



Superfund At Work

Hazardous Waste Cleanup Efforts Nationwide

Site Description:

Abandoned dump located in a wooded area, with nearby wetlands

Site Size: 2 acres

Primary Contaminants:

Volatile organic compounds (VOCs), including ethyl benzene and toluene; heavy metals; and polychlorinated biphenyls (PCBs)

Potential Range of Health Risks:

Increased incidence of cancer as a result of direct contact with contaminated ground water

Nearby Population Affected:

300 people within one mile

Ecological Concerns:

Damage to wetlands

Year Listed on NPL: 1983

EPA Region: III

State: Delaware

Congressional District: 21

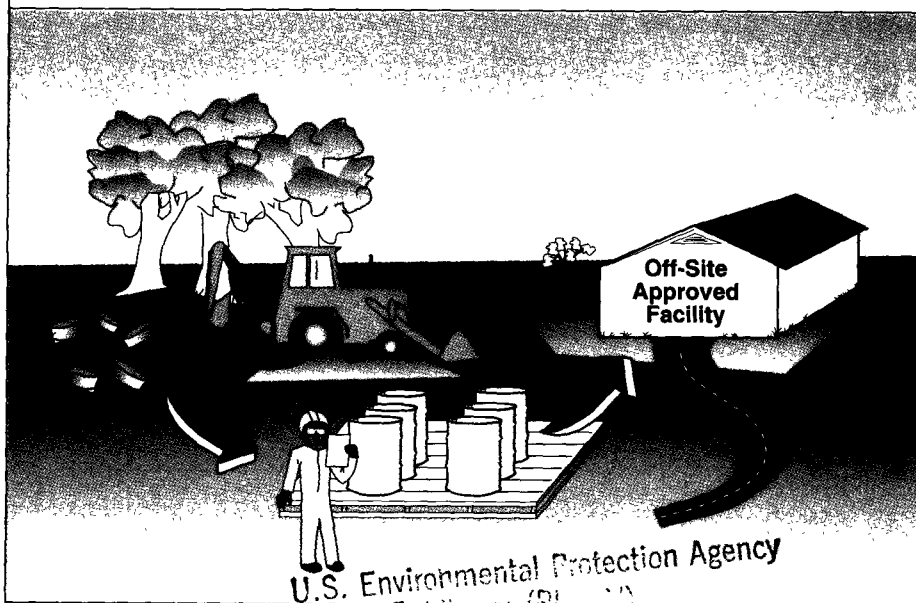
Success In Brief

Cleanup Nearly Complete at Harvey and Knott Site

From 1963 to 1969, two acres of the Harvey and Knott Drum site in New Castle County, Delaware served as an open dump and burning area for sanitary, municipal, and industrial wastes. Sludge, paint pigment, and solvents contaminated the site until the State of Delaware and the U.S. Environmental Protection Agency (EPA) intervened in 1981. Site conditions required a combination of traditional cleanup measures. After the immediate health threats posed by the site were eliminated, EPA reached an innovative, "mixed funding" settlement for long-term cleanup with two parties responsible for the site contamination. The following actions highlight the success of the Superfund program:

- An emergency removal of contaminants reduced immediate environmental and public health effects;
- A rapid assessment of ground water safeguarded drinking water supplies; and
- The full cooperation of General Motors (GM) expedited implementation of the cleanup, valued at \$3.2 million.

Drums Removed at Harvey and Knott Drum Site



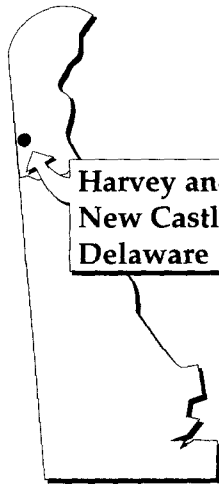
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The Site Today

Site cleanup is near completion. In 1982 and 1984, EPA re-packed and disposed of hundreds of drums containing hazardous waste, many of them leaking. Following a period of negotiations, GM, the major responsible party, removed the remaining drums and other waste in 1988. GM is designing a cleanup plan for excavating contaminated sludge and covering "hot spot" areas with soil caps. The excavation and soil cap work will begin in May 1993. The design for surface water and ground water monitoring will be implemented in early 1993.

