NASSAU LEGISLATURE OKs COLISEUM PLAN A5

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NEWSDAY / NEWS 12 SPECIAL SERIES

# POLLUTION AND LI'S WATER

## Island's sole source lies beneath 254 Superfund toxic waste sites

A2-4 | WATCH VIDEO AT NEWSDAY.COM AND NEWS12.COM

# THE THREAT to LI's drinking water

## Island's plentiful supply lies beneath more than 250 Superfund toxic-waste sites

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Long Island's sole source of drinking water lies beneath many of the most contaminated places in New York State.

Landfills, aerospace manufacturing, industrial operations and dry cleaners have dumped or leaked heavy metals, volatile organic chemicals and inorganic materials onto soil and into groundwater, threatening water supplies for the Island's nearly 3 million residents.

Nassau County tops the list of New York counties for the number of Superfund sites — hazardous waste locations overseen by the state as well as others managed by the federal Environmental Protection Agency — with 145. Suffolk County, with a total of 109 Superfund locations, has the third-highest number of state sites and is second to Nassau in the number of federal designations.

"Because we have so many people who live here [and] we have so many industries that popped up after World War II, contamination is bound to happen," said Dennis Kelleher, president of H2M Water, a Melville-based water resource engineering firm.

Contaminated groundwater doesn't necessarily mean contaminated drinking water, which is treated and closely monitored. Public and private water suppliers must adhere to state and federal drinking water standards, which are set to protect public health. Private well owners are responsible for ensuring their water is free of contaminants.

A Newsday analysis of active and closed state Superfund sites shows Nassau County with a total of 122 and Suffolk with 89 as of Sept. 1. Federal Superfund locations on Long Island total 43 with 23 in Nassau and 20 in Suffolk.

Long Island's sites represent 17 percent of all Superfund designations in New York.

Of those, 109 are considered to pose a significant threat to health or environment, more than any other region overseen by the state Department of Environmental Conservation.

And the pollution is on the move. Researchers have documented contaminated groundwater plumes migrating from more than a third of state and federal sites. As the contamination moves through the aquifers, public and private water well supplies can become tainted.

"We just assume most sites have potential for off-site contamination until proven otherwise," said Robert Schick, director of the DEC's Environmental Remediation Division, which oversees the state Superfund program.

Most communities in New York get water from surface resources such as rivers, lakes and reservoirs, but Long Island's water comes solely from a network of underground aquifers that hold an estimated 70 to 80 trillion gallons.

They are recharged by precipitation, which filters through the soil and sands. Some parts of the aquifers are quite porous, others are not, so water and contaminants move differently throughout the Island.

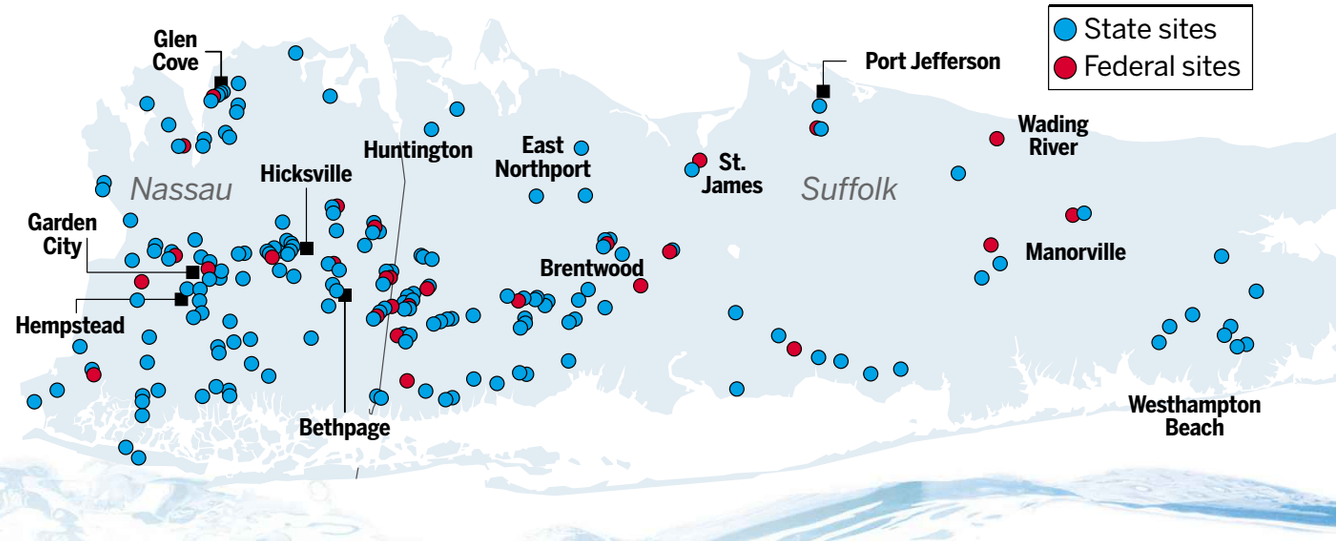
Newsday's review of data from each of the state Superfund sites on Long Island found:

