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NEWSDAY INVESTIGATION

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THE GRUMMAN

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DECADES OF DECEIT

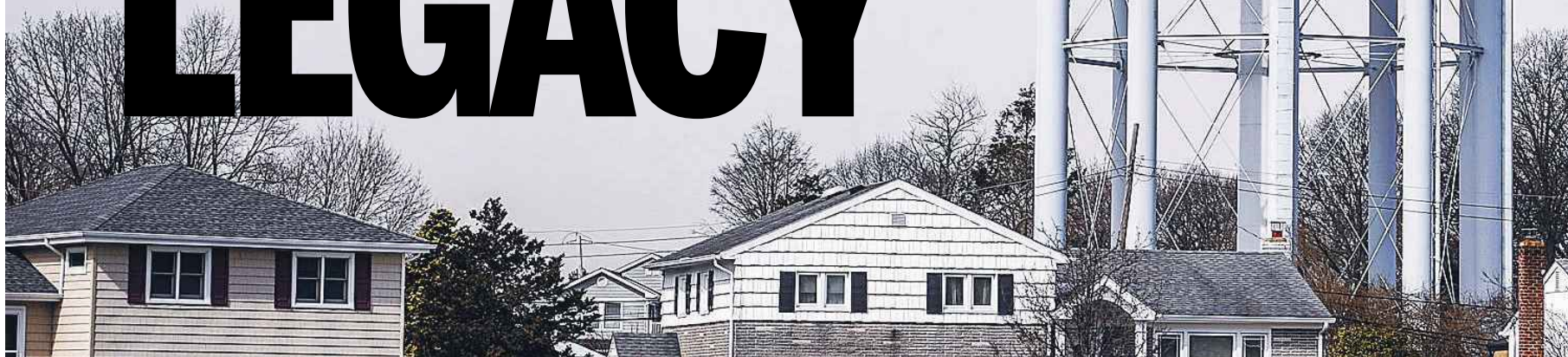
The aerospace giant knew it was polluting groundwater, but aided by government officials, it kept critical information secret

SERIES BEGINS | A2-5, 10-17



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NEWSDAY INVESTIGATION
GRUMMAN'S
TOXIC
LEGACY



NEWSDAY / STEVE PPOST

BY PAUL LAROCO AND DAVID M. SCHWARTZ
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Grumman, the Bethpage aerospace giant, knew as far back as the mid-1970s that its toxic chemicals were contaminating area groundwater, but it kept secret crucial information that could have helped stop what is now Long Island's most intractable environmental crisis, a Newsday investigation found.

On numerous occasions, particularly during a critical 15-year period, the company made public statements that directly contradicted the alarming evidence it held, as it avoided culpability and millions in costs.

This behavior was long enabled by government officials who downplayed the pollution and did little to contain its spread from Grumman's once-600-acre site, through Bethpage and into neighboring communities.

The nine-month Newsday investigation, built on thousands of pages of records and scores of interviews, charts a largely hidden

history, one that emerges, most strikingly, in confidential Grumman and government documents revealed for the first time.

They show that the problem could have been addressed more aggressively at many points over the past 45 years. But instead, foot-dragging, resistance and grossly inaccurate projections took hold — not only on the part of the company but also for decades by the state Department of Environmental Conservation, the lead regulatory agency.

The U.S. Navy, which owned a sixth of the Grumman-operated facility, has also often objected to the costliest, most-comprehen-



sive cleanup plans.

Though 4.3 miles long, 2.1 miles wide and as much as 900 feet deep, the plume's significance is defined by more than size. Unlike most similar masses, it sits in an aquifer that is the only drinking water source for a densely populated region.

As one of the most complex in the nation, it is composed of two dozen contaminants, including

multiple carcinogens. Most significant is the potent metal degreaser trichloroethylene, or TCE, which is present in pre-treated water at levels thousands of times above state drinking standards.

Grumman relied on TCE to clean aircraft parts for 40 years, but as the chemical was discovered to be spreading from its property, it obscured or outright denied its use. The company released so much of it into the earth that one of its environmental managers later wrote to a colleague, in a newly revealed email, that the thought "caused my insides to start churnin' somethin' fierce!!"

A growing number of expensive treatment systems remove TCE and other contaminants from public wells within the plume, including ones serving not only Bethpage, but Plainedge, South Farmingdale, North Massapequa and parts of Levittown, Seaford, Wantagh and Massapequa Park. State and local authorities consistently certify the treated drinking water as safe, but cases of bottled water fly off supermarket shelves and residents' health concerns, particularly

about cancer, are numerous.

The pollution that originated from Grumman is classified as a "significant threat to public health or the environment" under the state's Superfund program, which aims to clean hazardous waste sites.

"Everyone involved should be ashamed to admit that this plume has been known about since the 1970s, and 40 years later, it is bigger, deeper and worse than ever," Michael Boufis, superintendent of the Bethpage Water District, told state lawmakers at a 2016 hearing. "A complete and utter failure of the system."

When Nassau County and the U.S. Geological Survey in 1986 first identified the migrating contaminants as a plume, it was two miles long, one mile wide, up to 500 feet deep and yet to cross Hempstead Turnpike. In doubling in size, it has crossed the Southern State Parkway and moves, at a foot a day, toward the Great South Bay, the centerpiece of Long Island's estuaries.

Local taxpayers have paid more than \$50 million for a portion of the public water treat-

See GRUMMAN on A4

WHAT THEY SAID VS. WHAT THEY KNEW

USE OF TCE

Grumman in the mid-1970s flatly denied using the chemical that would become the plume's primary contaminant, at a time when it heavily relied on it.

A spokesman for Grumman said that no TCE is used in its operations on Long Island.

Newsday, Oct. 15, 1975

Groundwater at south end of complex has contained TCE for a long time. TCE has been used there since 1949.

Confidential summary of Grumman insurance meeting, Aug. 16, 1989

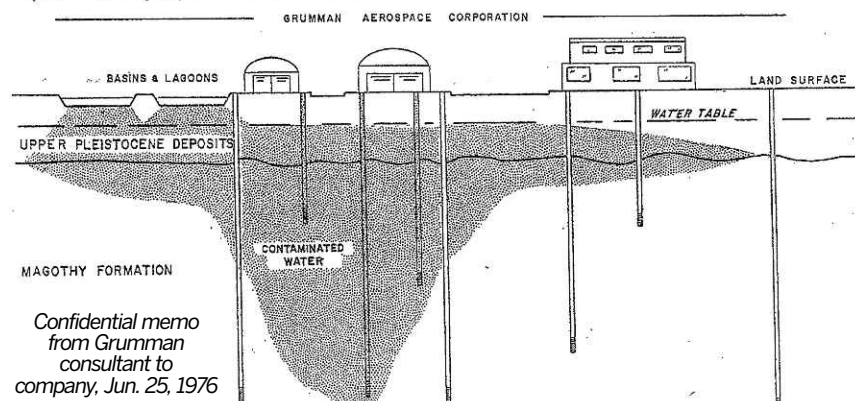
EARLY DENIAL

When pollution of Grumman wells became public in 1976, the company said it wasn't responsible — although a consultant told it privately that there were sources on-site for the contamination.

A Grumman spokesman denied that the company's own operations were responsible for the contamination.

Newsday, Nov. 28, 1976

sources of contamination consisting of basins, lagoons, spills, etc. have created a slug of contaminated ground water in the shallow aquifer underlying at least part of the plant.



Confidential memo from Grumman consultant to company, Jun. 25, 1976

UNDISCLOSED WARNING

On the same day in 1976 that federal environmental officials expressed private worry over contaminated drinking water, a county health official issued a public assurance.

The County Health Department said there was no cause for alarm, and Health Commissioner Dr. John Dowling said, "If I lived in the area, I would continue to drink the water."

"We don't have any information that the chemicals are harmful in drinking water," Dowling said, although he acknowledged that breathing or eating the chemicals has caused cancer in humans and laboratory animals.

Newsday, Dec. 3, 1976

EPA — "Don't drink the water." —
State man disagrees. —
EPA — "no basis for levels that are acceptable" —

Confidential notes to Grumman summarizing Dec. 2, 1976, meeting of company, government officials

SHIFTING BLAME

The Bethpage Water District privately accused Grumman of polluting its well with TCE but publicly blamed Hooker Chemical Co.

Sabino agreed to share district records of its two-year struggle to force Hooker to pay up to one million dollars for replacement costs of Bethpage Water District Well 6-1.

Bethpage Tribune, Oct. 8-14, 1981

On November 22, 1977, the BWD wrote a letter to Grumman that stated, "Currently available evidence indicates that . . . contamination has arisen by virtue of discharge of waste products from your company into the ground water supply."

Summary of 1977 district letter to Grumman, included in a 2014 federal court order

CHERRYPICKED DATA

When presenting wastewater readings to the public in 1982, Grumman highlighted a page from a previous consultant report. It showed moderate levels of TCE being pumped from and put back into the ground at off-peak plant hours.

Trichloroethylene	5.49	2.79	5.37	4.29	5.31	2.51
			0.80	0.37	0.81	0.11

Grumman didn't include the previous page from the same report, showing one eye-popping TCE figure from a peak plant operation time, which it later called an anomaly.

Trichloroethylene	1.58	1.31	1.66	17.17	0.71	0.42
				0.50	1.60	0.21

Mar. 18, 1982 Grumman groundwater protection presentation; Jan. 5, 1978 confidential consultant report to Grumman on plant wastewater sampling

READ THE FULL DOCUMENTS AT NEWSDAY.COM/PLUME

GRUMMAN from A2

ments and a seven-acre soil cleanup by the Town of Oyster Bay, of which Bethpage is a part. The Navy, which is also responsible for remediation under the Superfund decisions, says it has spent more than \$130 million in total, including for some of the public treatments.

Grumman's successor, Northrop Grumman, says it has spent \$200 million, but unlike the Navy it has declined to break down those costs. Critics question whether that figure includes payments to lawyers and consultants, but the company has completed a substantial system of groundwater contaminant extraction wells along its former properties.

How much more will it cost to contain and eliminate the plume? The state's comprehensive plan, announced last year, estimates it will take \$585 million over the first 30 years alone. Near-total eradication of the contamination wouldn't come for 110 years.

The plan is a remarkable reversal of the state's far more cautious approach in decades past. It wants Northrop Grumman and the Navy to fund it or face litigation.

What Grumman knew

Grumman's role in the crisis contrasts with its paternal community presence in the era when it was Long Island's economic engine. It employed more than 20,000 people and was revered for building World War II fighters and the space module that landed Neil Armstrong and Buzz Aldrin on the moon.

Before its 1994 acquisition by Northrop Corp. greatly diminished its jobs and presence, Grumman all but defined Bethpage. One French restaurant got so much business from its executives it was dubbed "Grumman's annex." Schools would stagger dismissals to avoid the traffic crush from the plants' day shift letting out.

Virginia-based Northrop Grumman now occupies nine acres in Bethpage, employing about 500 people. Corporate offices, distribution centers and a movie soundstage fill the rest of the old site.

"A lot of people had a lot of pride working for Grumman," said Jeanne O'Connor, 49, a fourth-generation Bethpage resident and activist for a stronger cleanup whose mother and grandfather held jobs there. "Now it feels like that image has been severely tainted by the fact

that they left this mess."

Many of the starkest examples of Grumman's private knowledge were found in a series of exhibits and decisions in sparsely covered federal lawsuits filed in 2012 and 2016. Grumman's insurer during the 1970s and '80s, The Travelers Cos., successfully argued that it had no duty to cover liabilities for the company's past practices in part because Grumman had not provided it with full or timely notice about its role in the pollution.

In her 2014 decision, U.S. District Court Judge Katherine B. Forrest wrote, "Grumman's own documents, and its admissions in reply to Travelers' [assertions] are clear that its long-term, historical practices created contamination."

She rattled off a number of pollution-causing practices that "Grumman knew" of in the period it publicly denied responsibility. They included using TCE in degreasing vats and spray guns, discharging TCE-contaminated water into basins that allowed it to leach into the ground, placing TCE-laden wastewaters in unlined "sludge drying beds" dug into the dirt and using a 4,000-gallon TCE storage tank that it was aware was leaking.

In a separate ruling last year, a

second district court judge, Lorna G. Schofield, pinpointed when Grumman, through consultant and regulator warnings, should have known its liability: "No reasonable jury could conclude that in June 1976, Grumman lacked sufficient information" to reasonably know its pollution could leave it on the hook for damages.