A Site Snapshot

The two-acre Harvey and Knott Drum site is located in New Castle County, Delaware, one-half mile east of the Maryland-Delaware border. The



Harvey and Knott Drum
New Castle County,
Delaware

former disposal area is set back several hundred feet from the main highway, in an open field. Woodlands surround the site and wetlands are located to the south. Trailer homes and

a residential development lie approximately 1,400 feet to the north. About 300 people live within a one-mile radius.

Between 1963 and 1969, Harvey and Knott Trucking, Inc. operated an open dump and burning area on the site, accepting sanitary, municipal, and industrial wastes containing sludge, paint pigments, and solvents. General Motors (GM) and the Chrysler Corporation were among the major contributors of wastes to the site. Around 1977, Harvey and Knott Trucking, Inc. split off into two businesses — Harvey & Harvey, Inc., and Knotts, Inc.

Some wastes were emptied onto the ground or into excavated trenches or left in drums, some of which were buried. Other wastes were either burned or, if liquid, allowed to seep into the soil. As a result of these

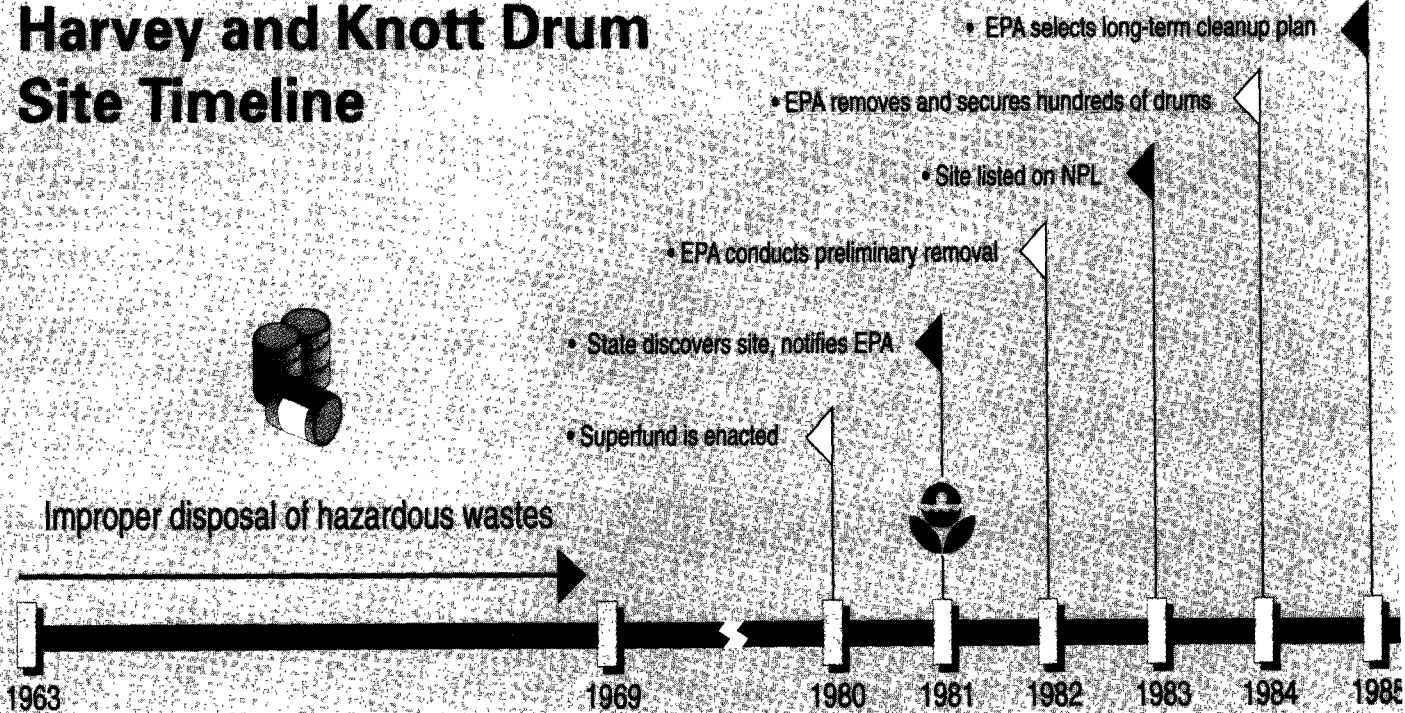
negligent dumping practices, ground water was contaminated with volatile organic compounds (VOCs) such as ethyl benzene and toluene, and with heavy metals including arsenic, cadmium, and lead. Soil and sediments contained

