



DIAMOND ALKALI SUPERFUND SITE: LOWER PASSAIC RIVER CLEANUP

ESSEX, BERGEN, HUDSON AND PASSAIC
COUNTIES, NEW JERSEY



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The EPA Approves Final Clean-Up Design for Lower 8.3 Miles of the Passaic River

The U.S. Environmental Protection Agency (EPA) has approved the final engineering design work needed to clean up the lower 8.3 miles of the Passaic River. Sediment at the bottom of the river is contaminated with dioxin, polychlorinated biphenyls (PCBs), pesticides, metals, and polycyclic aromatic hydrocarbons (PAHs). The contaminants are swept up into the water column with the tides and during storms and are redistributed throughout the river. They accumulate in fish and crab tissue. People who eat contaminated fish and crab from the river over years are at risk of getting cancer and non-cancer illnesses.

The design was developed by Occidental Chemical Corporation-Glenn Springs Holdings, one of the potentially responsible parties (PRPs) for the site. It was subject to review and approval by EPA.

Cleanup Design

The EPA's cleanup plan calls for installing a cap on the bottom of the river to isolate the contaminated sediment from the rest of the river ecosystem. Before the cap is installed, the parties performing the work under EPA supervision will dredge the river so that the cap does not make flooding worse, including under sea level rise and more severe storms caused by climate change, and to accommodate the federal navigation channel in the 1.7 miles of the river closest to Newark Bay.

The design calculates that approximately 2.5 million cubic yards of sediment will be dredged from the river. Since dredging stirs up contaminated sediment, which the tides then spread up and downstream, the design incorporates actions to monitor for and minimize the spread of contamination to the upper 9 miles of the river and to Newark Bay.

The design calls for the cap to generally be made of sand with carbon particles embedded in it, which bind to contaminants and prevent the contaminants from moving up through the cap. In many places, there will be a layer of stone over the sand to keep the sand in place. In places where there are particularly strong scouring forces, such as commercial shipping berths and steep slopes, the cap will be made of concrete mattresses.

The thickness of the cap varies depending on how much contamination is under it and how strong scouring forces from tides and storms are. The cap is generally about 15 inches but varies from 4-inch concrete mattresses to 60-inch multi-layer caps.

For the next step, the EPA expects that performing parties will build a facility to remove water from the sediment dredged out of the river. After the facility is built, the dredging and capping will take approximately eight years to be completed. The EPA expects the cleanup will be performed and funded by potentially responsible parties.

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Climate Resiliency

The engineering design work accounted for the impacts of climate change by evaluating whether the cap would stay in place and remain protective under more frequent and more severe storms.

The EPA's cleanup plan also calls for restoring mudflats (land left uncovered at low tide) and replanting wetlands at the end of the project. The cleanup will leave the lower 8.3 miles of the river with approximately 30% more mudflat area and 10% more wetlands. The design evaluated if the mudflats and wetlands rebuilt and replanted as part of the cleanup will be resilient to sea level rise under climate change.

Dredged Sediment

Most of the sediment dredged out of the river will be barged or pumped to a processing facility, which the EPA expects will be located on property owned by the Passaic Valley Sewerage Commission (PVSC) in Newark, next to the sewage treatment plant. There, it will be squeezed dry and prepared for shipment to permitted landfills around the country. With the EPA's approval, the contractor that is hired to do the work will select the final disposal destinations for the dredged sediment.

The design identifies other areas in Newark, Harrison, East Newark and Kearny that could be used to support the dredging and capping work. These locations could be used to store capping material and construction equipment, provide a place for work crew trailers, sort debris and manage some sediment contaminated with an oily substance that cannot be processed at the sediment processing facility.

Health Impacts of the Clean Up

The cleanup should not impact people's health. The design incorporates a Community Health and Safety Plan that describes actions the contractor will take to minimize those effects as much as possible. The plan details how the work will be monitored, and actions contractors will take to minimize the impact to air quality and odors, noise and lighting, and road and river traffic.

The EPA is updating its Community Involvement Plan, which includes a toolkit for keeping the public informed and involved in the cleanup of the lower 8.3 miles.

Site History

In the early 1980s, the EPA and the New Jersey Department of Environmental Protection (NJDEP) began an emergency cleanup after discovering dioxin-contaminated soil at the former Diamond Alkali manufacturing facility at 80-120 Lister Avenue, Newark. The EPA added the site to the National Priorities List in 1984. The EPA and the NJDEP found contaminants in the sediment of the Passaic River in 1984 and continued investigating the river in the 1990s. In the early 2000s, the EPA expanded the study to address the 17-mile Lower Passaic River. In May 2007, the EPA signed an agreement with a group of potentially responsible parties known as the Cooperating Parties Group (CPG) to complete the 17-mile study, under EPA oversight. In addition, Tierra Solutions, Inc., on behalf of Occidental Chemical Corporation and with EPA supervision, dredged sediment with very high levels of dioxin contamination from the Passaic River adjacent to the 80-120 Lister Avenue facility in 2012. In 2014, the CPG, under EPA oversight, dredged and capped a highly contaminated mudflat at river mile 10.9 on the east bank of the river in a park near Lyndhurst. During the 17-mile study, the EPA found the sediment of the lower 8.3 miles to be a major source of contamination to the rest of the river and Newark Bay. EPA selected a cleanup plan for the lower 8.3 miles in 2016 (described in this fact sheet), and for the upper 9 miles in 2021.

Once these various river and bay cleanups have been completed, it will still be many years before the levels of contamination in fish and crab have decreased to levels that are considered safe to eat.

For general information or questions about EPA's Superfund program, please contact the EPA Regional Public Liaison Office: James Haklar, Haklar.james@epa.gov or (732) 906-6817 or toll free at (888) 283-7626.