The first case contained unintended revelations, as telling documents emerged that were never meant to be seen.

Nearly every exhibit submitted by Northrop Grumman and Travelers was filed under seal, meaning they were to be kept from public view, as were those submitted by another party, Century Indemnity, a successor company to Grumman's insurer during the 1950s and 1960s.

But Newsday discovered that 20 of the 39 exhibits Century offered in support of one motion — all marked "confidential" — had not been sealed as intended and were available on a court records website with the notation "FILING ERROR — DEFICIENT DOCKET ENTRY."

Together with historical news articles and decades of official correspondence Newsday obtained under state and federal Freedom of Information laws,

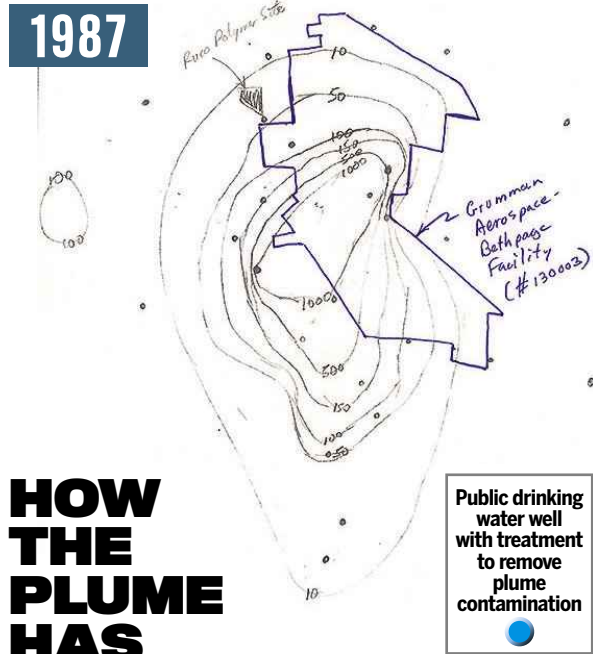
the secret documents reveal what the company and regulators knew, when they knew it and what was withheld from the public.

The court records mistakenly left unshielded contain prophetic governmental concerns about Grumman's toxic wastes going back to the 1950s, profound warnings from a company consultant in the '70s and a confidential summary of a 1989 meeting that declared Grumman's unequivocal responsibility for pollution that had reached public drinking wells.

There is also urgent internal correspondence from a Northrop Grumman manager in 2000 alerting that the plume was spreading well beyond the contours predicted by company consultants.

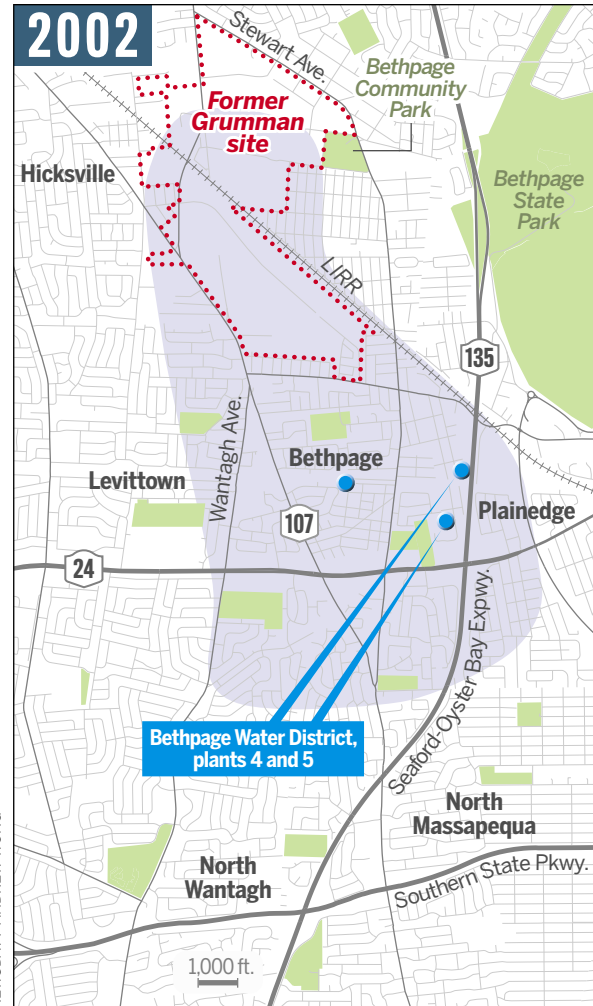
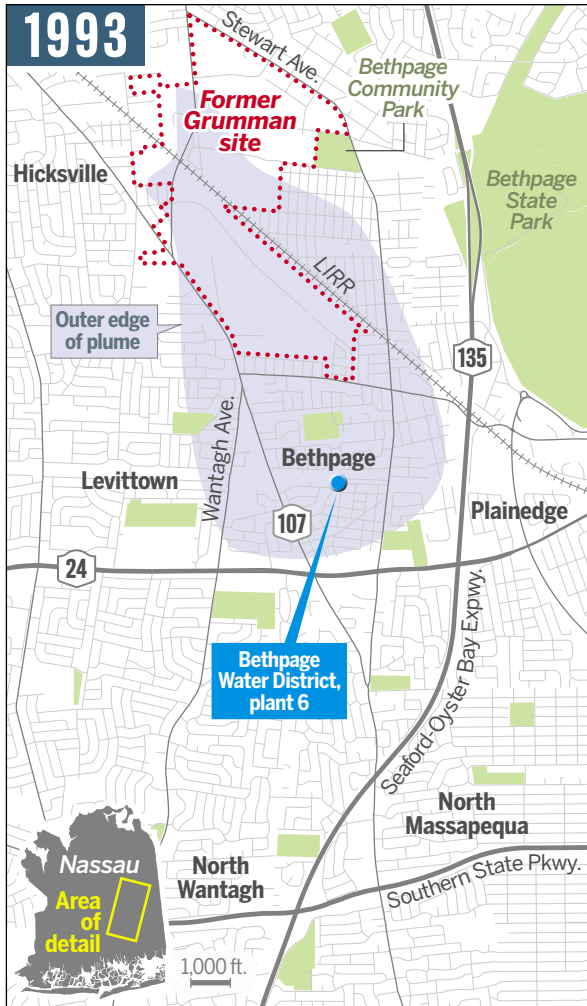
Several documents detail how state and county officials for years falsely blamed the bulk of the pollution on a neighboring manufacturer. They clung to this position even though, as Grumman's own consultants noted early on, at least one of its tainted wells was positioned north of the adjacent plant — in an area where groundwater contamination flowed south.

In her 2014 decision, Judge Forrest discredited Northrop Grum-



HOW THE PLUME HAS GROWN

In the beginning, regulators had only a limited understanding of the groundwater contamination spreading from Grumman's Bethpage facility. This is reflected in a hand-drawn map, released by the state in 1987, that contains no markers for scale or geography, beyond the distinct footprint of company operations. As the years progressed — and the pollution reliably spread — the plume models evolved.



man's argument that Grumman provided late notice to its insurer because it initially thought it wasn't responsible, writing: "a belief in non-liability was unreasonable based on the factual record."

From denial to dodging

Little in this trove of confidential documents has been known publicly, making their language and findings all the more extraordinary.

In 1955, for example, the Nassau County Health Department determined that Grumman's toxic wastes, then believed to be limited to chromium and other heavy metals, could "concentrate as slugs or ribbons which might eventually contaminate the water in public supply wells at a considerable distance."

That assessment, seven years after chromium first reached a public drinking water well beyond Grumman's plant, is the earliest known forewarning that a plume could develop.

In June 1976 — after TCE had been found in a private Grumman well at a level 100 times today's drinking water standard — the company's environmental consultant concluded that "sources of contamination consisting of basins, lagoons, spills, etc. have created a slug of con-

taminated ground water in the shallow aquifer underlying at least part of the plant."

That is the first known instance of contamination being identified by Grumman's own experts as likely caused by its own practices.

Even after that, the company consistently stated that it was not to blame.

"A Grumman spokesman denied that the company's own operations were responsible for the contamination," *Newsday* reported in November 1976.

More recently, the company, with the state's help, moved from denial to persistently minimizing the problem and dodging costs.

Beginning in 1990, the record becomes visible through voluminous Superfund documents, including long-overlooked technical reports and correspondence obtained through the public records requests. Among the most important threads that emerge is Northrop Grumman's development of a computer model that substantially underestimated how much the plume would grow.

The modeling was particularly important because it was used by the state as a basis for developing limited, less-expensive cleanup plans that failed to stop

the spread.

In 2000, it predicted that the toxic contamination wouldn't reach public water supply wells beyond Bethpage in at least the next 30 years. Within a decade three additional wells required treatment.

A Bethpage well that it predicted would virtually be rid of TCE now treats contamination nearly 70 times the drinking water standard.

As it relied heavily on Grumman analyses like this, the state, at its most extreme, dismissed early calls to tackle the off-site groundwater pollution, remarking in 1990 that it "would be a waste of time and money."

Basil Seggos, appointed the state's environmental conservation commissioner in 2015, called the plume's growth during the first quarter century of Superfund oversight "unacceptable." The state in 2017 spent \$6 million to conduct its own analysis, leading to a new model that informed the current \$585 million cleanup plan.

"We've certainly put in place a much more aggressive and advanced and ambitious look into this," he said in an interview.

200,000 pounds removed

Northrop Grumman declined

multiple requests for sit-down interviews made between last June and earlier this month.

Tim Paynter, a Northrop Grumman spokesman, issued this statement: "For over two decades of environmental remediation efforts in Bethpage, Northrop Grumman has worked closely and extensively with New York State Department of Environmental Conservation, the United States Navy, the New York State Department of Health, and other federal, state and local regulatory authorities to develop and implement scientifically sound remediation strategies that protect human health and the environment. Northrop Grumman's commitment to remediation in Bethpage is an important aspect of its ongoing legacy; one which honors its exemplary service to the country since before World War II, during the space race, and today, as our Bethpage team continues to work on critical national security programs.

"Northrop Grumman remains committed to working with all stakeholders to provide for fact-based, scientifically-sound remediation efforts that advance the cleanup and help protect the community without unnecessary disruption and potential harm."

The company has repeatedly defended its waste disposal practices as legal at the time, although the Superfund process holds polluters responsible for costs nonetheless.

