

Lower Darby Creek

EPA Investigates Lower Darby Creek

Area An environmental study performed by the U.S. Environmental Protection Agency (EPA) at the Lower Darby Creek area indicates that contamination is present in the area where Darby Creek flows into the John Heinz National Wildlife Refuge.

Results from EPA's sampling indicate that contamination does not pose a current threat to human health requiring immediate cleanup; however, EPA has identified elevated levels of contaminants at several contaminated areas that warrant a more focused investigation. In particular, samples collected by EPA reveal varying levels of heavy metals, solvents, oil products, polychlorinated biphenyls (PCBs) and other organic compounds.

Although contamination does not pose a current threat to human health, EPA recommends that the public avoid consuming fish from Darby Creek and the John Heinz National Wildlife Refuge. The U.S. Fish and Wildlife Service has posted signs in and around the refuge warning people against consuming fish and trespassing on refuge property. EPA recommends that the public heed these warnings.

Now that contamination has been found that requires additional evaluation, EPA will recommend an extensive investigation of the nature and extent of contamination within the area of Lower Darby Creek. A first step in this process will involve making the Lower Darby Creek Area eligible for Federal funds to investigate and, if necessary, clean up this area. To accomplish this objective, EPA intends to add the Lower Darby Creek Area to the National Priorities List (NPL), which is a list of waste sites eligible to receive Federal funding for cleanup.

Lower Darby Creek History

During the 1980s and 1990s, EPA Region III's Superfund Program investigated several potential sources of contamination in the Lower Darby Creek Area. The Superfund Removal Program also responded to a fire at the Folcroft Landfill Annex in 1983.

Due to the possible combined effects of contamination from several waste sources within the Lower Darby Creek Area, EPA decided to conduct a sampling event that focused on suspected contaminant sources and potential impacts to surrounding areas. The specific objective of this sampling effort was to determine whether the Lower Darby Creek Area should be proposed to the NPL. In May 1998, EPA collected soil and/or ground water samples from each of the wastes sources, as well as several surface water and sediment samples along Darby Creek and Hermesprota Creek at locations between Cobbs Creek and the Delaware River. Background samples were also collected upstream of waste sources along Darby and Cobbs Creeks, as well as from a tidal wetland in New Jersey, for comparison purposes.

Known or Probable Sources of Contamination

EPA's sampling has identified several known or probable sources of contamination in the Lower Darby Creek Area. These waste sources include the Folcroft Landfill and Folcroft Landfill Annex, the Clearview Landfill, the Darby Creek Tank Farm, the former Delaware County Sewage Treatment Plant, the former Delaware County Incinerator and commercial properties located along Industrial Drive.

Results from EPA's sampling indicate that contaminants are associated with all of the aforementioned sources. Heavy metals such as antimony, copper, lead and zinc are related to each source to varying degrees. Other contaminants are more source-specific such as volatile organic compounds (VOCs) in ground water at the Folcroft Landfill, PCBs at the Clearview Landfill, dioxin at the former Delaware County Incinerator and benzene in ground water at the Darby Creek Tank Farm. A comparison between surface water and sediment samples collected at background locations and locations downstream of waste sources indicates the presence of various heavy metals, PCBs and dioxin in Darby and/or Hermesprota Creeks.

Contamination detected during sampling are impacting (or could potentially impact) humans or environmental resources; in particular, the wildlife refuge itself, wetlands and human food chain organisms (e.g., fish consumed by humans despite posted warnings). Therefore, EPA is recommending that the Lower Darby Creek Area become eligible for Federal cleanup funds. Each of the waste sources and associated contaminants are discussed below.

The Folcroft Landfill and Folcroft Landfill Annex occupy approximately 46 acres and 16 acres, respectively. These landfills, which operated from the late 1950s to the early 1970s, reportedly received municipal waste, industrial waste, hospital waste, incinerator ash and sewage sludge. Wastes were placed in wetland areas along the edges of Darby, Hermesprota and Thoroughfare Creeks. During the 1998 sampling effort, EPA observed signs of erosion on the landfill cover and the presence of leachate seeps. Ground water samples collected by EPA show contamination by heavy metals and VOCs, while heavy metals were detected in a soil sample.

The former Delaware County Incinerator was used for the incineration of municipal waste. Between the mid 1960s and early 1970s, some of the incinerator ash was reportedly placed in an area located immediately to the south. Subsurface sampling of this fill area by EPA indicates the presence of contaminants such as heavy metals and very low levels of dioxin. This area is now the location of the Delaware County Emergency Services Training Center.

The former Delaware County Sewage Treatment Plant discharged directly to Darby Creek until the early 1970s. Sewage sludge was reportedly disposed in sludge beds alongside Darby Creek. Soil samples collected by EPA show contamination by heavy metals and PCBs.

