Cap of Silt Seals DDT on Sea Floor

Environment: Test sites off Palos Verdes show that burying portions of a decades-old pesticide dump has worked. EPA looks to expand project.

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An unprecedented experiment to entomb a giant underwater deposit of DDT off the Palos Verdes Peninsula under tons of clean sand appears to be working, according to a study to be released today.

In fact, the best solution to the continuing DDT pollution in the region may be to bury more of the decades-old pesticide dump, the report concludes.

"We are thinking about laying down a layer a foot to a foot and a half thick," said Frederick K. Schauffler, an environmental engineer with the U.S. Environmental Protection Agency. "This report clearly shows that, from a technical standpoint, this kind of cap is feasible."

From 1947 to 1971, Montrose Chemical Corp., near Torrance, which manufactured DDT, routinely discharged the pesticide into sewers that flowed into the ocean. Government officials estimate that about 1,800 tons of DDT settled on the sea floor over 17 square miles, fanning out from White's Point off the Palos Verdes Peninsula.

DDT was widely used as a pesticide to kill mosquitoes until three decades ago, when it was banned in the United States because of its destructive effect on birds. DDT causes birds to lay eggs with thin shells that crack when the birds sit on them to incubate them. Many birds, including bald eagles, peregrine falcons and pelicans, nearly became extinct in the 1960s because of the pesticide's long-lasting effects.

In 1996, the EPA declared the huge deposit off Palos Verdes a Superfund site, ranking it among the most hazardous places in the United States. The area also is contaminated with polychlorinated biphenyls, or PCBs.

EPA officials and others have long hoped that burying the problem might end its continuing contamination of the Southern California environment. The pesticide still kills chicks of bald eagles and is contaminating white croaker and other fish consumed by some families in Southern California.

Two years ago, the EPA dumped thousands of tons of silt over four small test

areas to see if that could effectively seal the tainted sediments with a thick layer of mud.

Federal contractors set down a relatively even layer on the ocean bottom and did so without stirring up much of the hazardous sediment, the report on the test shows. Aside from a bit of mixing at the bottom of the dumped silt, the blanket of new material has remained largely free of DDT residue, the report says.

The silt drifted down 140 to 200 feet, landed on the targeted area and remained in place without drifting off with currents, according to the report written by 13 engineers for the EPA and U.S. Army Corps of Engineers.

EPA officials now expect to make a formal proposal in mid-2003 to cover about three square miles of sea floor with clean sediment dredged from the nearby harbor, Schauffler said.

"If we did a foot-and-a-half cap, over three square miles, the construction cost would be $55 million, based on earlier estimates," Schauffler said. "If it is a foot thick, [the cost] would be $37 million."

In a series of legal settlements, Montrose and two other companies paid about $140 million to help repair Southern California's marine environment. The money is spread among a number of agencies, including the EPA, for cleanup.

The EPA studies the site to learn what happens to fish, worms, sea urchins, shrimp and other bottom-dwelling sea creatures buried beneath tons of silt.

Most become entombed under the silt, creating a temporary oceanic desert until sea creatures recolonize the area, Schauffler said. A few sea creatures on the edges of the cap may be able to burrow to freedom.

Such an effect on marine life remains a concern, said Mark Gold, executive director of the environmental group Heal the Bay.

"As this report demonstrates, capping has some promise to reduce ... ecological risks posed by DDT," Gold said. "But there are many questions left to be answered: What portion of the bottom gets covered? What happens when you smother local marine life?"

For now, EPA officials are considering blanketing only the 3 square miles of contaminated area on the relatively shallow continental shelf. This area, from 120 to 300 feet below the surface, has the heaviest concentration of DDT. Moreover, it is relatively flat, so it can hold freshly imported silt.

The other 14 square miles of contaminated sediment are on the deeper continental slope. Engineers believe the slope is too steep for silt or sand to

remain in place, and thus recommend against trying the technique.

Still, scientists and engineers believe that covering the 3-square-mile shelf could seal off most of the stubborn DDT compounds that persist in the environment.

If such a cap of silt doesn't work, experts don't know how else to protect the environment and public health, because dredging up the sediments could create more problems than it would solve.

"That's the problem," Gold said. "I don't know if it is possible to dig up sediment at that depth.

"But the risk of bringing up all of those contaminants would allow DDT to spill out into the environment all over again."