Fortunately, no adverse ecological effects on nearby wetlands or local wildlife have been observed

the same contaminants, as well as polychlorinated biphenyls (PCBs). Some of these chemicals are known or suspected carcinogens.

Fortunately, no adverse ecological effects on nearby wetlands or local wildlife have been observed as a result of past disposal activities.

Harvey and Knott Drum Site Timeline



EPA's Immediate Actions Reduce Volume of Wastes

While conducting routine aerial surveys in January 1981, Maryland state environmental officials discovered an area of dying vegetation and empty drums around the Harvey and Knott site. A Delaware state team, sent to investigate the area, found an uncontrolled hazardous waste site and notified EPA.

A year before, Congress had enacted legislation creating the Superfund program, with a primary aim of cleaning up the nation's most dangerous hazardous waste sites. Whenever possible, EPA locates those responsible for the site contamination and tries to negotiate the use of private resources for cleanup.

Findings of Contamination Lead to Cleanup

EPA sampled the soil and ground water around the site in

November 1981, and discovered VOCs and heavy metal contamination. In June 1982, EPA fenced the site to prevent public exposure to site contaminants, collected and analyzed more ground water and soil samples, and separated, packaged, and transported 43 drums containing 2,000

This revised plan significantly reduced cleanup costs from an estimated \$9 million to \$3.2 million

gallons of solvents to an off-site, licensed facility. In September 1983, the site was placed on the National Priorities List (NPL), EPA's roster of hazardous waste sites eligible for cleanup under Superfund.

In March 1984, EPA removed the most hazardous waste on the site to a licensed disposal

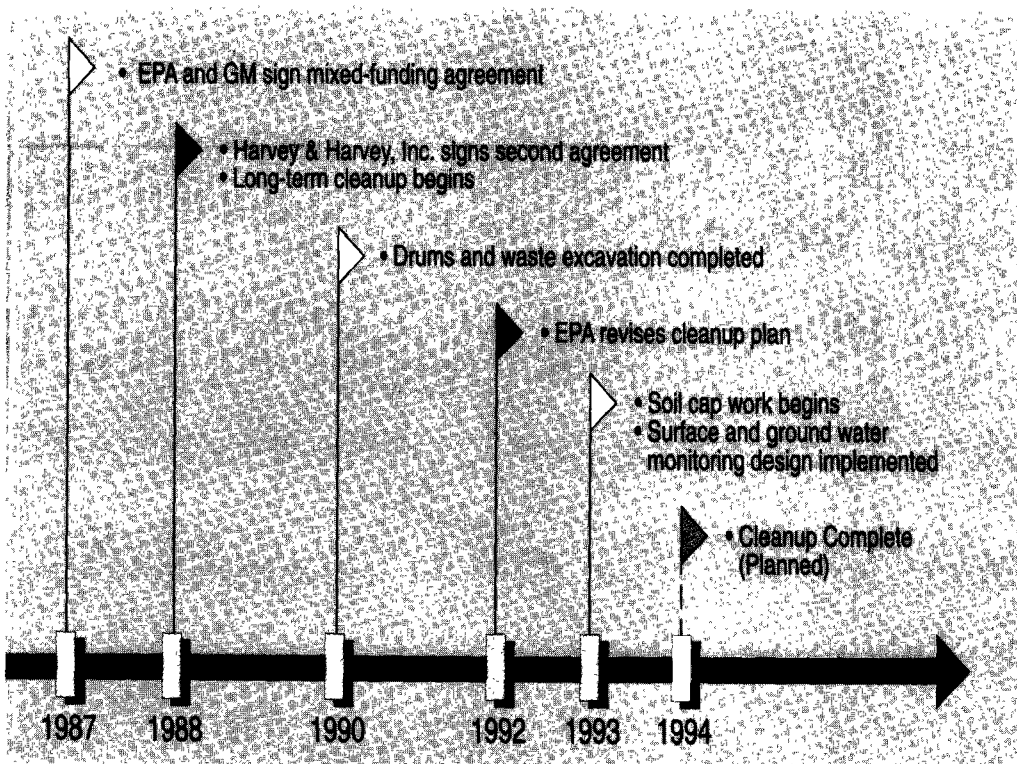
facility. Two hundred drums of wastes were safely separated, 152 drums containing 1,925 gallons of waste were removed, and an additional 500 empty drums were tested, crushed, and temporarily stored until they could be removed.