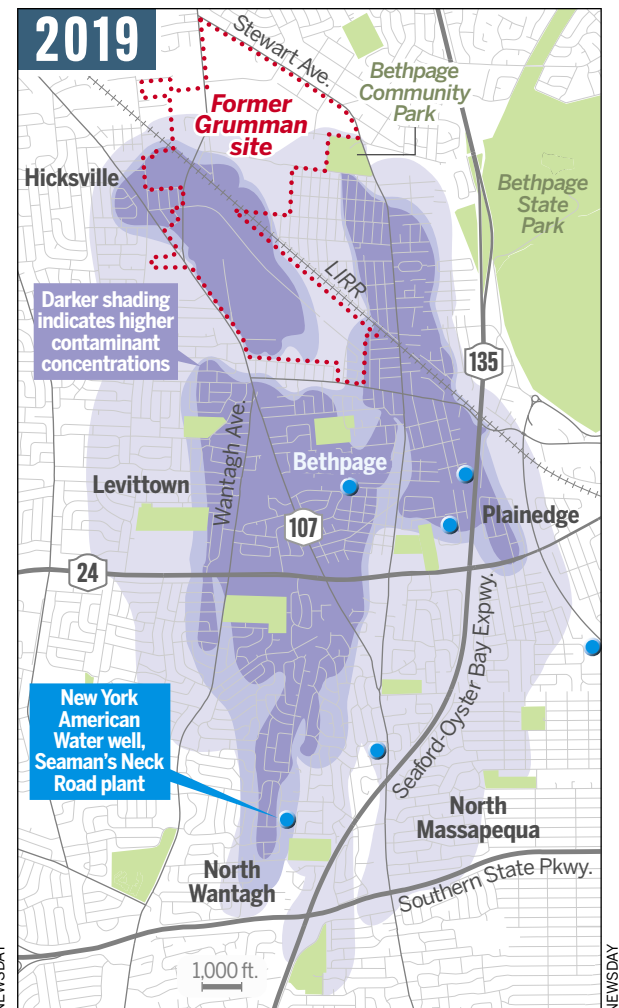
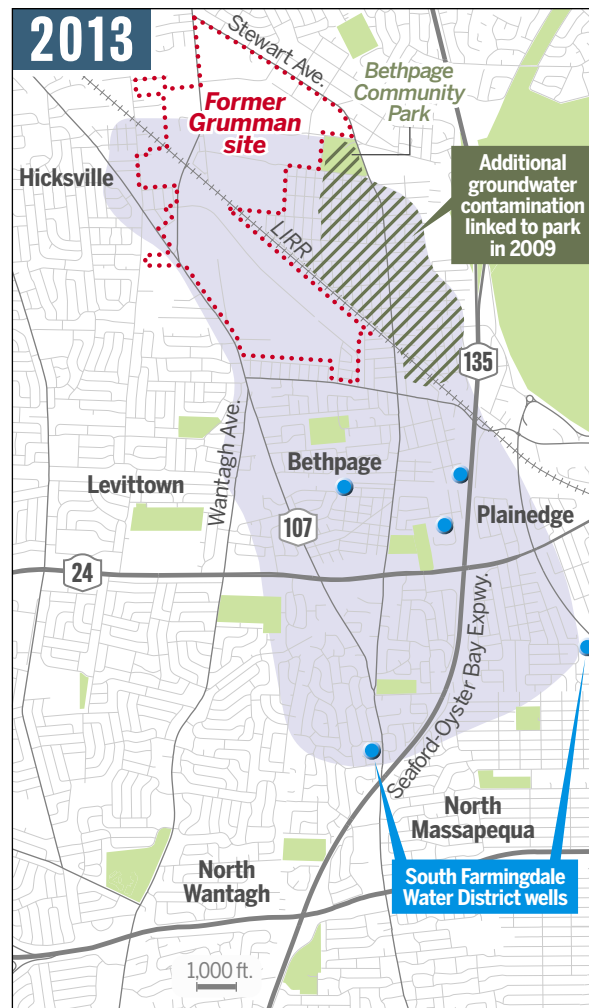
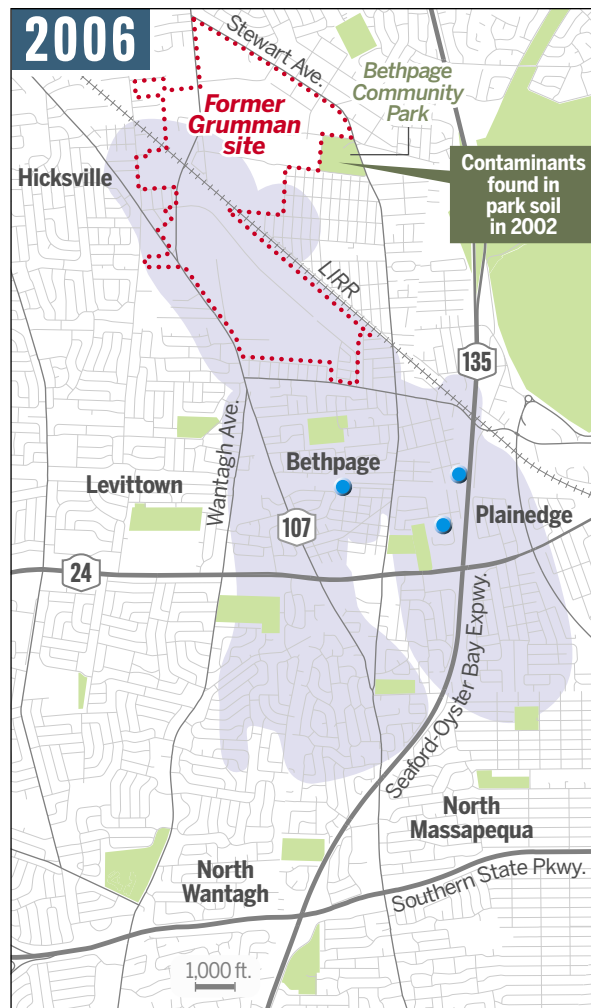
In terms of cleanup, Northrop Grumman especially touts its system of five containment wells along the southern boundary of the old 600-acre property. The state estimates it has extracted nearly 200,000 pounds, or 18,000 gallons, of groundwater contaminants in the more than two decades it has operated.

"We cut off that offsite migration," Ed Hannon, a Northrop Grumman project manager, told residents at a January public hearing.

But approximately 200,000 more pounds of TCE still await removal, according to the state. After seven years of planning and construction, the company is still completing its first comprehensive off-site system of wells to remove plume contaminants before they reach drinking supplies, joining one that the Navy operates and another it is planning.

The Navy since 1995 has contributed more than \$45 million for five public water supply treat-

See GRUMMAN on A11



WHAT THEY SAID VS. WHAT THEY KNEW

DENYING RISK

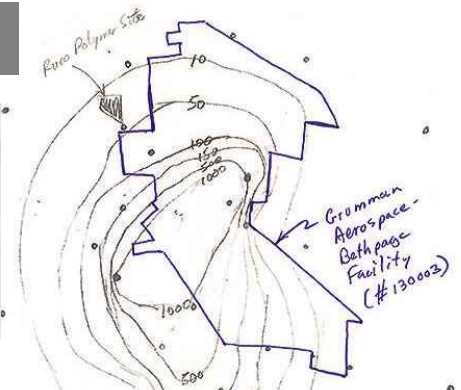
State environmental officials reclassified Grumman as a high-risk hazardous waste disposal site in late 1987. Then-company spokesman Weyman Jones reacted a few months later by saying:

“We don’t agree with their reclassification and we have no evidence of any risk to the environment,”

Newsday, Mar. 3, 1988

The state’s handwritten report describing the reclassification noted the discovery of a concentrated groundwater contamination plume spreading from the facility.

A SHALLOW (<100 FOOT DEEP WELLS) PLUMIE OF ORGANIC CONTAMINATION CONSISTING OF VOLATILE ORGANIC COMPOUNDS WAS DOCUMENTED BENEATH THE GRUMMAN FACILITY. THE CENTER OF THE PLUMIE (CORRESPONDS TO THE APPROXIMATE CENTER OF THE GRUMMAN SITE, (SEE ATTACHED CONTOUR MAP) AND THE PLUMIE MOVEMENT IS CONSISTENT WITH KNOWN GROUND WATER FLOW DIRECTION IN THE AREA.



State Department of Environmental Conservation report, Dec. 16, 1987

DENYING LIABILITY

Grumman officials in 1990 publicly denied a role in polluting a second Bethpage public well, not long after internally acknowledging their part.

BETHPAGE WATER AMONG THE SAFEST
Rumors of Grumman Contamination Pose No Threat

Grumman doesn’t admit liability on the issue of contaminating Bethpage wells, however Grumman acknowledges that wells on their Bethpage site exceed Nassau County Board of Health standards.

Bethpage Tribune, May 10-16, 1990

Data is conclusive that it is Grumman plume which is contaminating the Water Districts well

No question regarding liability

Confidential summary of Grumman insurance meeting, Aug. 16, 1989

REVISING HISTORY

After Bethpage Community Park was found to be the source of another spreading plume, a Northrop Grumman consultant said the site’s past was vaguely known. A few years earlier, another consultant had laid out a detailed history.

- The Park history and apparent historical activities are not well understood or documented.
- Wastewater treatment sludge generated at the Grumman Aircraft Engineering Corporation Plant 2 Industrial Wastewater Treatment Facility was transported to the Park property and placed in one of two sludge drying beds. The wastewater treated at the Plant 2 Industrial Wastewater Treatment Facility resulted from metal finishing operations conducted at both Plant 2 and Plant 3 at the Naval Weapons Industrial Reserve Plant.
- The area where the sludge drying beds were located was enclosed by a chain-link fence, which was secured by a locked gate. This fenced area is visible in available aerial photographs dated between the 1950s and 1962, when the property was transferred to the Town of Oyster Bay.
- Spent rags generated during the wipe-down of a paint booth water curtain located in Plant 2 were transported to the fenced-in area of the Park property where they were emptied into a pit located on the property. In addition, used oil may have been discarded in this pit.
- The southeastern portion of the current park property was utilized as a fire training area where waste oil and jet fuel were ignited and extinguished. The requirement to develop, operate and maintain an on-site fire fighting force (“Crash Crew”), including a fire training program, was imposed on Grumman Aircraft Engineering Corporation by the U.S. Navy.

Source: 2008 draft report from Northrop Grumman consultant on Bethpage Community Park contamination

Source: 2003 report from prior Northrop Grumman consultant on Bethpage Community Park contamination

READ THE FULL DOCUMENTS AT [NEWSDAY.COM/PLUME](http://newsday.com/plume)

SHOCK OVER TCE RELEASE

Decades after Grumman's practices caused large amounts of TCE to seep into the groundwater, a Northrop Grumman employee was astounded by the sheer volume.

GRUMMAN from A5

ments installed by the Bethpage and South Farmingdale water districts and New York American Water, which serves thousands of customers nearby. Northrop Grumman, in comparison, has paid about \$5.4 million in construction and maintenance costs for the first two systems built by Bethpage in the early 1990s, according to a company attorney's demand to Travelers for coverage.

"The Navy is focused on fulfilling its responsibility to protect human health and the environment, and we take our role in these cleanup efforts seriously," a Navy spokesman, J.C. Kreidel, said in a statement when asked about the difference in public treatment contributions.

Northrop Grumman has cited these existing treatments — and the reassurances from government officials that they make the area's drinking water safe — to argue that a more extensive cleanup is unnecessary. Water providers say that argument unfairly leaves the burden of continued monitoring and expense on them and their ratepayers — not on the polluters.

Experts also note that it's unknown how the various contaminants in the toxic mix react with each other, what new ones — like the solvent stabilizer 1,4-dioxane, a likely carcinogen — will emerge that can't be removed by traditional treatment and what happens if all of this hits the Great South Bay.

'Should we trust them?'

As recently as last summer, local officials publicly celebrated Grumman on the 50th anniversary of the moon landing. But some actions by the company and its successor are serving to break those strong bonds of community pride, residents say.

Northrop Grumman went to court successfully to fight paying more than \$30 million in remediation and treatment costs borne by taxpayers. Newly discovered records show that Grumman once presented the public with cherry-picked data to paint a misleading picture of how much TCE it was putting into the ground.

And its donation of land to the Town of Oyster Bay turned into an environmental debacle.

The 18 acres, gifted in the early '60s, led to creation of Bethpage Community Park, a multigenerational centerpiece with a swimming pool, ice skating rink and ballfield.

It turned out that the gift included what had been a dumpsite for Grumman's toxic waste-

From: Smith, Kent A (AS)
Sent: Tuesday, March 15, 2011 8:09 PM
To: Cofman, John (AS)
Subject: RE: How Much TCE Spilled? Perspective

Perspective? How's this for perspective? The fact that there might have been a total release of 40,000 gallons of TCE just caused my insides to start churnin' somethin' fierce!!

Man, oh man, that's a lot of material.

March 2011 email chain between two Northrop Grumman employees

water sludge and solvent soaked rags, a fact undisclosed to the public for 40 years.

In 2002, less than a decade after the state had summarily ruled out the park as a pollution concern, it was shut down because the soil was found to contain elevated levels of two carcinogens, the industrial compound polychlorinated biphenyl, or PCB, and chromium.

Most of the facility reopened within a year, but the park's ballfield, built directly over the three-plus acres that Grumman had once called an "open pit" for its wastes, remains closed.

In 2007, the Bethpage Water District discovered that the ballfield also was the source of some of the highest levels yet detected of TCE-tainted groundwater — several thousand parts per billion. The state would soon confirm it as a second plume, now commingled with the original mass from the Grumman plant.

The park saga is one of the better-known components of the Grumman pollution story. But the Newsday investigation has uncovered documents showing that the town knew from the start how the site had been used — though it believed the wastes were nontoxic. Once it became clear that its contamination had spawned another plume, Northrop Grumman consultants tried to obscure the detailed history of site dumping that another consultant had previously written.

Today, Bethpage residents are increasingly joining class action and personal injury lawsuits over the decades of contamination, mostly against Northrop Grumman but also against Oyster Bay. Many in the community have become consumed by suspicions that the cancers afflicting their family members, neighbors and themselves can be traced to the pollution, despite a lack of conclusive proof.

