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INVISIBLE STAIN *A special report.*

In War Over PCB's in Hudson, the E.P.A. Nears Its Rubicon

By ANDREW C. REVKIN

A generation-long tug of war between environmental officials and the General Electric Company over what, if anything, to do about the Hudson River's last big chemical stain is almost over.

After 25 years of false starts and conflicting studies, the federal Environmental Protection Agency appears poised to order a cleanup of what it calls a persistent threat to people and wildlife: the polychlorinated biphenyls, or PCB's, that lace the river bottom north of Albany and contaminate many kinds of fish throughout the river.

The agency, which has vowed to find a remedy by the end of December, has not yet said that it would choose to dredge up the chemicals. But top E.P.A. officials have strongly hinted that doing nothing -- the option preferred by General Electric, whose factories released more than 1 million pounds of PCB's into the upper Hudson from 1946 until 1977 -- is unacceptable.

And one of the only realistic alternatives to inaction, according to many environmental experts outside the agency, is dredging, which



Suzanne DeChillo/The New York Times

On Saturday, Niles Gagnon and his father, Bill, fished on the Champlain Canal. They released their catch, though, because the fish are unfit to eat.

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could range from limited excavation of the worst hot spots to a project encompassing many miles of the river. While G.E. says it has spent more than \$160 million studying the problem and cleaning up PCB's on shore, a large-scale dredging project could easily cost more than a billion dollars, many experts agree.

The debate over the Hudson has nearly become the life's work of some scientists and lawyers at the E.P.A. and G.E. Widespread contamination of the river was first revealed in 1975, and a 197-mile stretch from Hudson Falls to the Battery was placed on the federal Superfund cleanup list in 1984.

From the start, the E.P.A. and New York State environmental officials were caught between private environmental groups, which wanted a prompt cleanup, and the company, which used lobbying, public relations campaigns and dozens of its engineers and scientists to stave off dredging.

In 1984, with the river's PCB levels dropping, the federal government chose a wait-and-see approach. In 1989, the state prepared a dredging test, but upstate communities with close ties to G.E., and others who feared that the dredged mud would end up in nearby landfills, killed it.

Now, the E.P.A. has concluded that PCB's in river mud threaten wildlife and pose a cancer risk to people who regularly eat Hudson fish. Even though PCB levels are declining in the water and some fish, the agency has decided that the threat is not dissipating fast enough.

G.E., in contrast, points to studies showing no health problems in factory workers exposed to PCB's. And it says the river is safely burying old PCB's under clean silt. Finally, G.E. contends that the main source of fish contamination is not the old pollution, but lingering PCB leaks under its factory in Hudson Falls, which it is plugging one by one.

Independent scientists hold a range of opinions. Many agree that the long-lived chemicals are a peril, while others say they are relatively benign. Some simply say the river's behavior and ecology are too complicated to understand fully.

Dr. Richard Bopp, a geologist at Rensselaer Polytechnic Institute in Troy, who has studied Hudson PCB's for 23 years, starting with his doctoral thesis, said the delays had largely resulted from society's desire to have scientific certainty before starting any costly cleanup.

But, he said, there rarely is a "golden box of answers."

The E.P.A. is quick to say that its case is not ironclad. Nonetheless, its officials say, evidence of health and ecological risks justifies moving ahead.

In a hearing two years ago before a New York State Assembly committee, Carol M. Browner, the E.P.A. administrator, made one of the strongest statements by a federal official about the problem.

"We don't have every single piece of data," Ms. Browner said. "But

clearly, the science has spoken. PCB's are a serious threat.

"To suggest, as G.E. does, that no action should be taken because some of the PCB studies may be inconclusive flies in the face of every decision this country has made in the last quarter-century to protect human health and the environment," she continued, adding, "Clearly, the time for action is now."

In interviews, other E.P.A. officials have been more circumspect, stressing that dredging is only one of several alternatives, and that -- at least technically -- taking no action is still an option.

Nor is the December announcement the last word. The E.P.A. will take comments for six months before issuing its final ruling in June 2001.

Nonetheless, momentum toward some solution appears to be building.

A series of peer reviews of the E.P.A.'s Hudson analysis by panels of independent scientists concluded last week. Three out of four panels, with some caveats, endorsed the agency's methods and its conclusions about the health risks posed to people who eat fish from the river.

On Friday, the fourth panel, which assessed the agency's calculation of the risk to wildlife, largely rejected the agency's work as inadequate. But E.P.A. officials said the clearly established health risk to humans was sufficient for them to press ahead toward a December decision on a remedy.