In September 1985, EPA selected its long-term remedy for the site, which included: cleaning an on-site drainage pond and removing the remaining surface debris (including drums and contaminated sludge). A ground water extraction and treatment system was recommended to remove contaminants from the shallow ground water and soil. After cleanup the site would be graded and covered with a soil cap.

In 1987, EPA reached a cooperative agreement with GM and the cleanup efforts continued. Between 1988 and 1990, GM excavated and removed 955 cubic yards of soil and 105 waste drums to an off-site, licensed disposal facility.

Soil and ground water sampling after the removal showed that site contamination was limited to specific areas. VOCs were present in five monitoring wells, and lead contamination was confined to "hot spots."

Based on this new information, EPA eliminated the ground water treatment system from its original cleanup design, deciding instead to cap the soil in the "hot spot" areas, and continue selective monitoring elsewhere to ensure cleanup standards. This revision significantly reduced cleanup costs from an estimated \$9 million to \$3.2 million.



First Mixed Funding Settlement

EPA successfully negotiated agreements with two parties responsible for contamination — GM and Harvey & Harvey, Inc. — to pay for the cleanup at the Harvey and Knott Drum site.

GM is performing most of the cleanup work under EPA's first mixed funding agreement, signed in September 1987. Under a preauthorization agreement, GM is required to perform the cleanup and then seek reimbursement from the non-settling parties. If unsuccessful in obtaining reimbursement, GM can submit a claim to EPA for up to one-third of its costs.

In March 1988, Harvey & Harvey, Inc. agreed to pay a one-time fee of \$350,000 plus interest, toward past and future cleanup costs. EPA is currently suing the two non-settling parties — Chrysler Corporation and Knotts, Inc. — for reimbursement of past cleanup costs.

What Is Mixed Funding?

Mixed funding is a settlement strategy used to encourage parties to reach an agreement with EPA to clean up contaminated sites.

Under mixed funding, EPA settles with fewer than all of the responsible parties for a substantial portion of the cleanup. The remainder of the costs or work can be contributed by EPA, or obtained from financially viable parties who are not part of the mixed funding settlement. Preauthorization is one type of mixed funding; the other two are mixed work and cash out.

Mixed funding provides an incentive for cooperative parties to settle, and avoids time-consuming and resource-intensive litigation. It also provides for advance financing by the responsible parties, thereby expediting cleanup.

Success at Harvey and Knott

EPA and GM have removed the major sources of contamination and reduced immediate health concerns at the site.

After assessing on-site contaminants, EPA was flexible in re-designing its cleanup approach, substantially reducing construction expenses.

In the Superfund program's first application of a mixed funding settlement, EPA successfully reached an agreement with cooperating parties to conduct long-term cleanup. Work at this site should be completed in 1994.

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