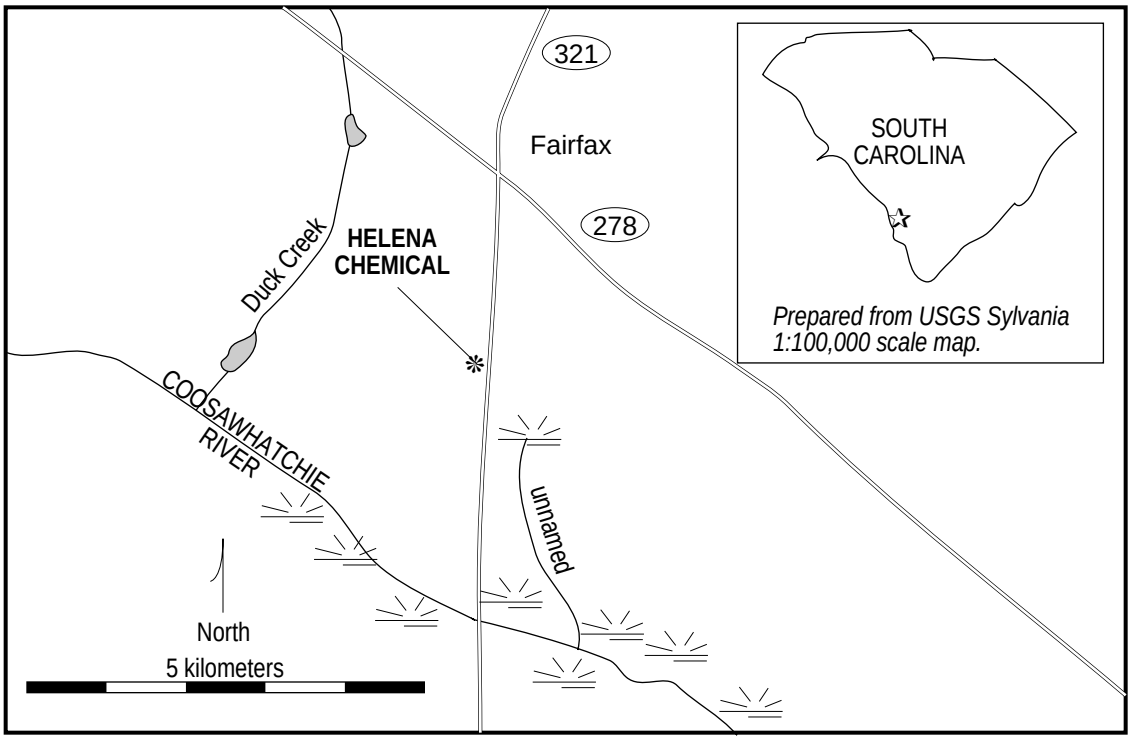

Figure 1. The Helena Chemical site in Fairfax, South Carolina.

Coosawhatchie River 6 km below the site. The Coosawhatchie River enters the Atlantic Ocean 90 km further downstream. Duck Creek, a small tributary of the river, is 1.5 km

north of the site. Shallow groundwater beneath the site moves towards Duck Creek, while deep regional groundwater flows towards the southeast (EPA 1986a).

Possible contaminant migration pathways to NOAA trust resources include surface water runoff and groundwater flow to the unnamed stream and the Coosawhatchie River.

Site-Related Contamination

The contaminants of concern to NOAA at the Helena Chemical site are pesticides and trace metals. DDT, toxaphene, and lindane have been measured in on-site surface water and groundwater at concentrations exceeding AWQC by up to five orders of magnitude. In addition, high concentrations of several pesticides were measured in on-site soils. The trace metals arsenic and lead, were measured in on-site soils at levels exceeding the average content found in natural soils (EPA 1983).

Table 1. Maximum concentrations of selected contaminants at the Helena Chemical site (Pace & Coop 1982); AWQC for the protection of freshwater aquatic life (EPA 1986b); soil concentrations in mg/kg and water concentrations in μg/l.

Contaminant	Ground-water	Surface Water	Subsurface Soil	Surface Soil	AWQC Acute	AWQC Chronic
Pesticides						
DDT	N/A	10	678	41.3	1.1	0.001
DDE	0.14	N/A	225	39	,050*	N/D
DDD	N/A	10	353	55.9	N/D	N/D
toxaphene	N/A	50	1,288	89.3	0.73	0.0002
lindane	0.18	N/A	N/A	N/A	2.0	0.08
2,4-D	0.804	N/A	N/A	N/A	N/D	N/D
2,4,5-TP	0.142	N/A	N/A	N/A	N/D	N/D
aldrin	N/A	N/A	2,000	N/A	3.0	N/D
dieldrin	N/A	N/A	N/A	5.0	2.5	0.0019
chlordane	N/A	N/A	N/A	25.3	2.4	0.0043
Trace Metals						
arsenic	N/A	N/A	N/A	360360	190	
lead	N/A	N/A	N/A	8882†	3.2†	

N/A: Not available
N/D: Not determined
* LOEL
† Hardness-dependent (based on 100 mg/l $CaCO_3$)

NOAA Trust Habitats and Species in Site Vicinity

No information was available regarding the aquatic habitats of the unnamed stream or Duck Creek. The Coosawhatchie River is a slow-moving, coastal plain river bordered by wetlands. The floodplain is 200 meters wide, but the actual river channel is less than 30 meters wide. The river drains 500 km^2 and has an average discharge of 5,100 liters per second near the town of Fairfax. The substrate consists of sand with a high content of detritus. The water has been classified by the State of South Carolina as Class A, which is considered to be of the highest quality, or pristine. However, low levels of dissolved oxygen occur in the river (Michel 1989).

NOAA trust resources use the Coosawhatchie River near the Helena Chemical Company site as spawning and nursery area, and as a migratory route (Table 2). The lower stretch of the river is a low-salinity, estuarine habitat that supports a number of anadromous fish species. The shortnosed sturgeon is a federally listed endangered species (USFWS 1980).

Table 2. NOAA trust resource use of the Coosawhatchie River (USFWS 1980).

Species	Upper Reaches of the River near the Site	Lower Reaches of the River
American eel	A,M	A,M
American shad	S,N,M	S,N,M,C,R
Atlantic sturgeon		S,N,M
blueback herring	S,N,M	S,N,M,C,R
hickory shad	S,N,M	S,N,M, C,R
longnose gar		S,N,A
shortnosed sturgeon		M
striped bass		S,N,M,R
white perch		S,N,M,R

S : Spawning area; N : Nursery area; A : Adult area; M : Migratory Route;
R : Recreational fishery; C : Commercial fishery

Response Category: Federal Enforcement Lead

Current Stage of Site Action: RI/FS Workplan

EPA Site Manager

Michael Townsend 404-347-3402

NOAA Coastal Resource Coordinator

John Lindsay 404-347-5231

References

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EPA. 1985. Potential Hazardous Waste Site Preliminary Assessment Form; Helena Chemical Company, Fairfax, South Carolina. Atlanta: U.S. Environmental Protection Agency, Region 4.

EPA. 1986a. Hazardous ranking system package Helena Chemical Company, Fairfax, South Carolina. Atlanta: U.S. Environmental Protection Agency, Region 4.

EPA. 1986b. Quality Criteria for Water. Washington, D.C.: Office of Water Regulations and Standards, Criteria and Standards Division. EPA 440/5-86-001.

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