- Water contamination was detected at nearly 90 percent of the sites.
- Soil contamination was present at 79 percent of the sites.
- Dry cleaning operations represent almost 30 percent of Nassau sites and 9 percent of Suffolk's.
- Industrial and manufacturing operations accounted for 42.3 percent.
- The volatile organic chemical and possible carcinogen Tetrachloroethylene, commonly known as PERC or PCE, was documented at nearly 49 percent of all Superfund sites on Long Island.

### Funding running low

Established in 1980, the federal Superfund program is designed to identify and clean up

## SUPERFUND sites on LI




**Number of sites**
(Managed by state Department of Environmental Conservation and federal Environmental Protection Agency as of Sept. 1)

| NASSAU | SUFFOLK |
|---|---|
| 145 | 109 |

**ABOUT THE SITES**

- These sites represent **17%** of all Superfund designations in New York State.
- Work at more than **80** state Superfund sites has been completed or is in the management/monitoring stage. The remainder are active cleanup sites.

# WHAT'S IN THE Water

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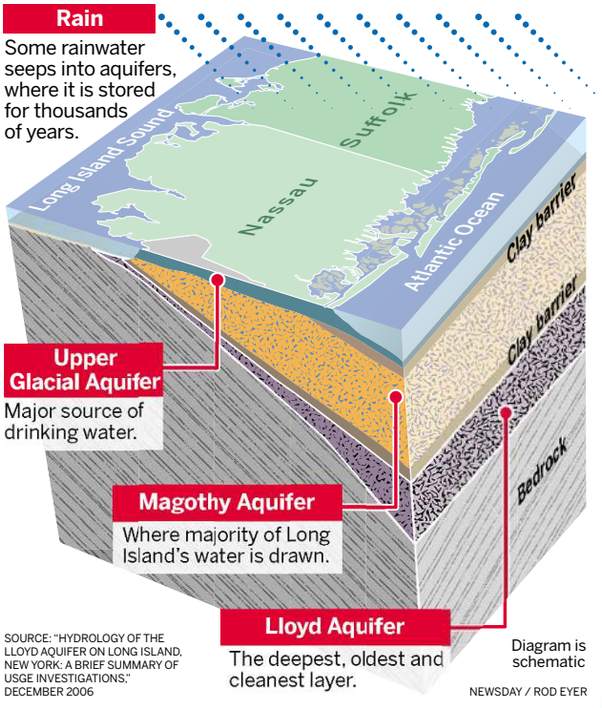
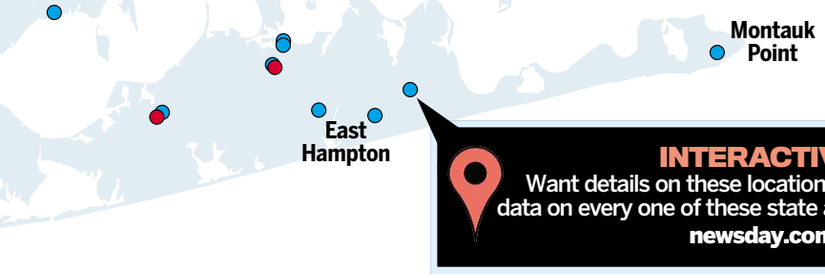
## AQUIFERS under LI




SOURCE: "HYDROLOGY OF THE LLOYD AQUIFER ON LONG ISLAND, NEW YORK: A BRIEF SUMMARY OF USGE INVESTIGATIONS," DECEMBER 2006

Diagram is schematic

NEWSDAY / ROD EYER




**INTERACTIVE MAP**
Want details on these locations? Go online and click for data on every one of these state and federal Superfund sites.
**newsday.com/water**