Pamela Carlucci, 68, a cancer survivor who has lived in Bethpage for 43 years, encapsulated the feelings that many in her

community have of the polluters, regulators and even the water providers who have battled for a stronger plume offensive.

"Should we trust them?"

Moments of consequence

Underlying many of the missteps that forestalled a comprehensive cleanup was a failure to tell the public the truth when the problem was first emerging.

Below are a few of the numerous examples of private knowledge kept secret, some of it further shrouded by public statements to the contrary.

They have been culled from an extensive four-part history of how the contamination came to be — and how it grew. As much as they reveal on their own, these examples stand out even more in the context detailed in that chronicle of failure.

1. 'CONTAMINATION MAY SPREAD'

In June 1976, Grumman's environmental consultants, Geraghty & Miller, presented the company with the confidential memo that pointed to the "basins, lagoons, spills, etc." as the cause of the "slug" of pollution below ground. In an attached rendering, they labeled this source as part of Grumman's facility.

In prescient terms, the memo also warned that the groundwater contamination, which had already shut several Grumman wells, "may spread both laterally and vertically beneath the property." It cautioned that "neighboring wells may become contaminated over the long term" and that "further contamination may take place from sources presently not detected."

All those projections came to pass. Officials today believe that the failure to acknowledge and act on them came at a big price.

"If they had done their job in the '70s - '76 - when they knew about the polluted wells; if they would have done their job then, we wouldn't be here today," said John Sullivan, chairman of Bethpage Water District's board of

commissioners.

Grumman didn't tell employees or the public these findings, which were concluded with a call for the company to further investigate as it switched its drinking water supply to Bethpage wells to "eliminate the problem of potential adverse health effects."

The general problem of groundwater contamination at the site only surfaced a half-year later when an alarmed state official with access to water sampling results called an Albany newspaper.

But the consultant's precise analysis of what the future could hold didn't emerge until now.

2. 'I'D DRINK THE WATER'

On Dec. 2, 1976, the Bethpage Water District received the first results showing that one of its public wells was contaminated with TCE. Readings would reach as high as 60 parts per billion, above the soon-to-be-approved state limit of 50.

The well had only been intermittently used in the months before, but Bethpage residents had still been drinking its untreated water for years. That morning, state, local and federal officials, including Nassau County Health Commissioner John Dowling, met with Grumman representatives to discuss the pollution's spread from the company grounds into the community.

The meeting and its attendees were documented in confidential handwritten notes to Grumman by Geraghty & Miller, another of the Century Insurance documents.

It recorded a sharp disagreement between representatives of the federal Environmental Protection Agency and those of the state environmental department:

EPA — "Don't drink the water"
 State [illegible] disagrees
 EPA — "no basis for levels that are acceptable"

Dowling, who is now deceased, told Newsday later that day: "If I lived in the area, I would continue to drink the

water. We don't have any information that the chemicals are harmful in drinking water."

It was only last year that the New York Department of Health stated for the first time that levels of TCE in Bethpage public water before 1976 were high enough to harm people's health.

3. 'NO QUESTION REGARDING LIABILITY'

By August 1989, the Bethpage Water District had privately notified Grumman that a second of its public wells had been polluted with TCE. A company executive, along with an engineer, a lawyer and an insurance manager, huddled with Travelers representatives to discuss a possible settlement.

Another memo that was meant to be sealed offered a blunt summary of the closed-door discussion: "Data is conclusive that it is Grumman plume which is contaminating the [Bethpage] Water Districts [sic] well."

It later underscored the point: "No question regarding liability as there are no other direct parties [that] appear to have contributed to contamination yet."

Grumman didn't come out of the meeting and acknowledge its role.

In fact, a few months later it did the opposite. One of the executives who attended the meeting was among a group of top Grumman officials that spoke to a community newspaper. They told it the company didn't admit liability for the contamination.

The headline on the May 1990 story: "Bethpage Water Among the Safest: Rumors of Grumman Contamination Pose No Threat."

Emerging in Newsday's investigation, document by document and incident by incident, is the secret history of an environmental disaster that could have been contained long ago and a public that should have known more.

READ
MORE

Decades of
fear take toll
NEXT PAGE

FROM GROUND TO TAP

Like all of Long Island, Bethpage and surrounding communities impacted by the plume get their drinking water from the aquifer system, water-filled layers of rock, gravel and sand that stretch hundreds of feet below the surface. Here's how it gets to the tap.

1 GROUNDWATER

Rainwater is absorbed by the ground and seeps into aquifers. Some of the water in aquifers can be thousands of years old. The water stored there is referred to as "groundwater."

UPPER GLACIAL AQUIFER

A source of Long Island's water

MAGOTHY AQUIFER

Where majority of Long Island's water is drawn

LLOYD AQUIFER

The deepest, oldest and cleanest layer

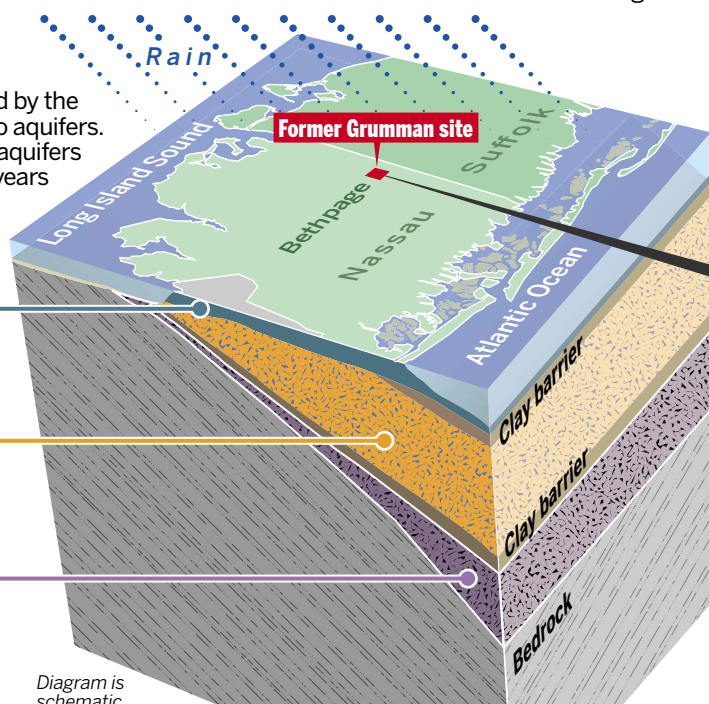
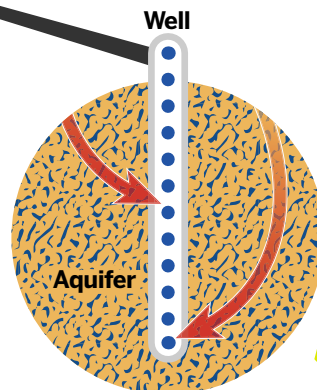


Diagram is schematic

NEWSDAY / ROD EYER AND ANDREW WONG

2 DRAWING FROM WELLS

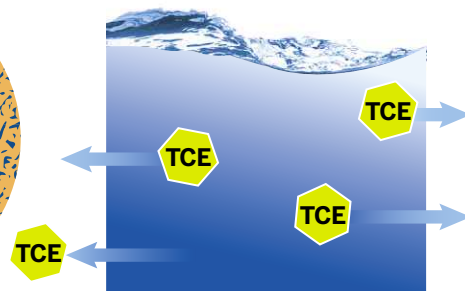
Water providers drill wells hundreds of feet deep to access water in the aquifers. The Grumman plume of pollution has been found in the groundwater in the Upper Glacial and Magothy aquifers.



SOURCE: USGS, STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, BETHPAGE WATER DISTRICT

3 READY FOR THE TAP

Groundwater from the plume is pumped up through wells and treated with various processes that remove contaminants such as trichloroethylene, or TCE, the primary contaminant of concern. Treated water that meets current state and federal safety standards is pumped to taps and termed "drinking water."



BY DAVID M. SCHWARTZ AND PAUL LAROCCO
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WHAT'S IN THE PLUME?

Long Island's largest and most complex mass of groundwater pollution begins as two contaminant concentrations 50 feet below ground in Bethpage.

One starts from the western portion of the old Grumman Aerospace and U.S. Navy complex. The other originates from the east beneath Bethpage Community Park, once a Grumman waste site. They commingle beneath the southern portion of the former 600-acre manufacturing site to form a single plume.

Indistinguishable in taste, texture or smell from uncontaminated water, the plume spreads roughly south or southeast at about a foot per day between the grains of sand and gravel bits that make up the region's aquifer system. The flow is influenced by the makeup of the soil and the action of wells that pump drinking water and treat the pollution.

It now extends south 4.3 miles from the former Grumman site, with its leading edge past the Southern State Parkway. It stretches 2.1 miles wide toward Levittown and Bethpage Parkway, and goes as much as 900 feet deep until it runs into a layer of clay that separates it from the Lloyd aquifer, Long Island's deepest and cleanest source of water.

The contamination was first identified in the groundwater in the 1940s. It has required treatment at 11 wells that provide drinking water for Bethpage,

Plainedge, South Farmingdale, North Massapequa and parts of Levittown, Seaford, Wantagh and Massapequa Park. It threatens another 16 public drinking water wells. In all, 250,000 Nassau residents get water from affected wells or those in the plume's path.

All drinking water pumped from the plume is treated to remove contaminants before it reaches people's faucets. Almost without fail, the water has met government standards for safety for more than 40 years. The one exception was in September 2007, when a relay switch failed for 11 days on a treatment system. The district found 10 times the drinking water standard for the carcinogen trichloroethylene, also known as TCE. The well, though, was only used intermittently for about 15 hours to meet high demand.

The state has said there's no risk to living or working above the polluted groundwater.

New York State's Department of Environmental Conservation first designated the site for cleanup in 1983 under the state's Superfund program, which identifies former hazardous waste sites and manages their cleanup. In 1987, the state elevated the Grumman facility to a "level 2" Superfund site, which means it presents a "significant threat to public health or the environment."

The state has listed two dozen "contaminants of concern" for

cleanup within the plume. Thirteen chemicals and metals are designated by federal agencies as carcinogens, likely carcinogens or suspected carcinogens.

They include solvents used to clean and degrease airplane and lunar module parts, additives to make those solvents last longer and metals used in plating.

By far the most prevalent contaminant is TCE. It was used by Grumman as a solvent for parts. It has been found in untreated groundwater outside the former Grumman boundaries at levels of 13,700 parts per billion, 2,740 times higher than the drinking water standard of 5 parts per billion. (TCE levels of 58,000 parts per billion have been found in groundwater directly beneath former Grumman operations.)

The chemical is "known to be a human carcinogen," according to the federal Department of Health and Human Services. Scientists have linked exposure to kidney and liver cancers, malignant lymphoma, testicular cancer, immune system diseases and developmental effects such as spontaneous abortion, small birth weight and congenital heart and central nervous system defects.

TCE, which in its pure form has a sweet smell, had been stored in a leaky 4,000-gallon tank at one of the Grumman plants.

The contamination also was caused by Grumman's disposal and routine housekeeping prac-

tices. Chemicals have been found in old cesspools, dry wells and storage areas, as well as unlined pits where wastewater was dried into sludge and workers discarded dirty rags.

Besides TCE, the two most common plume contaminants are tetrachloroethene, also known as PCE or PERC, used as a solvent to clean aircraft parts; and cis-1,2-Dichloroethene, or cis-1,2-DCE, also found in solvents.

Discovered in soil at the former Grumman site has been one contaminant not found in the groundwater — the now banned industrial compound polychlorinated biphenyl, or PCB. Soil has also been contaminated with volatile organic compounds like TCE and chromium, which was a metal plating agent.

One chemical the district is still working to remove is the likely carcinogen 1,4-dioxane, used by Grumman as a solvent stabilizer. It has been found in Bethpage Water District drinking water wells at levels up to 15 times higher than the state's proposed standard. The district began operating in October a treatment system for 1,4-dioxane in the first of its six affected wells. State health officials say 1,4-dioxane poses a slightly elevated risk of cancer after long-term exposure.

Northrop Grumman, which acquired Grumman in 1994, has for more than 20 years operated treatment wells at its former facility to remove contamination and

prevent it from spreading further. The state estimates 200,000 pounds of contaminants, or 18,000 gallons, have been removed from the plume. It also estimates that another 200,000 pounds of contaminants remain.