After the decision is announced, General Electric's options will shrink. It could fight in court, but would have to prove that the government's remedy was "arbitrary and capricious" -- a daunting challenge, many environmental lawyers say.

Also, if the company balks, the E.P.A.

can start the work on its own and charge G.E. up to triple the cost.

Nonetheless, G.E. has intensified its anti-dredging campaign.

Last month, it began an advertising campaign in upstate newspapers and on radio and television.

The company's lobbyists and supporters in Congress have also been busy. Last month, language was proposed for the annual bill containing the E.P.A. budget that would require the agency to delay any decision on dredging until it incorporates findings of a forthcoming National Academy of Sciences report assessing dredging methods.

The report, to be released this fall, was commissioned by the E.P.A. under pressure from several Republican members of Congress.

One staff member for a Democratic congressman, who spoke on condition of anonymity because the bill language was still being negotiated, said the legislative maneuver was a ploy by G.E. to

delay any decision until after the presidential election, when a shift in control of the White House could favor the company. "It's all part of the big stall," he said.

General Electric officials say that the company's efforts are intended to ensure that the agency bases its decision on sound science.

Stephen D. Ramsey, G.E.'s vice president for environmental programs -- and formerly the top environmental lawyer for the Justice Department -- said the E.P.A.'s stance had largely been shaped by pressure from private environmental groups, and by the notion that a government agency had to do something concrete to prove its worth.

He insisted that the company's work to plug PCB leaks under its factory, coupled with the natural burial of old PCB's, would solve the problem. "Dredging is irrelevant to the recovery of the river," Mr. Ramsey said.

On a recent spring morning in Hudson Falls, it was hard to imagine that anything was amiss. Engorged with spring runoff, the river rumbled over Baker's Falls before broadening and settling down for its journey to the sea.

The foamy brown effluents from paper mills and sewage pipes that once sullied the stream were gone.

But where the river surged past General Electric's shuttered Hudson Falls capacitor factory, the banks were laced with pipes and the river bed was pierced by well-drilling rigs, all intended to drain PCB's from underground fissures. A similar cleanup was under way at another G.E. plant two miles downstream in Fort Edward.

The plants once used 10 million pounds of PCB's a year to make capacitors, storage devices for electricity.

The PCB's, which are oily liquids, served as insulation and a coolant.

The plants had state permits to dump up to 30 pounds of spilled PCB's a day into the Hudson.

That dumping led to the invisible stain that represents the last large legacy of an era when pollution flowed freely into the Hudson.

Despite the permits, New York State ruled in 1976 that G.E. had violated water quality laws. The company signed a settlement in which both it and state contributed \$3 million for cleanup work, and G.E. paid \$1 million more for research.

But that cleanup focused on the factories and riverbanks. The debate about the river itself was unresolved, and once the Hudson became a federal Superfund site, it intensified.

Part of G.E.'s effort has been to generate volumes of research about the river and PCB's, spending many times more than the \$16 million spent by the E.P.A. since 1990. (The company says it has spent \$160 million on research and its cleanup so far, but officials decline

to be more specific.)

It has meticulously dissected the river banks near its plants. John G. Haggard, G.E.'s manager for the Hudson cleanup, said that in the last eight years, as the company plugged cracks in the cliffs, the amount of PCB's leaking from the factory grounds dropped to three ounces a day, from five pounds.

According to G.E.'s analysis, it is these freshly leaking PCB's that settle on the bottom and enter fish, leading it to conclude that plugging the leaks would end the problem.

The Controversy Conflicting Data, Prevailing Caution

To the E.P.A., the G.E. effort to clean its factory sites is welcome and essential, but a sideshow. Farther south, in the mud under a 40-mile stretch of broad, relatively placid waters, lie tons of PCB's that flowed from the factories in decades past.

After years of drilling mud cores and running computer studies of the way silt accumulates, E.P.A. scientists have concluded that these buried PCB's pose the greatest continuing threat.

G.E.'s experts disagree, saying the old deposits are decomposing and too deeply buried to pose a risk. Essentially, the company and the environmental agency have distinct visions of the river and the way PCB's affect it.

Their stances on the health hazard from PCB's are just as far apart. That gap was illustrated earlier this year in Saratoga Springs, at a debate between two scientific powerhouses.

One was Dr. V. James Coglianò, a top official at the E.P.A. center for environmental assessment. The other was Dr. Renate D. Kimbrough, a pathologist who in the 1970's published one of the first studies linking PCB's to cancer in animals. Now, though -- in a study partly paid for by General Electric but reviewed by independent scientists -- she found no hint of a greater incidence of cancer in the medical histories of 7,000 G.E. workers with varying amounts of exposure to PCB's.