### SOURCES OF POLLUTION

- Dry cleaning operations represent nearly **30%** of Nassau sites and **9%** of Suffolk's.
- Industrial and manufacturing operations accounted for **42.3%**

### TYPE OF CONTAMINATION

- Soil contamination was present at **79%** of the sites.
- Water contamination was detected at nearly **90%**
- The volatile organic chemical and possible carcinogen tetrachloroethylene, commonly known as PERC or PCE, was documented at nearly **49%** of all Superfund sites on Long Island.

the nation's most polluted toxic waste sites. New York's program preceded the federal program by a year. States have increasingly taken over the cleanup burden, leaving the most toxic sites for the EPA.

In 75 percent to 80 percent of New York Superfund cases, the entity responsible for the pollution pays for cleaning up a site. When a polluter refuses or is unable to pay, or cannot be found, the state carries the cost and may later sue to recover the funds.

But money to identify, monitor and clean up those sites is running out after a decade of consistent funding.

In 2003, Gov. George Pataki pushed through a $1.2-billion bond to fund the state Superfund program, allocating $120 million per year for 10 years. This year's state budget includes no funding for Superfund projects.

With the DEC spending an average of $90 million from the fund each year, about $200 million to $300 million is left, said Eugene Leff, DEC's deputy commissioner for remediation and materials management.

"We feel we can run the program this year and into next year, and at that point, we may need additional funding," Schick said.

The lack of long-term financing means the DEC may have a hard time getting contracts signed or securing multiyear cleanup commitments, said Andrew Postiglione, a fiscal policy associate for Environmental Advocates of New York, an Albany-based watchdog group.

"We want to get the money secured ahead of time rather than waiting for the last minute," Postiglione said. "It's a good program . . . It has a proven record of remediation and protection."

Gov. Andrew M. Cuomo's office did not respond to requests for comment.

The lack of future funding worries Adrienne Esposito, executive director of Citizens Campaign for the Environment, whose group spent years pushing for cleanup of contamination at Brookhaven National Laboratory in Upton, a manufactured gas plant in Bay Shore and other sites.

"What that means to Long Islanders is more contaminated water and more health effects," she said. "The toxics here are so pervasive and abundant. Re-

See WATER on A4

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# Water runs beneath LI toxic sites

WATER from A2

mediation is not an option, it's a necessity."

Assemb. Robert Sweeney (D-Lindenhurst) said the state has time to restore funding before the program is compromised. "I think we're OK," said Sweeney, chairman of the Assembly Committee on Environmental Conservation. "There's not any imminent problem. A few years down the road, sure."

## Sites cleaned, monitored

Long Island's Superfund sites stretch from Inwood to East Hampton. Some are in rural areas served by private wells, others in densely populated places with public water treatment and delivery systems.

New development has occurred at many sites, including the Glen Cove Ferry Terminal and Boat Basin, which had been a municipal dumping site that contaminated groundwater with heavy metals and other chemicals, Superfund records show. Site cleanup took two decades, cost $100 million and should be finished by mid-2014, said K. Kelly Morris, Glen Cove Industrial Development Agency executive director.

Work at more than 80 state sites already has been completed or requires some site management and monitoring.

"Most of the contaminants are based on land use," said Karen Randazzo, director of water quality and laboratory services at Suffolk County Water Authority, which serves about 1.2 million customers.

The authority is the largest municipal groundwater supplier in the nation. It collects 53,000 samples annually to test for a variety of water qualities such as color and acidity, and screening for contaminants such as pharmaceuticals and volatile organic chemicals — pollutants known as VOCs.

About 20 percent of the authority's 600 wells are treated for VOCs, pesticides and other contaminants, Randazzo said.

"Some of the water needs to be treated to remove contaminants — it varies greatly," she said, but "the water we serve our customers meets or exceeds standards."

Contamination from Superfund sites is "a huge problem across Long Island," said Bethpage Water District Superintendent Mike Boufis, whose agency has spent more than $14 million to treat pollution from a handful of plumes under former Northrop Grumman and Navy manufacturing sites. "There's other districts going through what we're going through."