In December 2009, Northrop Grumman began operating another set of wells to contain pollution coming from the eastern plume at Bethpage Community Park. The state estimates it has removed approximately 2,200 pounds of contamination.

Since 2009, the Navy has operated the only groundwater treatment wells outside the former facility grounds aimed at removing an area of the plume with a high concentration of contaminants. The system treats about 1.4 million gallons of water per day and has removed more than 11,000 pounds of contamination.

Northrop Grumman and the Navy are each constructing other treatment systems in Bethpage at "hotspots" that have elevated contamination levels.

The state has approved a \$585 million plan to use a series of 24 wells and treatment systems to stop the plume from spreading and clean the underground water. It would cost \$241 million to construct, plus millions more each year to maintain and operate. It would take 110 years to clean the entire groundwater plume to 5 parts per billion of contamination or less.

The Navy and Northrop Grumman have opposed the plan, saying it's not feasible and that the public can be protected by treating water before it reaches faucets.

IN PROUD COMMUNITY, YEARS OF WORRY TAKE EMOTIONAL TOLL

BY DAVID M. SCHWARTZ
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Theirs is a community that once helped put men on the moon. Now Bethpage residents don't trust the water coming from their taps.

They wonder whether the tomatoes they grow are safe to eat.

For nearly two decades, their kids have not been able to use a baseball field on land donated by the Grumman Aerospace company, which utilized part of it as a toxic waste dump.

Real estate agents say some prospective buyers shy from this community of trim homes and honored schools because of the pollution's stigma.

Hovering behind all that, in conversations around dining room tables and in community meetings, are fears about whether the contamination has caused cancer.

There's no proof it has, but residents' wariness has caused them to question the validity of a state investigation that failed to establish a link.

Concern. Skepticism. Frustration. Beyond its other effects, the toxic legacy of Grumman's operation has taken an emotional toll on Bethpage and sown deep distrust of the company, the U.S. Navy, which owned part of its site, and government officials.

Amid an incomplete cleanup of a toxic mess that state officials and Grumman minimized and even denied for decades, what was long called the "Bethpage plume" has grown to be 4.3 miles long, 2.1 miles wide and as much as 900 feet deep.

Many residents are galvanized by the name itself, feeling it connotes that the community is responsible for its own misfortune



Longtime Bethpage resident Pamela Carlucci, 68, is a breast cancer survivor.

and obscures the pollution's spread. Treatment is required not only at drinking water wells serving Bethpage, but also for Plainedge, South Farmingdale and North Massapequa, and parts of Levittown, Seaford, Wantagh and Massapequa Park.

"This has nothing to do with our community and its people who are the victims of this environmental disaster," said Peter

Schimmel, 51, a lifelong Bethpage resident.

The state, in official documents, now calls it "the Navy Grumman" plume.

The bitterness is particularly deep because of a sense of betrayal — the company was Bethpage's paternal corporate anchor and Long Island's largest employer. But its days hosting community picnics and making mili-

tary fighters and the Apollo 11 lunar module are long gone.

In 1994, Grumman was acquired by rival defense contractor Northrop and became part of the Northrop Grumman Corp., now headquartered in Virginia. The former 600-acre Bethpage operation, which at its peak employed 20,000, has been reduced to nine acres and 500 workers.

"It's hard for people to understand you could put a man on the moon, you know, you can do all these things in space, and we're totally ineffective when it comes to cleaning up the contamination we make here on Earth," said Sandra D'Arcangelo, 76, a 40-year Bethpage resident and member of a Navy community advisory board. "My community has totally lost confidence in the effective remediation of this site. We have no confidence Grumman or the Navy would do the right thing."

The most common pollution concern in Bethpage is about drinking water, primarily the prevalence of trichloroethylene, or TCE, a carcinogenic solvent that Grumman used to degrease metal parts. But contamination has also been found in soil at Bethpage Community Park. Vapor pollution has seeped into basements, leading the Navy to install treatment systems. And there was enough toxic soil in one neighborhood for the state to order the dirt removed from 30 homes' yards. The Bethpage School District has spent \$250,000 drilling its own wells to test groundwater and install vapor barriers around schools. It's found some elevated levels of radium in water around buildings and radon, the gas it breaks down into, in unoccupied school basements. The state for years maintained that the elevated levels are likely naturally occurring, but radium was also used in luminescent paint on aircraft dials

and gauges.

Occasionally, heavy equipment will turn up in residential streets, drilling down thousands of feet for another sample of the plume.

Grumman and the Navy, which owned a sixth of Grumman's site, have spent extensively on contaminant extraction and testing and have joined government officials in trying to reassure the public of the water's safety. The Bethpage Water District has repeatedly certified that the water is safe to drink once it reaches the tap.

But they've been met with a lot of skepticism, and health experts say that's not unreasonable. The variety of contaminants in the plume and potential sources of exposure make it understandable that Bethpage residents ask questions. Drinking water standards continue to tighten as scientists learn more about chemicals' long-term effects. How multiple contaminants interact and impact human health is poorly understood.

"It's certainly among the most significant community exposures that I've seen," said Dr. Ken Spaeth, division chief of occupational and environmental medicine at Northwell Health and Hofstra Northwell School of Medicine. "The combination, the range of different types of contaminants and the toxicological profile of many of them all add up to a very concerning situation."

"It's very reasonable for the community to want some answers regarding what may be happening to their health."

A suburb under a cloud

At the peak of Grumman's operations, Bethpage brimmed with patriotism. The company

See **COMMUNITY** on A14

JOHNNY MILANO

COMMUNITY from A13

built the Apollo Lunar Module. Equipment sits on the moon stamped "Made in Bethpage, New York."

Grumman donated generously to the local Rotary Club and gave out turkeys at Christmas to employees. The roar of jet engine tests on Saturday mornings was a small price to pay — particularly when the company contributed up to \$16 million a year in school property taxes.

Even without the company's massive presence, Bethpage and surrounding hamlets served by the local water district convey a quiet American success story. They make up an archetypal suburb of 33,000 residents spread over leafy neighborhoods of single-family homes, neat lawns and strip malls dotted with pizza places, hair salons and dry cleaners. Broadway serves as Main Street for Bethpage, the unincorporated area within the Town of Oyster Bay.

Neighbors know each other, crime is low, schools are strong. The U.S. Department of Education honored Bethpage High School in September for academic excellence, one of three schools cited on Long Island.

Even the water was once a source of pride. At state fairs and Long Island malls, the Bethpage Water District won multiple blind taste tests against other water providers. A sign entering town once announced, "Welcome to Bethpage, Home of New York State's Best Tasting Drinking Water."

But tucked into the residential neighborhoods are visual markers of Bethpage's problem.

At three water district well sites, metal "air stripping" towers that look like grain silos rise as high as 60 feet. Water from the plume trickles down over golf-ball-sized materials to disperse it into fine droplets, while air is forced upward to evaporate volatile organic compounds.

The sites also include storage tanks holding 20,000 pounds of crushed carbon to absorb contamination — acting like giant Brita filters.

At the district's Plant 6, where TCE contamination first closed a well in 1976, the water district has been constructing a \$19.5 million building with an advanced system designed to remove 1,4-dioxane, a newly regulated contaminant once used to stabilize solvents like TCE.

Still, as far back as 1992, a Navy community relations plan



Bethpage Water Commissioner John Coumatos says the water that comes from taps is safe.

reported that residents were concerned that contamination from the Navy and Grumman "may be a factor in the development of cancer."

The report noted that, "As a result of their concerns, many residents who were interviewed stated that they were drinking and/or cooking with bottled water rather than municipal water from groundwater sources."

'What is it then?'

After two breast cancer diagnoses and uterine cancer, Maryann Levchenko, 68, got genetic testing to see if she was predisposed to the diseases. She wasn't.

"So maybe I do need to tell my story, because what is it then? It makes me question my whole life," said Levchenko, who is part of a pending 2016 class-action lawsuit against Northrop Grumman.

Levchenko and her husband moved to Bethpage in 1975 and raised two kids, spending summers at Bethpage Community Park.

She adored the community and still does, she said from her living room, where she handed visitors bottled water.

"The unfortunate thing — I love it here," Levchenko said. "It's a safe neighborhood, everybody knows one another. Everybody's caring."

She and her husband are retired, she said. But they stayed.

Still, Levchenko believes something in the tap water, which she drank until only recent years, made her sick. She counts cases of multiple myeloma on her street and thinks about four parents of her son's group of six friends who died of cancer when the kids



Northrop Grumman contractors drill to install a monitoring well at William Street and Broadway in

were in school.

"It was like a Bethpage flare," she said.

Cancer, a generic term for more than 100 separate diseases, is frightfully common across New York. One of every two men and one of every three women will likely be diagnosed with a cancer during their lifetimes, according to the state Department of Health. New York's cancer rate is the fifth highest in the country, according to the state Department of Health.

Still, Bethpage residents feel that cancer cases are more prevalent here.

A few blocks away from Levchenko, Pamela Carlucci, 68, a breast cancer survivor, took a photo of smiling neighbors off her refrigerator and started pointing.

"Cancer, cancer, cancer, cancer," Carlucci said.

She and neighbors sat around her dining room table, counting 15 families with cancer among 29 nearby houses. Some of those households have

seen numerous cases. For instance, Carlucci's son, Philip, died of brain cancer at age 30 in 2007.

"It's our own Love Canal," Carlucci said, referring to the western New York neighborhood abandoned in the late 1970s after it was found to be inundated with industrial contamination.

"We all had gardens, my goodness. We grew eggplants, peppers, tomatoes, parsley," said Deanna Gianni, 79, whose husband, Joseph, a mechanic, died of stomach cancer at age 74 in 2011.

Edward Mangano, the former Nassau County legislator and county executive who lives a mile and a half from Bethpage Community Park, remembers growing concerns about Grumman pollution in the 1980s and 1990s.

The issue hit home when his brother was diagnosed with multiple myeloma at age 36.

"Can you eat tomatoes you grow in the backyard? That was

the number one question at every meeting," said Mangano, who served as county executive from 2010 until 2017 and is appealing his 2019 conviction on federal corruption charges.

Homes are selling, but residents wonder if they'd get more if not for the pollution.

"I find it very difficult to show properties here," Barbara Ciminera, a real estate broker, wrote in comments to the state about its latest cleanup plan. "People just don't want to see anything here while this is going on."

Real estate agents will sometimes ask Bethpage Water District representatives to stop by open houses to reassure prospective buyers.

"They'll call the district and say, 'We're having an open house on Saturday. Do you think you can come by from 12 to 2 in case anyone has any questions?'" said district superintendent Michael Boufis.

Compounding residents' fears is that the water's taste,



Bethpage in February 2015.

once a source of pride, has diminished, unrelated to the Grumman pollution.

In 2010, the state, citing bioterrorism concerns, removed the district's waiver that allowed it not to use chlorine.

District tries to reassure

In the foyers of some homes, delivery jugs of bottled water still pile up.

"I don't think I know anybody that drinks water out of the tap," said Carlucci's brother, Stephen Campagne, 65, a retired Con Edison worker who has lived in Bethpage since 1980.

Even the water district acknowledges that many residents haul cases of bottled water home.

"King Kullen, 3 for \$9.99, they're on every cart that walks out," said district commissioner John Coumatos, a Bethpage restaurant owner.

At meetings, street fairs and festivals, the district repeats the mantra that it treats and

tests plume water above drinking standards — and that tap water is more scrutinized than what is bottled.

"We try to tell the consumers the water's fine. We fight it every day. Fight it every day," Coumatos said.

It's an uphill battle.

"Grumman's caused that situation," Coumatos said about the distrust of public water. Rebuilding trust will take time, he said. "You can't pay enough money to take care of that."

Bethpage Water District has just 12 full-time employees.

With that small staff, the district has had to fight for more aggressive cleanup while reassuring the public. And the list of concerns has only grown to include 1,4-dioxane as well as radium. The discovery of radium at elevated levels in 2012 led to the district shutting down one of its nine public supply wells.

Experts said the mounting disclosure of potential risk factors in Bethpage adds to the in-



Peter Schimmel, senior water plant operator at Bethpage Water District, tests for hydrogen peroxide.

clination for residents to connect cancers to pollution.

