

Arrowhead Associates, Inc./Scovill Corporation
Montross, Virginia
Region 3
VAD042916361

Site Exposure Potential

The Arrowhead Associates, Inc./Scovill Corporation site is in a rural area of Westmoreland County, 3 km southeast of Montross, Virginia (Figure 1). Scovill electroplated and lacquered metal cosmetic cases from 1966 to 1972. In 1972, Arrowhead bought the facility and continued electroplating until 1979; from 1979 to 1981, Arrowhead filled cases with cosmetics at the site. Other firms also used the site to fill cosmetic cases from 1979 to the present (EPA 1987).

Plating wastes were treated in surface impoundments and discharged to Scates Branch with a permit issued under the National Pollutant Discharge Elimination System. When plating ceased in 1979, process equipment and materials were abandoned at the site. Drums containing wastes and raw materials (including organic solvents) remained outside in various stages of deterioration. In 1986, Scovill signed a Consent Order with EPA to

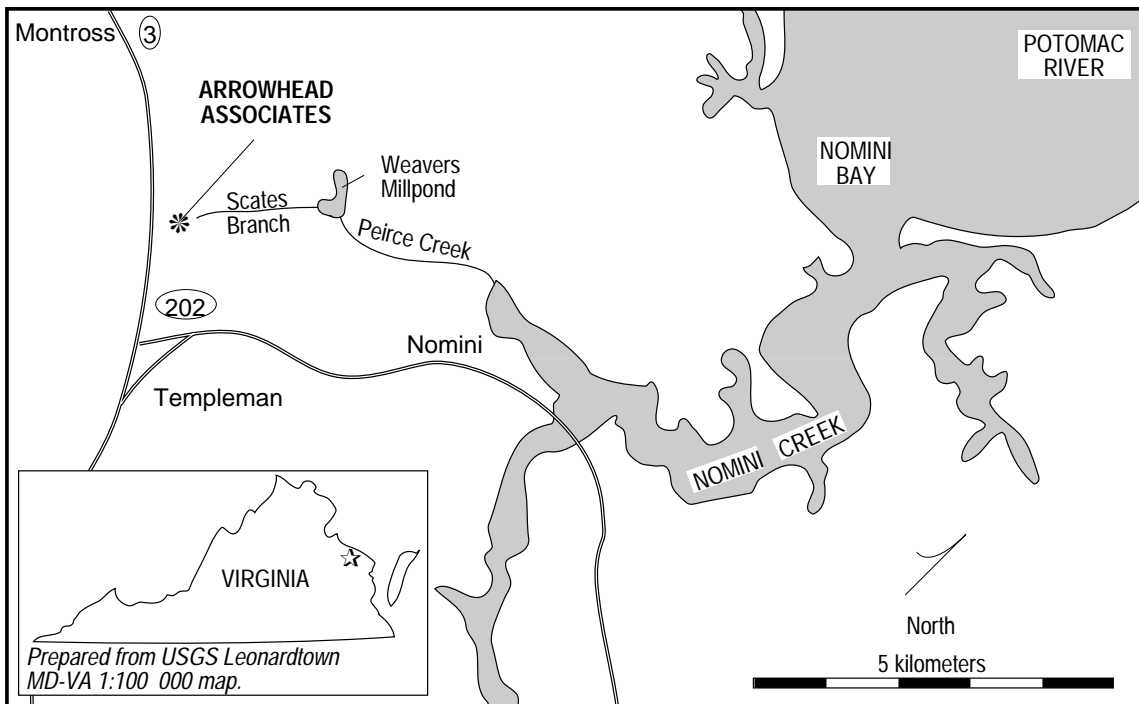


Figure 1. The Arrowhead Associates site in Montross, Virginia.

develop a plan to decontaminate or remove the drums and dispose of the contents; excavate, containerize, and dispose of visibly contaminated soils and surface materials; and sample the soil, water, and sediments to define the depth and lateral extent of contamination and to identify the spread of contamination by surface water runoff routes. Scovill is currently implementing the plan (EPA 1987).

The site covers 10 hectares, with the manufacturing building centered on the southern half of the property. The northern half has six process waste impoundments and two sanitary

waste impoundments. Groundwater is shallow (seven meters) and soil is permeable. Processed water from the surface impoundment system was discharged into Scates Branch.

Scates Branch originates 0.25 km northeast of the Arrowhead/Scovill site and flows northeast 1 km to Weavers Millpond. Weavers Millpond drains into Peirce Creek, which flows into Nomini Creek. Nomini Creek discharges into Nomini Bay on the Potomac River. The Potomac River, Nomini Bay, Nomini Creek, and Peirce Creek are all tidally influenced up to 1.9 km from the site. Wetlands are present throughout the tidally influenced areas (Virginia Department of Health 1986).

