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Cleanup continues at Naval Weapons Station Yorktown Superfund site



The Yorktown Naval Weapons Station is working on cleaning up sites on the base where, over the history of the base, chemicals that were used in the weapons manufacturing have been dumped into the environment.



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For decades, a toxic stew was brewing in countless hot spots on and under Naval Weapons Station Yorktown.

Cancer-causing industrial solvents and other contaminants. Heavy metals. Poisonous leftovers from the mixing of explosives, the making of munitions and other needful activities from 1918 onward to fuel the country's war machine.

Dangerous chemicals and common municipal waste alike were dumped in ditches, trenches or holding ponds. Or simply poured down the drain.

Such practices are criminal today but were commonplace at the time.

"They were normal operations where it was considered, well, this is what you do, this is how you treat your waste — you put it in the back 40, and then you're good," said environmental engineer Lance Laughmiller.

"Now we're having to go back and look at those and say, what went in there, where did it go and how do we clean that up?"

Laughmiller is Hampton Roads environmental lead with the Naval Facilities Engineering Command for the Mid-Atlantic, based in Norfolk.

Cleanup continues at the Yorktown weapons station, still a federal Superfund site, as a joint effort by the Navy, the Virginia Department of Environmental Quality and the U.S. Environmental Protection Agency.

And it will continue for decades to come.

'A long tail'

The Yorktown weapons station sprawls over more than 10,000 acres, most of it undeveloped forests and fields, and some wetlands.

In 1992, Navy, state and federal officials identified 203 "areas of concern" there.

According to the EPA's Superfund website, the weapons station has a long list of hazardous substances, pollutants and contaminants, from arsenic to zinc.

Many areas were scratched off the list after site samples found no evidence of contaminants. Those that did underwent a detailed investigation, leading to site-specific plans for cleanup and long-term monitoring.

Today, of the original 203 sites, said Laughmiller, only 18 — many of them former rocket plants — still require action.

And of those 18 sites, he said, nine have already undergone "significant" soil and sediment removal from major hot spots. In some areas, wetlands were cleared of 1,000 or more tons of contaminated soil, then carefully rebuilt.

The goal of Superfund cleanup, the EPA says, is to ensure a site can meet the health and environmental standards for its "likely future use," perhaps as a managed landfill, an industrial site or even a family home.

That doesn't come cheap.

So far, investigation and cleanup at the weapons station has cost taxpayers nearly \$80 million, Laughmiller said, with another \$50 million needed during the next 30-plus years.

"There's a long tail to some of these cleanups," Laughmiller said. "So you're having to spend money every single year."

Rocket Plant

Last week, Laughmiller and other environmental specialists toured three sites, pointing out the cleanup measures at each.

The Rocket Plant looks nothing like you'd expect: just a couple of low-slung white brick buildings and a third structure no bigger than a shed.

All are overgrown, the paved drive cracked and weedy.

This was a former explosives loading plant that began operating in the late 1950s.

The concern here, Laughmiller said, was a 200-gallon storage tank under the main building that held wash/rinse water, and its connecting pipe system, both suspected of leaking.

Contaminants there included industrial solvents containing trichloroethylene, or TCE, and various metals, said Bryan Peed, project manager for the cleanup effort.

TCE has been found to cause cancer in animals.

The tank and pipes were removed in 1996, along with contaminated soil. When the buildings went inactive in 2013, the main building was cleaned of residual explosives.

Since then, specialists have been sampling soil and groundwater in an ever-widening perimeter and devising a plan for more cleanup, set to begin early next year.

Indian Head

The Indian Head Weapons Facility is a series of bunker-type buildings along a quiet, looping back road. Bunkers are widely spaced on acres of wooded land sloping down to wetlands.

This World War II-era complex was used to research and develop explosives and weapons but is no longer active.

For years, solvents — again, containing TCE — and explosives material contaminated the surrounding area.

In 2009, 1,196 tons of contaminated soil was removed from the wetlands and replaced with clean backfill in an effort to restore it.

It's a difficult process, Laughmiller said.

"The trick with wetlands is getting it the exact right elevation so you can get the little pathways of water coming through, and then the water being able to spread out," he said. "Just a couple of inches the wrong way, it's too dry. A couple inches (the other way), it's too wet."

Just up the road is an empty space on a steep slope where a large building once stood. Now it's covered with straw and netting to keep new grass seed and topsoil from washing away.

While the building was still in use, explosives materials had drained from here, too, and into a branch of Felgates Creek at the bottom of the slope.

Nearly 1,200 tons of soil was removed from there, too, and replaced with clean fill.

Now the Navy, DEQ and EPA are planning a more comprehensive look for any more contaminants at the facility.

Landfill

The Barracks Road landfill was used from 1925 to the mid-1960s. In that time, it took in about 1,400 tons of municipal and construction waste, including wood, piping and steel containers. Much of it was incinerated on-site first to reduce the volume.

Today, it looks like an overgrown field, with no trace of its former use, save for the barricade over old, cracked pavement barring the way.

"It looks like no one was ever here," said Michael Voss, weapons station spokesman.

Here, two incinerators and their stacks were demolished, the soil excavated and replaced with clean fill.

Laughmiller said that part of the site was cleaned to residential standards, although residential development is prohibited.

The landfill itself rises like a small hillock. It was covered with an impermeable clay layer to keep rainwater from leaching through, then capped with soil.

Rainwater is drained off into a pair of settling ponds to control the flow of stormwater and sediment.

Every five years, the groundwater is monitored for any contaminants that might migrate from the landfill.

Environmental mission

According to the EPA's website, the weapons station is one of 35 Superfund sites in Virginia, and one of five on the Peninsula.

The others are the Navy's Cheatham Annex next to the Yorktown weapons station; Chisman Creek in York County, where until 1974 about half a million tons of fly ash were dumped from the Yorktown Power Generating Station; Fort Eustis in Newport News; and Langley Air Force Base/NASA Langley Research Center in Hampton.

Jennifer Podbesek, environmental director at Naval Weapons Station Yorktown, said their environmental specialists make oversight inspections every day.

"To ensure that, if there's a tenant on base that is generating some type of hazardous waste, that we're properly managing it, that it's being stored correctly and that it's being shipped correctly," Podbesek said.

"I think," said Laughmiller, "the Navy's concept is we want to be a good steward of the land and property that we have. We have a mission to ensure that we protect and do the Navy's mission. But part of that mission is on our facilities, to ensure that we keep our facilities in the best condition that we can."

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