"A person who already believes that chemicals which have leached into our groundwater cause cancer is very prone to seek out and favor stories and information which confirm this belief," said Dr. Curtis W. Reisinger, a clinical psychologist at Northwell Health.

Authors of the only state cancer study in Bethpage, which found in 2013 no evidence of higher rates, described their results as "scientifically appropriate and as informative as existing data will allow."

Yet, Reisinger asked, "Are we so wrong to think the causes are environmental?"

"From a certain sense we can't blame people for looking for external causes. And if you live on Long Island and you're programmed pretty much cognitively, psychologically to look for causes other than genetics, it makes a lot of sense that — maybe it is the environment," he said. "That's what science is saying now, maybe the environment is responsible for a lot of this stuff."

More than 1,000 current and former Bethpage-area residents have joined class action or personal injury suits about health effects from the pollution that stemmed from Grumman's historic operations, lawyers said.

The Melville personal injury law firm Napoli Shkolnik represents most of those people, including Carlucci and Levchenko, in the ongoing suits against Northrop Grumman, as well as the Town of Oyster Bay, which owns the Community Park property.

"My experience in environ-

mental cases is that, fundamentally, not only the polluters — but the community politics — want to downplay the risks associated with any sort of contamination," said Paul J. Napoli, a partner in the firm. "The polluters, because of liability, and the local politics because they don't want to create hysteria."

'We're tired'

At the former Grumman site on Grumman Road, about two dozen people came to a town community center last November to hear Navy representatives give an update on the cleanup, as required by federal law.

Northrop Grumman sent representatives to the meeting, according to the Navy, but they didn't speak or publicly identify themselves. Northrop Grumman is mandated by the state to conduct its own public meetings about its cleanup.

The meeting, with bottled water provided upfront, quickly became a forum for residents to vent their frustration.

A dozen state and Navy officials and consultants sat off to one side, with the Navy's highlighting ongoing cleanup initiatives and others they plan to start soon.

But the Navy's project manager also affirmed that it would oppose the state's more ambitious plan to fully stop the plume's spread.

Instead, the manager, Brian Murray, said while some of the plume would continue to spread, under the Navy's current plan it would concentrate on removing the highest toxic concentrations in the expectation the rest would naturally di-

lute, dissipate and break down.

Water district officials who have watched the plume spread for decades said the hope was illusory.

"Your solution to pollution is dilution," said Teri Black, a real estate agent and Bethpage Water District commissioner. "I was glad I was sitting. It is unacceptable."

Richard Catalano, 61, of Seaford, a human resources manager whose home sits above the plume, criticized the pace of action.

"It's a disgrace what the Navy's done!" he shouted.

Gina McGovern, a teacher and Bethpage resident, at one point interrupted: "I realize I'm talking out of turn and I apologize to all of you. But I've been sitting in these chairs for 20 years. I had to get babysitters when I first started. My youngest is out of college now. You know how much time in my life I spent sitting on these chairs, listening to the Navy discuss how they're drilling holes?" she said.

David Sobolow, a volunteer co-chair of the Navy advisory board, noted Grumman's absence among the presenters. "With all due respect, the Navy is the one that's here trying to solve the problem."

After the meeting, McGovern explained her anger. "The whole town is just — you can see the frustration level. We're tired. We're tired of trying to be nice. We're tired of trying to be polite."

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LONE BETHPAGE CANCER STUDY LEAVES UNANSWERED QUESTIONS

BY DAVID M. SCHWARTZ
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It was toxic soil vapor seeping into a handful of homes, not the massive groundwater plume emanating from the old Grumman property, that triggered Bethpage's lone community cancer study.

After a three-year investigation, state health officials in 2013 found no higher overall cancer rates in a 20-block area closest to the former Grumman and Navy property, although they also noted the scientific limitations that make linking residential cancer clusters and pollution nearly impossible.

The cancer study did find that within a one-block area, all those diagnosed with cancer were younger than expected. But it concluded that even so, it was too small an area to provide a clear indication of an unusual pattern.

The debate over the strengths and weaknesses of the study — what to make of it and whether a more thorough investigation could have determined more — lingers in a community that for decades has believed it experiences a disproportionate share of cancer.

At its heart, the community is asking a seemingly simple question: Has the pollution in the water, soil and air caused illness there?

Answering that question through science is maddeningly elusive.

Calls for a study

The state has repeatedly counseled residents not to worry because all Bethpage drinking water is treated to government standards and is therefore safe to drink. Similarly, living over the underground water pollution "plume" hundreds of feet below poses no risk to the public, officials said.

Any study, however, that could support or debunk findings like the state's confronts the scientific difficulty of tying an individual case of cancer to a specific source, an extreme rarity in almost any situation, experts said. Finding clusters of cancers



Demonstrators greet people arriving for a June 2012 meeting with the state to discuss the community park.

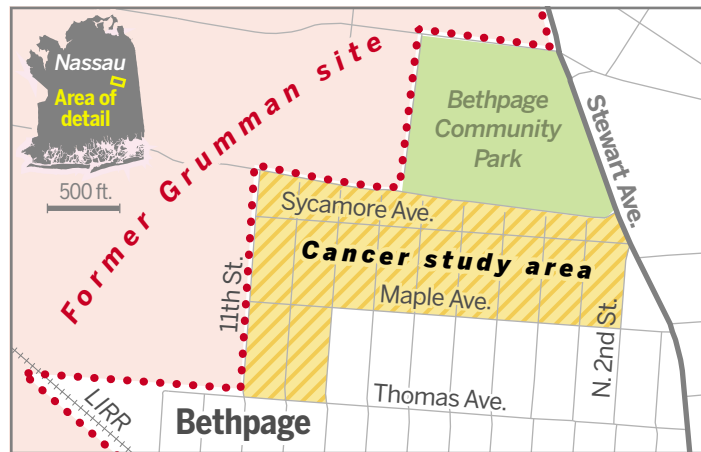
is hard enough; linking those to a pollution source is rarer still.

The Bethpage study took form after the Navy in 2008 found vapors of the solvent trichloroethylene, or TCE, and two other chemical solvents in soil around its property, which Grumman operated. Further testing found contamination had reached a nearby neighborhood.

The Navy installed air purification units at 14 homes, as well as a system to extract and contain soil vapors on its property.

Inside a handful of homes, the levels of the solvents were above state limits meant to protect human health.

By 2009, the clamor for a state cancer study had become intense. One resident provided a list of nearly 80 people diagnosed with cancer or lupus since the early 1960s. Community members made a map stuck



with color-coded pins matched to different diagnoses and compiled a list of Bethpage High School graduates and parents stricken with cancer.

Edward Mangano, then a county legislator from Bethpage,

and then-state Sen. Carl Marcellino asked the state to conduct a survey.

In April 2009, the state Department of Health's Cancer Surveillance Program began evaluating cancer cases and possible envi-

ronmental exposures. It relied on the state's Cancer Registry — a database of all cases of cancer diagnosed or treated in New York State, tied to patients' addresses.

No 'unusual patterns'

The state released its finding of no higher overall rates in January 2013.

Using photographs of the community map and lists of cancer cases gathered by neighbors, the study found the citizens' evidence inadequate.

Of the nearly 80 cases of cancer reported by residents, researchers could only confirm eight with the state's database. Working off two photographs of the map, the study authors said that only "some of the names were visible." A list attached with the map — provided by unnamed residents to the Navy, which passed it to the state — included streets and blocks where people had been diagnosed with cancer and were grouped by cancer type, but it did not include names.

"Much of the information that would have been useful for a more complete cancer evaluation was not available," the state report said. "The information that was available did not indicate any unusual patterns of cancer."

The state concluded other evidence was unpersuasive.

Five cases of breast cancer among 1979 and 1980 graduates of Bethpage High School were higher than the two cases that would be expected, for example. But the increase wasn't statistically significant and could have been by chance, the study determined.

But the state also decided to look at possible exposure to pollution in the area. Toxic vapor in homes justified taking an additional look at cancer rates, using the state's database to drill down on specific areas, it determined.

In particular, researchers focused on blocks within the neighborhood known as the "Number Streets" that includes homes on 11th Street, where TCE and other chemical vapors had been found.

In the 19-block L-shaped area, south of Bethpage Community



YEONG-UNG YANG

A Bethpage Water District treatment plant on Sophia Street in Bethpage. The district certifies its water as safe to drink.

Reporters/writers: Paul LaRocco and David M. Schwartz **Project editor:** Martin Gottlieb **Additional editing:** Doug Dutton **Project manager:** Heather Doyle **Video director, editor:** Jeffrey Basinger **Video producers:** Basinger and Robert Cassidy **Videographers:** Basinger, Shelby Knowles, Howard Schnapp, Chris Ware and Yeong-Ung Yang **Photo editors:** John Keating and Oswaldo Jimenez **Motion Graphics:** Basinger **Digital design/UX:** Matthew Cassella and James Stewart **Additional project management:** Joe Diglio **Social media:** Anahita Pardiwalla **Research:** Caroline Curtin and Laura Mann **Copy editing:** Don Bruce **Graphics:** Andrew Wong and Basinger **Print design:** Seth Mates

Park and east of the Navy-owned land, the study found 88 cases of invasive malignant cancers from 1976 to 2009.

But based on the average cancer rates in the state, outside of New York City, 107 cancer cases would have been predicted.

The report said, “uncertainties with population estimation may have led to an overestimate of the number of cases expected. Still, the calculations provide no evidence that the total number of cancers or the number of cases of any individual cancer was greater than expected in the study areas.”

The other area examined was a single block directly east of the former Navy site — between 11th and 10th streets, and Sycamore and Maple avenues — where chemical vapors had been found in or under six homes at levels above state standards.

In that block, six people were diagnosed with “invasive malignant” cancer between 1976 and 2009, including the types of cancers linked to chemicals found there. Still, the number was only slightly higher than the five that would have been predicted based on state averages, and not statistically significant, the report said.

The analysis found one concerning feature below the topline number: All those diagnosed with cancer were in their

mid-20s to early 50s, younger than average for the different cancers.

“The number of cancers diagnosed in people under age 55 was greater than the number expected,” according to the report, which didn’t specify the statistically predictive number. “This difference was statistically significant, meaning that it was not likely to occur by chance.”

The report concluded that “due to the limited size of this one-block area, however, these results do not provide a clear indication of an unusual pattern of cancers.”

In a question-and-answer website released with the study, the state Department of Health said no follow-up was warranted.

‘Didn’t speak to anybody’

The results left many residents disappointed and frustrated that the state didn’t go beyond its database and knock on doors.

“They didn’t speak to anybody,” said Jeanne O’Connor, who co-founded a group that has collected 2,000 cancer cases in the hope of prompting another state study. She said the effort has become overwhelming, and the group has shifted its efforts to expanding awareness.

“They needed a bigger sampling area,” said Mangano, who later served as Nassau County executive from 2010 to 2017 and

is appealing his 2019 conviction on federal corruption charges.

He said exposure went beyond the 20-block area studied and included people who were exposed for decades at Bethpage Community Park. Mangano had requested that the state examine a larger area.

The state, however, said larger areas, outside the blocks with the highest exposure levels, can often dilute results, making a cancer connection less likely. It also said its Cancer Registry is highly accurate, as certified by a national association of registries. And door-to-door surveys can be unreliable, with some residents unwilling to share information or unaware of previous residents’ diagnoses, according to the state.

The state Department of Health, like most federal and state agencies around the country that have attempted studies, has never tied a residential cancer cluster to chemical exposure in the environment.

Just three community cancer clusters nationally have been linked with environmental exposures such as water or air pollution, according to a 2012 paper that reviewed 567 cancer cluster investigations over the previous 20 years. They included cases of childhood leukemia in Woburn, Massachusetts, from TCE and childhood cancers in Toms River, New Jersey, from industrial pollution. Just one cancer

cluster in a coastal South Carolina community with lung cancer and a history of work at a nearby shipyard with asbestos had been tied to a more definitive “established cause.”

Tough to draw a link

Part of the reason for the paucity is the difficulty of the science. Most cancers can’t be traced to a single specific cause. Additionally, cancer can take five to 40 years after exposure to develop, in which time people move and can be difficult to track. Influences such as age, race and lifestyle can affect cancer rates.

“Very often what we find is that while cancer levels are elevated, they’re not definitively linked,” said Brad Hutton, deputy commissioner for the state Department of Health, in an interview last year.