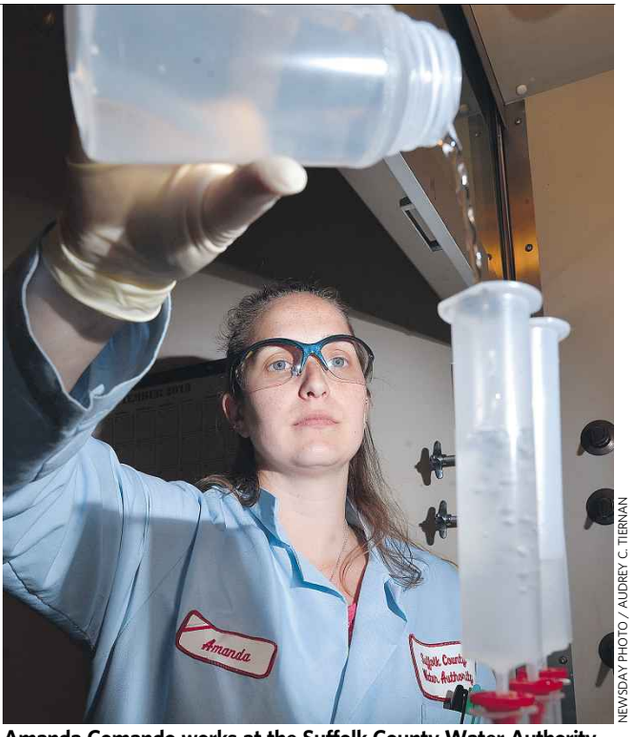
While state standards limit the presence of volatile organic chemicals to 5 parts per billion, Bethpage district tests to the parts-per-trillion level, which is 1,000 times more sensitive. "The water is absolutely safe to drink," Boufis said. "It actually exceeds all of the New York State drinking water standards."

## Special designation

In 1978, EPA designated the water beneath Nassau and Suffolk a sole-source aquifer, meaning if the water becomes contaminated it would pose a significant public health hazard. It was the first in the nation to receive such designation in recognition that what happens above ground will affect waters below ground. The sole-source designation has led to more focus on the water quality, officials said.

"The aquifer on Long Island is a sole-source aquifer so people have been paying quite a bit of attention," said Doug Garbarini, chief of EPA's New York remediation branch. "The (Superfund) sites have maybe been uncovered more here than elsewhere."

Of the federal sites on Long Island, 10 have been cleaned up and taken off the national priority list. Most of the others have




NEWSDAY PHOTO / AUDREY C. TIERNAN

**Amanda Comando works at the Suffolk County Water Authority lab. ■ LI Superfund site photos: newsday.com/water**

systems in place to remove the contaminants, which could take decades, he said.

A huge Superfund cleanup at Brookhaven National Laboratory has been underway since 1992 after authorities identified 30 areas of concern, including a plume of radioactive tritium. Seventeen different groundwater treatment systems were installed. Three have closed and four are waiting for approval to shut down because contaminants have been removed, said William Dorsch, the lab's leader for the groundwater protection group.

"We're kind of in the long-term maintenance phase now," he said.

While state and federal programs try to remove contaminants before they get to pumps, water suppliers must deal with the contamination that's already flowing through aquifers.

"The water supply industry has been tracking plumes probably for the past 30 years," H2M's Kelleher said.

Suppliers on Long Island have spent an estimated $300 million to $400 million to treat for contaminants, move wells or find other ways to keep pollutants out of drinking water, he said.

"Probably 20 to 25 percent of all wells in Nassau and Suffolk have been impacted by VOCs and have some sort of treatment on them," said Kelleher, who is also member of Long Island Water Conference, a coalition of water supply agencies and professionals.

Long Island's number of Superfund sites is not too surprising, given its industrial history, large population and sole-source aquifer designation, said John Martin, an EPA spokesman based in Manhattan.

"One of the problems on Long Island is there are multiple sites in a relatively small area where we sometimes have overlapping plumes," Leff of the DEC said.

They can also be deep, making it hard to map pollution or predict where contamination may flow, officials said.

"If you discover a plume, just trying to discern the outlines . . . can be costly, difficult," said Sweeney. "It's tough to understand each one thoroughly. There isn't any window that you can open up and look down below."

And no site can be cleaned 100 percent.

The state deems a Superfund site closed when treatment, easements, remediation or other actions limit public exposure. For water contamination, closing wells and connecting private wells to public supplies are often part of the solution, Garbarini said.

"Groundwater removal is a tough business," said James Saiers, a hydrology professor at Yale's School of Forestry & Environmental Studies. "And in some cases the best that one can hope to do is to stop the spread, to isolate it."