Dr. Coglianò pointed out that few of the workers had been exposed to high PCB levels. He described many animal studies showing a cancer link, and human studies showing learning problems in children who nursed from mothers who ate PCB-tainted fish.

Dr. Kimbrough proceeded to poke provocative holes in some of that work.

Not surprisingly, the evening ended with no clear winner.

Posing a question from the audience, Peter Tarana, a chemistry professor at Adirondack Community College, in Queensbury, explained that he had served on a state panel examining a proposed site for a landfill for dredged PCB's. Upstate opponents defeated the plan and the dredging never happened.

"What we've got here is a lot like what we had 10 years ago," Mr. Tarana said. "You've got conflicting data, reputable people -- so what's a decision maker to do?"

Dr. Cogliano said that certainty was never likely when weighing a risk to public health. He said the evidence supported a cautious approach.

"You can either wait and wonder or you can try to be protective," he said. "We tend to be protective in the face of uncertainty."

The Wait A Large Employer Proves Persuasive

General Electric has certainly not been content to wait.

It has lobbied long and hard since the early days of the PCB issue. In 1976, when New York was pursuing violations against G.E. for its PCB dumping, Gov. Hugh L. Carey pressed his environmental commissioner to quickly negotiate a settlement.

In a recent interview, Mr. Carey explained that the urgency came from a meeting he had one day with Reginald Jones, then the company chairman.

"Jones was adamant," Mr. Carey recalled. "If we blamed G.E. entirely, he was going to move 55,000 people out of the state -- and he could do it."

G.E. got its settlement.

Ever since then, the company has pulled no punches to prevent a costly cleanup.

The public relations work has focused on the upper reaches of the Hudson, where G.E. is a large -- though shrinking -- employer and where many communities are apt to side with it. In Washington County, many rural communities and farmers have for years expressed fears that the government would order the PCB's from the river to be entombed in landfills nearby.

But the company has had little success wooing supporters close to New York City and its suburbs.

There, groups like Riverkeeper and Hudson River Sloop Clearwater have portrayed the conflict as an earthy David versus a buttoned-down Goliath.

Still, the environmental groups have struggled to maintain momentum, particularly because the river's most visible pollution -- sewage, dyes and other factory discharges -- is a fading memory.

"It horrifies me that it's taken so long," said Cara Lee, environmental director for Scenic Hudson, a private conservation group based in Poughkeepsie. Ms. Lee has been embroiled in the PCB debate since 1983. "This is the largest PCB contamination site in the country, and yet people who live here seem to have blinders on."

The Endgame An Agency Staff Caught In Between

Squeezed in the middle, the E.P.A.'s regional staff is struggling to find an approach that will avoid future legal challenges from either side.

"It's a very heated issue -- people here don't think in compromising terms," said Richard L. Caspe, who directs the agency's toxic cleanup section in New York. "We're probably going to get killed whatever decision we make."

He said the agency would begin announcing aspects of its proposal late this summer. With the consequences of the decision so substantial, plenty of people will listen.

If dredging is chosen, General Electric would have to pay for it, which could run into hundreds of millions of dollars. Under Superfund law, the company could also be billed for the damage to natural resources -- like the river's commercial fishery, which was shut down because of PCB's.

And communities along the most contaminated stretch of river, from Troy north for 40 miles to Hudson Falls, could face years of disruptive excavation.

Many elected officials and residents upriver oppose dredging, but some business owners who rely on boating and tourism are eager to see the pollution removed. Channels along parts of the canal linking the Hudson to Lake Champlain are clogged because dredging has been forbidden until the E.P.A. has a cleanup plan.

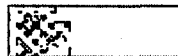
There is at least one thing that G.E., environmental groups and some scientists agree on: that there are serious problems with the way the country handles complicated toxic cleanups.

Dr. Bopp, the R.P.I. geologist, said the Superfund process required the E.P.A. to summarize the entire Hudson River problem in a single enormous document.

But the river is a diverse system. Some parts are easy to understand, and others are impossibly complex. One approach, he said, might be to go at it mile by mile, cove by cove. "You could come up with a way to clean Cove 10, and then maybe get to Cove 16 and there G.E. would resist, but at least you would have accomplished something."

Whatever the E.P.A. decides, Dr. Bopp said, the battle over the Hudson is a lesson on the errors of the past -- of a business routinely dumping waste in a river and regulators routinely allowing it to happen. "Will my daughter be writing her Ph.D. thesis on PCB's in the Hudson?" Dr. Bopp asked. "I hope not. My biggest hope is that we'll never see anything like it again; that we'll file this away and learn from our past mistakes."

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