Critics say part of the problem is that state regulators tend to downplay risks and dangers in an effort not to alarm the public, but even they say studies can raise false expectations.

Dr. Howard Freed, who from 2008 to 2012 was director of the department’s Center for Environmental Health, said when there’s doubt the state minimizes risks in an effort not to cause a panic.

Freed headed the division responsible for the evaluation of the health effects of man-made chemicals.

In an email to Newsday, he wrote: “New York DOH has always emphasized scientific uncertainty over what many others see as clear warnings of real risk to the public,” adding, “Routine reassurance cannot be justified in the face of our profound scientific ignorance about the health effects of long-term exposure to toxins in drinking water.”

After reviewing the state’s Bethpage cancer study, Freed said the state appeared too quick to dismiss the community’s list of cancer cases and maps because of incomplete information, rather than trying to go back and get more data.

“It strikes me as not aggressive or a good-faith effort to try to substantiate people’s concerns,” he said in an interview. “If there’s information out there and they don’t seek it — to me it’s not effective.”

Yet Freed said another health study would be a “terrible idea.”

The state should “do what it can now to protect the public, and not wait for conclusive proof of harm, especially when such proof is unlikely to become available in the foreseeable future,” he said.

The state’s report itself laid out its limitations.

“This type of study is not capable of demonstrating any cause-and-effect relationships,” it stated. “At the current level of understanding, it is not possible to separate out all possible causes to determine the role of environmental factors in causing cancers in a small geographic area.”

COMING TOMORROW

THE MAKING OF AN ENVIRONMENTAL CRISIS:

Warnings came early, but they often were met with denials from a company with great political influence.

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Warnings came early, but they often were met with denials from a company with great political influence

PLUME: DECADES OF DECEIT

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NEWSDAY / DICK KRAUS



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This is Part 2 of Newsday's investigation into how the plume came to be – and how it grew so big despite years of warnings.

1947-1975

UNREVEALED HISTORY

BY PAUL LAROCCO AND DAVID M. SCHWARTZ
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For a time, Grumman Aerospace seemed as if it put all of Long Island to work.

It began manufacturing in Bethpage, on grounds that would swell to 600 acres, in 1937. The U.S. Navy opened its 105-acre Naval Weapons Industrial Reserve Plant, operated by Grumman, soon after.

“Grummanites” — including the women who’d be dubbed “The Janes Who Made the Planes” — produced the thousands of Hellcat fighters that helped the United States destroy enemy aircraft over the Pacific in World War II.

At its peak, more than 20,000 people would be a part of the company’s thrumming, 24/7 operation. It became known for its massive company picnics and youth sports sponsorships (the esteemed Panthers football club was named after a famed Grumman jet).

But beneath the surface, a problem was developing.

The first warnings that activities at Grumman threatened the environment came not long after the war. They would continue consistently through the late 1980s, when Grumman, as it would say in 2018, “sought to understand how legacy military operations, that were standard practices during America’s history, may have contaminated soil and groundwater.”

The warnings actually trickled out for decades before that in often-confidential government and company reports, which are now coming to light for the first time as a result of a nine-month Newsday investigation.

In the most prophetic, the Nassau County Health Department in 1955 concluded that toxic discharges from Grumman “might eventually contaminate the water in public supply wells at a considerable distance.”

Today the still-spreading plume of groundwater contami-

nants is 4.3 miles long, 2.1 miles wide and at points 900 feet deep. It extends through much of Bethpage and has required treatment of public water supplies serving numerous other communities.

The county’s caution 65 years ago, as well as ones that began intensifying in the mid-1970s, were largely met with denials from a company with great political sway and an underlying deference from government at all levels.

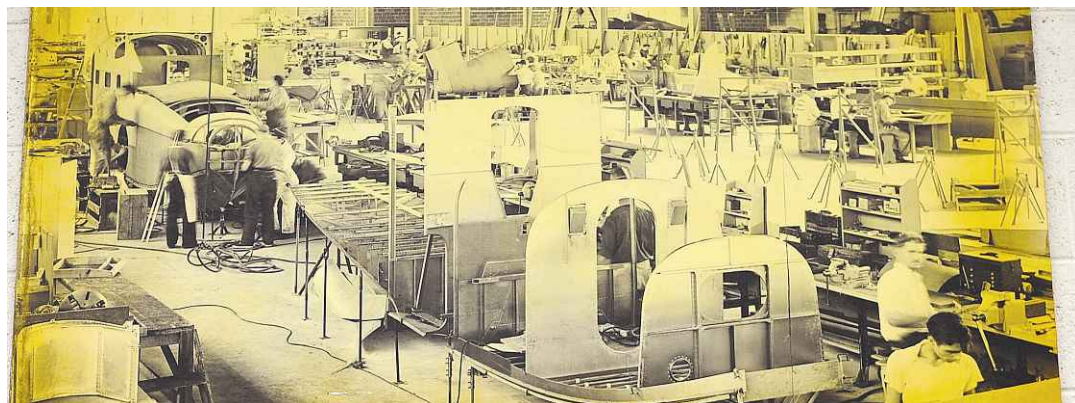
At first, heavy metals were the primary contaminants of concern. But they’d soon be eclipsed by the degreasing solvent trichloroethylene, or TCE, which Grumman used and disposed of in abundant volumes that seeped into groundwater.

As a result, the organic compound, a carcinogen, is now the most voluminous of two dozen contaminants within the plume.

Northrop Grumman, as the company has been known since a rival defense contractor acquired it in 1994, shares cleanup responsibility with the Navy, which owned a sixth of the land where Grumman operated its plant.

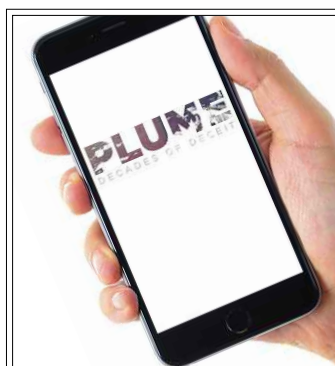
Both parties point to substantial work they’ve done under oversight by the state Department of Environmental Conservation’s Superfund program for hazardous waste sites.

Most significantly, the Navy has paid tens of millions of dollars for public water supply treatment, while Northrop Grumman has since the late 1990s operated an extensive system that extracts the toxic chemicals from beneath



Workers construct a Grumman G-21 Goose amphibious aircraft in this undated photograph.

GRUMMAN HISTORY CENTER



NOW ONLINE
Watch the documentary
at newsday.com/plume
and on the
Newsday app

its original properties to stop further spread.

“The company’s ongoing evaluation shows it is effectively capturing groundwater contaminants as it was designed to do,” Northrop Grumman said in a 2018 fact sheet about the Bethpage pollution.

Yet enormous amounts of contaminants have already spread from the old company grounds, even as Northrop Grumman has long disputed the severity of the

pollution. It continues to oppose the most-comprehensive off-site plume containment plans and has fought millions of dollars in cleanup costs that fell to taxpayers.

One environmental lawyer who has taken on timber, plastics and oil companies said the company appears to be using an oft-employed corporate template for forestalling financial and reputational damage.

“There’s a pretty standard playbook that these companies apply,” said Carroll Muffett, president and CEO for the nonprofit advocacy group Center for International Environmental Law.

“First, they deny that anything is happening, and then they deny that what is happening is a problem,” he said. “Then they deny that they’re responsible, and then at the end, when all of those other things have been disproven, they argue that it’s not economically viable to fix the problem.”

Frequently, Northrop Grumman has pointed out that at the time Grumman employed its historical waste disposal practices, they were legal, a factor that does not lessen its obligation under the Superfund law.

The company declined multiple requests for interviews but stated in the fact sheet that it has worked for more than 20 years with state, local and federal officials “to investigate and remediate legacy environmental conditions.” It noted it has signed three formal state cleanup decisions and “is implementing its obligations under these agreements.”

“Northrop Grumman has devoted significant resources to our environmental efforts in Bethpage and spent over \$200 million to date to help clean up the environment and protect the health and well-being of the community,” company spokesman Vic Beck said in a further statement to Newsday.

Early warnings

The first known instance of Grumman contaminants infiltrating Bethpage’s public water supply came nearly 75 years ago.

In 1947, the state notified Grumman that the Central Park Water District (the Bethpage Water District’s predecessor) found chromium in one of its public supply wells. Grumman sprayed the metal plating agent on its aircraft parts. The result-



A banner proclaiming Long Island's love for Grumman is posted in the Bethpage plant's milling area in 1981.

ing wastewaters containing the toxic substance were dried into sludges and, as was common at the time, disposed of directly into the ground.

Even with far less understanding of the health hazards of industrial chemicals, Grumman was accused of endangering Long Island's sole source aquifer for drinking water.

Then-Rep. W. Kingsland Macy told Newsday he "feared the wa-

ters that carried metallic poisons into the ground may eventually contaminate the water table."

The company responded in Newsday that it "doubted" the plant's operations put the public at risk. The chromium levels in the water, some of which remain, were then hundreds of times above today's acceptable standards. The metal also is still present in soil on Grumman's old properties.

By late 1949, Grumman agreed to pay for new water district wells and said it had changed its disposal practices to address the contamination. Referring to how it would now treat its wastewaters at an on-site facility, the company wrote to the state health department in early 1950 that "the dumping of spray-booth wastes into a remotely located open pit, has ceased," according to a letter filed in a 2012 federal lawsuit by

Grumman's former insurers, the Travelers Cos.

Travelers successfully argued that it has no duty to defend the company against liabilities for past practices in part because Grumman hadn't provided it with enough notice about its role in or knowledge of environmental pollution.

The letter was one of several marked confidential in the case but mistakenly left unsealed.

Even after the 1950 letter, Grumman continued to dispose of the treated sludge — as well as other wastes — throughout its facility, where it had dug at least a dozen shallow artificial ponds, or recharge basins.

Regulators at the time were beginning to key into the groundwater dangers of chromium and several common industrial metals, including arsenic and cadmium, the latter of which would also show up in Grumman's sludges.

Another chemical, however, ended up being of graver consequence.

In one internal document, Grumman says it began using TCE in 1949. The chlorinated solvent, a degreasing agent, was sprayed from wands and soaked into rags that would wipe down work areas. But its most-common application was through massive vats that boiled the solvent into vapors to remove impurities from metal parts.

"These degreasers were everywhere, especially in the aircraft industry," said Steve Swisdak, a forensic historian who reconstructs manufacturing practices, with a focus on TCE use, that have led to modern environmental contamination. "It was remarkably efficient at cleaning metal parts."

Military manuals from the 1940s warned of the dangers of TCE, counseling against inhalation and skin contact and, in one general caution, advising that it not be dumped into sewage systems. But for all the apprehension, it would be decades until the solvent's dangers to groundwater became known.

A defender of Grumman's legacy said the company can't be judged too harshly.

"We were much less concerned with the environment in those days. And the net result is we were sloppy," said George Hochbrueckner, a former congressman from Suffolk County who worked at Grumman facilities in the 1960s and early '70s. "But at the time, the level of environmental protection wasn't there as it is today. So it's a problem we created ourselves when we were in good times doing good things for the nation."

Cuomo, other leaders react to plume findings A20

'Such wastes do not dilute'

Still, contemporary records reveal more than one early warning to Grumman that its general practices could harm the environment.

In 1955, Grumman applied to the state for two new industrial production wells as it expanded an operation that would pump tens of millions of gallons of water per week to its plants.

That set up the prophetic warning from the Nassau County Health Department predicting that the pollution could spread. The department objected to the application, noting in a letter — another left unsealed in the Travelers lawsuit — that the company's recharge basins "contain toxic chemicals in sufficient quantities to pollute the ground water supply in the area to concentrations well beyond maximum allowable limits for a satisfactory drinking water supply."

At the time, the U.S. Public Health Service had already recommended levels of chromium in drinking water not exceed 50 parts per billion.

The county letter states that chromium (as well as cadmium, another carcinogen) at levels of up to 1,700 parts per billion remained in Grumman's basins. The company said then that it believed its treatments were effective, though state regulators later surmised otherwise.

"To allow the applicant to draw further ground water from additional wells in the area without adequate protection of the supply would be to permit the contamination of that much more water beyond the vital drinking water standards which must be maintained in Nassau County at all costs," the health department wrote.

Responding to the application, the state said the county's objections didn't warrant denying approval for the new wells but pointedly found that the objections were valid and should prompt investigation and corrective action.