The Darby Creek Tank Farm, which was constructed by Gulf Oil on a former rock quarry in the early 1950s, is currently owned and operated by Sun Oil. Excavated areas of the tank farm were previously filled with waste materials, including oily sludge, from the Philadelphia refinery. Sampling performed by EPA shows contamination of ground water by heavy metals and benzene. EPA also observed a thick oily substance overlying ground water.

The Clearview Landfill is approximately 16 acres and received municipal waste and industrial waste (unpermitted) during operations from the late 1950s to the early 1970s. During the 1998 sampling effort, EPA observed the presence of debris piles, signs of erosion on the landfill cover and the presence of leachate seeps. Soil samples collected by EPA show contamination by heavy metals and PCBs.

The Industrial Drive properties, which are currently occupied by salvage yards and a vehicle repair shop, were an area that was reportedly used as a dump in the 1950s. A soil sample collected by EPA shows contamination by metals and polynuclear aromatic hydrocarbons (PAHs).

What is Superfund?

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) was a law created to enable the Federal government to respond to releases or threatened releases of contaminants or hazardous substances in order to protect human health and the environment. CERCLA was subsequently amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The CERCLA/SARA law is commonly called Superfund. Federal regulations for performing response actions, such as investigations and cleanups, under EPA's the Superfund Program are contained in the National Contingency Plan. Under the Superfund Program, response actions are funded either by the parties responsible for contamination or by EPA using Superfund trust fund monies. Superfund cleanups can include one or both of the following actions:

- Removal responses, which are relatively short-term actions to address emergency or time-critical situations.
- Remedial responses, which are longer-term actions to permanently address situations that pose potentially serious, but not immediate, threats. Remedial response actions may only be taken at sites on the NPL.

The National Priorities List

EPA considers a number of factors when deciding whether to add a site to the NPL. EPA evaluates a site using the Hazard Ranking System (HRS), makes a preliminary evaluation of risk, solicits input from the appropriate State environmental agency and considers possible alternatives to the NPL for investigation and cleanup.

EPA adopted the HRS in 1982 to establish "criteria for determining priorities among releases or threatened releases [of hazardous substances] throughout the United States for the purpose of taking remedial action..." Under the HRS, "Criteria and priorities...shall be based upon the relative risk or danger to public health or welfare or the environment..."

EPA revised the HRS in 1990 in order to make the evaluation process a more accurate measure of risk and to better account for risks to sensitive habitats and ecological resources.

In general, the HRS considers the following factors: (1) particular types of waste sources and contaminants present at these sources; (2) likelihood that contamination has migrated (or could migrate) from waste sources through ground water, surface water or air (or poses a direct contact threat in soil) and (3) whether humans or environmental receptors have been (or could be) affected by contamination originating from waste sources.

The preliminary HRS evaluation of the Lower Darby Creek Area is based on the release of contaminants from waste sources and the resulting potential for exposure to these contaminants. EPA observed that contaminants have been released from waste sources to ground water and surface water. Waste sources include landfills, buried wastes and contaminated soil. These contaminants include heavy metals, solvents such as VOCs, others organic compounds such as PAHs, PCBs and dioxin. Some of these contaminants are toxic, persistent in the environment and/or accumulate in fish tissue.

Environmental receptors such as aquatic life are likely to be affected because certain contaminants are present in surface water at levels exceeding Federal water quality criteria. Humans could be affected by consuming fish or by coming into direct contact with contamination.

The Decision Process

In order to add a site to the NPL, EPA's Regional Office prepares a formal HRS package, which includes all the documentation necessary to support NPL listing, for review by EPA Headquarters. Once EPA Headquarters approves the HRS package, a site is proposed to the NPL by rulemaking in a Federal Register notice. The anticipated date for NPL proposal of the Lower Darby Creek Area is Spring 2000. NPL proposal is then followed by a 60-day public comment period. EPA considers all relevant comments received during the comment period. After the comment period, EPA determines whether to place a site to the final NPL. EPA's final decision is announced in another Federal Register rule at which time EPA explains its decision in writing.

EPA Considers Land-Use Issues

EPA is involved in two peripheral land use issues at the John Heinz National Wildlife Refuge. First, EPA is determining the extent to which it should become involved with potential environmental issues

related to construction of the Cusano Environmental Education Center. Second, EPA has provided input to the Department of Interior's Fish and Wildlife Service regarding their plans to acquire the former Norwood Landfill property, which would become part of the John Heinz National Wildlife Refuge. Neither of these issues has impacted EPA's decision whether to include the Lower Darby Creek Area on the NPL.

EPA Contacts

If you have any questions regarding cleanup work at the Lower Darby Creek Area, you may contact the EPA official listed below:

[Hal Yates](#)

Senior Community Involvement Coordinator

U.S. Environmental Protection Agency

Region III

(3HS43)

1650 Arch Street

Philadelphia, PA 19103-2029

800-553-2509

215- 814-5530

yates.hal@epa.gov