CREATIVE CLEANUP EFFORTS MAY FAIL - Times-Picayune, The (New Orleans, LA) - February 19, 1991 - page A7
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Attempts to clean up contamination of groundwater at Louisiana's chemical plants are experimental, and officials admit they don't know if the efforts will succeed.

Plants with minor contamination problems have been able simply to dig up the contaminated soil and chemicals and truck them offsite for safe disposal, thus removing the source of the problem.

But plants such as Dow USA in Plaquemine, Vulcan Chemicals in Geismar and PPG Industries in Lake Charles have groundwater problems so extensive that digging up the contaminated areas might cost billions, forcing plant shutdowns.

Dow, Vulcan and PPG have attacked their groundwater problems with a system of wells and pumps designed to remove contaminated water from underground aquifers. This method is known as pump-and-treat, because the plants pump the water to the surface, then strip out the toxic chemicals.

But if those efforts don't work - and state officials are growing increasingly doubtful that they will - regulators may be faced with a difficult choice: force the plants to dig up the sites at great expense, or find other sources of drinking water for thousands of people.

The major source of groundwater problems at all three plants is the presence of sprawling old chemical dumps. These dumps, used before hazardous waste disposal came under strict regulation, act as saturated underground sponges, constantly oozing toxic chemicals into the soil and groundwater. Unless the old dumps are dug up and hauled off, plant officials say they could continue to ooze chemicals for centuries.

The Department of Environmental Quality prefers excavation and removal of contaminated soil that can continue to leach chemicals into groundwater, followed by the installation of a pump-and-treat system to clean the contaminated groundwater left behind.

"There is an emerging idea that pump-and-treat by itself is not going to work," DEQ Secretary Paul Templet said. "The concept of source removal appears to be a solution."

For example, Rubicon Chemicals in Geismar spent $15 million digging up a small old dump and burning the soil as part of a groundwater cleanup plan.

"Pumping the groundwater will never solve the problem unless you remove the source (of the contamination) first," Rubicon plant manager John Delaney said.

Despite DEQ's skepticism about pump-and-treat, the agency so far has not required the companies to begin a serious investigation into the feasibility of source removal at Dow, Vulcan or PPG. The problems at those three plants are extraordinary by comparison to such sites as Rubicon.

*** 'Like the Hoover Dam' ***

For example, digging up the contaminated area beneath Vulcan's dump would involve excavating a hole 10,000 times larger than the one dug at Rubicon. The dirt removed from the hole would fill 10 Superdomes.

"It'd look like the Hoover Dam right here in Geismar," said Vance Gordon, manager of environment and health at Vulcan. "I mean, you're talking about Lake Mead."

In addition, most of the soil would be considered hazardous waste, meaning proper disposal would cost hundreds of millions of dollars - assuming a site could be found that could handle that much waste.

At Dow, officials have estimated that it would cost $1 billion - nearly half of Dow's worldwide annual profit - to dig up their old dump.

Vulcan, Dow and PPG have instituted extensive pump-and-treat programs in hopes of containing the chemicals in an underground pool within the plant boundaries forever.

There are two major problems with this approach, according to officials and documents:

Few industrial plants ever operate at a single site perpetually. Louisiana's oldest chemical plants are only about 50 years old. Someone would have to pay for continued pumping and treating if the plants shut down.

None of the companies with major contamination has shown the ability to prevent many of the most toxic and heaviest chemicals from continuing to sink into ever deeper layers of soil and groundwater beneath their sites. Unless new methods are invented to somehow stop the sinking toxic wastes, drinking water sources could be contaminated despite the pumping efforts.

*** Losing the fight ***

Dow has drilled 224 pump-and-treat wells that pull up thousands of gallons of contaminated liquid each day. The company built a separate treatment plant that is staffed 24 hours a day to treat the recovered liquid.

Yet state documents and Dow tests indicate the company is losing the battle to keep contamination out of the Plaquemine drinking water aquifer.

A Dow computer study of the groundwater problem predicted that, without pumping and treating, the toxic waste would sink only 4 to 6 feet by the year 2098.

Instead, recent tests by Dow indicate the chemicals have sunk 8 feet in the past four years - 36 times faster than the model predicted. The chemicals have already begun moving into a clay layer that is the last line of defense for the Plaquemine Aquifer, according to company data.

Dow conducted the new tests only after The Times-Picayune asked company officials why sampling had not been done to check the computer study's accuracy.

A Dow soil boring in 1986 showed chemicals pooled at the bottom of the aquifer at about 46 feet, but no contamination of the clay layer that begins just below the aquifer. A soil boring in the same spot in September 1990 showed chemicals had sunk as deep as 54 feet - 8 feet into the clay.

There is currently no proven technology to pull chemicals from clay using wells and pumps.

"I don't know if we can get it back out," said Ivy Dupree, who is overseeing the groundwater recovery effort for Dow.

Dow's attack on its groundwater problem is more extensive than that at PPG or Vulcan. Officials at those companies said they have chosen a cautious approach to test their pumping systems.

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Illustration:

A bulldozer at Ciba-Geigy Corp. in St. Gabriel, La., clears out an old waste pit. Chemical plants throughout the state have been cleaning up old pits because wastes have oozed through the bottom, and now threaten underground drinking aquifers. [COLOR]

STAFF PHOTO BY G. ANDREW BOYD