Contaminant migration pathways to NOAA trust resources are groundwater flow, waste discharge from the ponds, and surface water runoff from the site to Scates Branch and Peirce Creek.

Site-Related Contamination

The major contaminants of concern at the site include inorganic compounds from the electroplating process; cyanide and zinc were detected in greatly elevated concentrations (Table 1) (Law Environmental Services 1985). Other trace metals may be present, but high detection limits were used in the preliminary study. High levels of cyanide, copper, and zinc were discharged from the pond to Scates Branch, but actual concentration levels were not reported (EPA 1987). Sample analyses have not been conducted to determine the level of organic contaminants in Scates Branch.

Table 1. Maximum concentrations of contaminants at the Arrowhead Associates, Inc./Scovill Corp. site (Law Environmental Services 1985); AWQC for the protection of freshwater aquatic life (EPA 1986); concentrations for water in µg/l and for soil/sludge in mg/kg.

| Contaminant | Soil | Settling Pond | | Sludge Beds | | Drain Water | AWQC | |
|-------------------------------------------------------------|-------|---------------|--------|--------------------|-----------|-------------|--------|---------|
| | | Water | Sludge | Water | Sludge | | Acute | Chronic |
| INORGANIC SUBSTANCES | | | | | | | | |
| <u>Trace Metals</u> | | | | | | | | |
| cadmium | <2.0 | <20.0 | <20.0 | <0.05 | <20.0 | <0.05 | 3.9* | 1.1* |
| chromium | 40.0 | <100.0 | <100.0 | <0.1 | 400.0 | <0.1 | 16.0 | 11.0 |
| lead | 120.0 | <100.0 | <100.0 | <0.2 | <100.0 | <0.2 | 82.0* | 3.2* |
| mercury | 0.3 | <0.5 | <0.5 | 0.001 | <0.5 | 0.003 | 2.4 | 0.012 |
| selenium | <1.0 | <5.0 | <5.0 | <1000.0 | <5.0 | <1000.0 | 260.0 | 35.0 |
| silver | <10.0 | <30.0 | <30.0 | <0.05 | <30.0 | <0.05 | 4.1* | 0.12 |
| zinc | 950.0 | 40.0 | <30.0 | N/A | 260,000.0 | N/A | 120.0* | 110.0* |
| <u>Other</u> | | | | | | | | |
| cyanide | 74.0 | 28.0 | 15.0 | 0.36 | 11,000.0 | 0.27 | 22.0 | 5.2 |
| * Hardness-dependent (based on 100 mg/l CaCO ₃) | | | | N/A: Not available | | | | |

NOAA Trust Habitats and Species in Site Vicinity

There is no available resource information for Scates Branch, Weavers Millpond, or Peirce Creek. Since the lower reach of Peirce Creek is tidal and has adjacent wetlands, it is likely that some of the species found in Nomini Creek make their way into Peirce Creek and, possibly, farther upstream. The habitats downstream of Peirce Creek are important to NOAA resources. Nomini Creek is a low-salinity, estuarine habitat (0.5-5.0 ppt); Nomini Bay is a mid-salinity, estuarine habitat (5.0-16.5 ppt).

Table 2. Selected NOAA trust resource use of Nomini Creek and Nomini Bay (USFWS 1980; VIMS 1983).

| Species | Nomini Creek | Nomini Bay |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------|------------|
| INVERTEBRATES | | |
| blue crab | | C,R |
| eastern oyster | | |
| soft shell clam | | |
| FISH | | |
| alewife | M, S,N,C,R | M,C,R |
| American eel | C,R | C,R |
| American shad | M,S,N,R | M,C,R |
| Atlantic croaker | N,C,R | N,C,R |
| Atlantic menhaden | | C |
| Atlantic sturgeon | M | M |
| black drum | | N |
| blueback herring | M,S,N,C,R | M,C,R |
| bluefish | | N,A,C |
| hickory shad | M,S,N,R | M |
| red drum | | N |
| spot | | N,C,R |
| striped bass | M,C,R | M,C,R |
| summer flounder | | N |
| weakfish | | N,C,R |
| white perch | | M,C,R |
| winter flounder | | N,R |
| S: spawning ground; M: migration route; N : nursery area; R: recreational fishing; A : adult concentration C : commercial fishing | | |

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 Fritz 215-597-3636

References

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EPA. 1987. National Priorities List Package (CERCLA). Arrowhead Associates, Inc./Scovill Corporation. Montross, VA. Philadelphia: U.S. Environmental Protection Agency, Region 3.

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USFWS. 1980. Atlantic coast ecological inventory: Washington. Washington, D.C.: U.S. Fish and Wildlife Service. 1:250 000-scale map. No. 38076-A1-EI-250.

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