The decision, also left unsealed in the insurance case, is noteworthy as well for including the earliest known concern — 65 years ago — that groundwater pollution on the site would expand in the aquifer below and migrate laterally and vertically.

Nassau's investigations, the state reported, "indicate that such wastes do not dilute in the ground water as had previously

See HISTORY on A6

parts per billion for vinyl chloride and 50 for TCE.

The sample of Hooker's wastewater contained 80 parts per billion of TCE.

But in one of the Grumman wells it was 500, 100 times today's limit.

The results — which came out the same month Grumman told Newsday that it did not use TCE — raised strong questions about whether Grumman, rather than Hooker, was the primary source of TCE contamination. Groundwater contamination is typically strongest at its source.

'I was stunned'

When Nassau issued its final summary, the TCE results were submerged on the next-to-last page. While the document immediately noted the severity of the overall situation, calling it "a most serious instance of ... contamination," it blamed Grumman for none of it. Hooker was named on the first page.

Decades later, two Northrop Grumman employees involved in the company's cleanup were shocked by the extent of the TCE contamination on Grumman's grounds, which by this point had been long established as a product of the company's operations.

In a 2011 email, John Cofman, a senior environmental engineer, estimated that 20,000 gallons, or more than 200,000 pounds, of TCE had been removed from groundwater beneath Grumman's original 600 acres through on-site cleanup systems. He noted that there could be another 20,000 gallons to go.

"So, think of losing three to four entire 10,000 gallons storage tanks of TCE!" Cofman wrote in the email, another left unsealed in the federal insurance lawsuit. "Just to keep things in perspective!"

"Perspective? How's this for perspective?" replied the recipient of the email, Kent A. Smith, an environmental, safety, health and medical manager. "The fact that there might have been a total release of 40,000 gallons of TCE just caused my insides to start churnin' somethin' fierce!! Man, oh man, that's a lot of material."

Cofman replied: "Yes — I was stunned when looking at this."

But when the contamination at Grumman finally reached the public in 1976, few people registered such alarm over the TCE levels.

As state and county regulators largely blamed Hooker, they downplayed the severity of the overall problem. Grumman denied it had any role.

Meanwhile, the plume grew unabated.

1976-1990

A SHOCKING DISCOVERY AFFIRMED AMID DECEPTION, DEFLECTION

BY PAUL LAROCO
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The year 1976 looms large in the decadeslong saga of the massive toxic plume beneath Bethpage.

That June, Grumman Aerospace not only received a confidential assessment that groundwater contamination was spreading from its sprawling facility, but options on how to tackle the budding crisis.

It chose the least aggressive approach, short of one labeled "Do Nothing."

When the problem finally emerged publicly, the company continued withholding critical information and maintaining it wasn't culpable. Today the pollution threatens water supplies for a quarter-million residents of southeastern Nassau County.

Grumman, then Long Island's biggest employer and a political power, got plenty of help. Throughout 1976, state and local regulators minimized the hazards at the 600-acre site even while advising Grumman to switch its drinking water supply to public wells. And for years after that, the officials falsely blamed another manufacturer for the bulk of the contamination.

This pattern continued into 1990, after proof of Grumman's responsibility became unavoidable. It was so well established that two federal judges ruled in recent years that Grumman should have informed its insurers of it earlier and that, partly as a result, the insurers wouldn't have to cover liabilities from the environmental debacle.

In 2014, U.S. District Court Judge Katherine B. Forrest relied on internal corporate documents, including the June 1976 confidential assessment from



Randy Braun and Bob Cibulskis of the federal EPA load water samples from the Grumman plant in Bethpage onto a Nassau County police helicopter piloted by Frank Madonna in December 1976.

Grumman's consultant that showed the depth of the company's knowledge and role.

Just last September, a second district court judge, Lorna G. Schofield, focused even more on the consultant memo as she ruled that the insurers wouldn't have to cover claims in a newer class-action lawsuit by residents who blame health ailments on the contamination.

"The company's notice obligation arose by June 1976," Schofield wrote. "By that time, Grumman knew from regulator and consultant reports that the groundwater was contaminated, Grumman was a likely source of contamination, the contamination could pose health risks, Grumman should look for an alternative drinking water supply other than the facility wells, and finally [that] even aggressive remedial mea-

asures may not wholly abate the contamination."

As consequential as this behavior was for the insurer, it was all the more so for Bethpage and surrounding communities. Years were lost while the plume, and health fears from it, grew.

Northrop Grumman declined multiple Newsday requests for interviews. In the first insurance case, however, it said Grumman not only believed that the other manufacturer was to blame, but that after testing conducted between 1977 and 1980, "regulators believed that no additional investigation of the Bethpage facility was warranted."

Forrest and Schofield both said any thought that Grumman believed at the time that another company was the cause of the pollution was "unreason-

able," with Schofield further noting that regulators "consistently identified Grumman as a source."

Since beginning its cleanup efforts, Northrop Grumman says it has spent more than \$200 million. Its efforts have largely focused on pollution containment systems on its original properties. That has left local taxpayers and the U.S. Navy — which owned a sixth of Grumman's site — to pay for most of the public supply treatments that have been installed over the last 25 years.

"If you're going to do the minimum you have to do to be in compliance, you get a four-mile-long and two-mile-wide plume," said Richard Humann, president and CEO of H2M architects + engineers of Melville,

See HISTORY on A10

HISTORY from A7

the Bethpage Water District's longtime environmental consultant.

Four options

The stage was set for the critical events of 1976 in the waning days of the year before.

That November, the Nassau County Health Department completed a two-year study on contamination of some of Grumman's 13 private water wells, a probe that began after complaints from employees about taste and odor problems in the drinking water. The company, in response, had shut several of the wells.

Despite information that pointed to Grumman as a significant cause, the county focused its report on the Hooker Chemical Co. of Hicksville. Hooker abutted Grumman and produced the carcinogenic compound vinyl chloride, which state tests measured in Grumman's wells at as much as 50 parts per billion.

Mentioned several pages into the report was the discovery of another carcinogen, trichloroethylene, or TCE, a degreaser used by Grumman for decades. In one well its presence reached 500 parts per billion. TCE is now the most prevalent of two dozen plume contaminants.

The health department's findings weren't publicly released, but at the department's request, Grumman tasked Geraghty & Miller, an environmental consulting firm, to assess the problem.

In June 1976, the firm produced the confidential memo, central to the two insurance suits, that tracked the contamination's significance. It was one of several documents submitted in the first case that was supposed to be sealed and kept secret but that Newsday discovered were not.

To start, the consultant found on Grumman's property "sources of contamination consisting of basins, lagoons, spills, etc." While not explicitly naming Grumman as the cause, it noted no other possibilities — and in an attached rendering depicted some of those sources as part of the company's facility.

Geraghty & Miller warned that contamination had formed into a "slug" in the groundwater below Grumman's plant. At minimum, it was sinking below the shallowest portion of Long Island's aquifer — a water-filled layer of rock, gravel and sand that is its sole source of drinking water. The mass was moving toward the next deepest level of

the aquifer, which provides the bulk of the Island's drinkable water.

Most ominously, the firm wrote, "Trace concentrations of contaminants in pumped water may not be indicative of the severity of the overall problem."

It presented four options:

- "Do Nothing," which it noted had "no immediate cost" but risked further worsening of the water supply.
- Switch Grumman's drinking water from its contaminated private wells to the Bethpage Water District's, with tainted water pumped only for industrial purposes.
- Abandon contaminated wells and drill new ones, with the drawback that these "may also become contaminated in time."
- Conduct "a ground water investigation," which while "costly" could identify sources of contamination "so that they can be eliminated," as well as "provide information on location, direction and rate of movement of slug of contaminated water."

"It would be unwise for Grumman not to carry out some studies on the source and extent of the contamination," Geraghty & Miller wrote.

Nonetheless, the report recommended, and Grumman accepted, the second option. That allowed the company to protect its 20,000 workers from drinking any more tainted water but essentially avoided the larger issue: determining the magnitude of the problem and how to fix it.

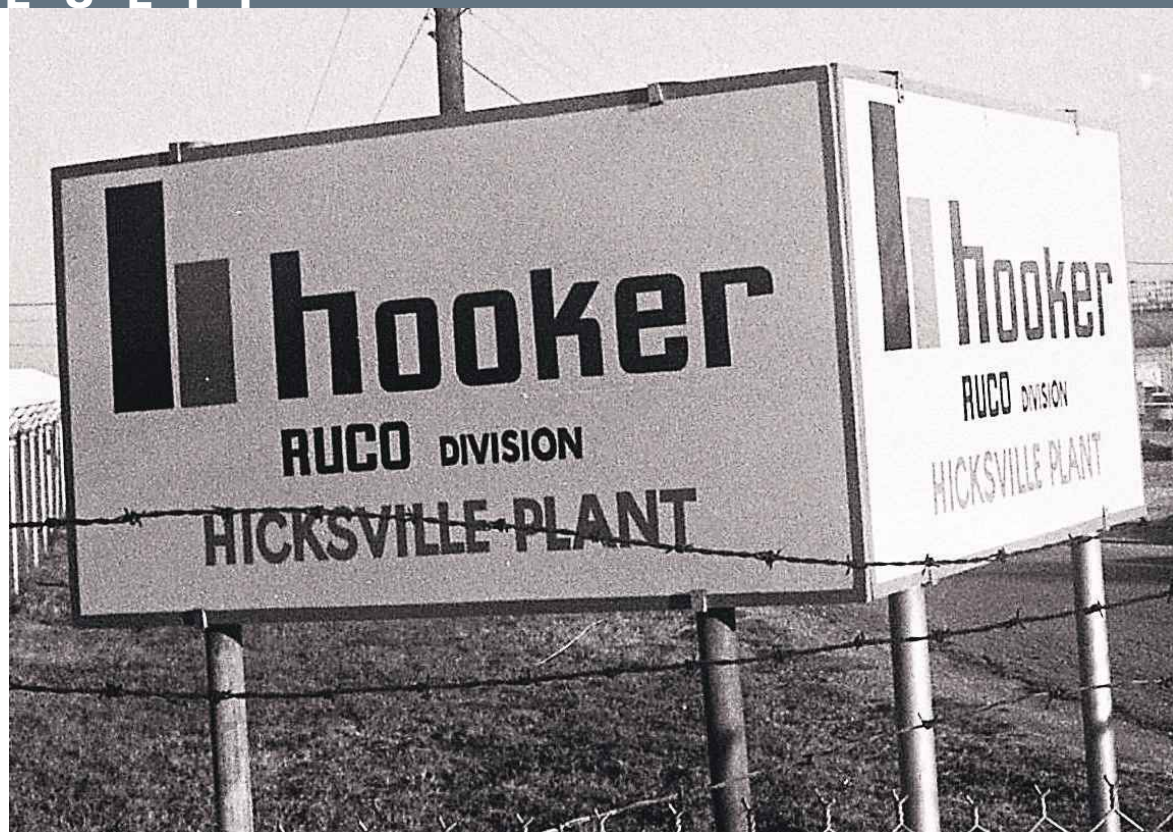
The scenario left open the risk that, untracked and unabated, the contamination could grow exponentially — as it did. The consultant predicted what that could mean with acute accuracy:

- "Slug may spread both laterally and vertically beneath the property"
- "Neighboring wells may become contaminated over the long term"
- "Further contamination may take place from sources not presently detected"

Schofield's 2019 ruling cited the memo, as well as the county's 1975 report, as a benchmark: "The totality of these facts shows that by June 1976, Grumman reasonably understood that it could be responsible for a 'severe' contamination spreading into the local water supply."

A secret exposed

Sal Greco Jr., then a Bethpage Water District commissioner, vividly remembers the phone call he received at home on a Sunday morning in 1976 from



Blame for early contamination was placed on the Hooker Chemical Co., shown in December 1976.

Dean Cassell, a Grumman vice president.

"His conversation, basically, was that his employees were getting sick from drinking their water," Greco, now 81, said recently, recalling the problems as digestive. "So, he said, 'We have to hook up to the Bethpage water system.'"

After the county report and Geraghty & Miller's memo, Grumman discretely started switching its private drinking water supply to Bethpage's. The company had 13 wells, the district nine.

Cassell, now deceased, didn't mention internal company warnings that the contamination was spreading in the aquifer, Greco said. That would have alarmed the water district.

But by mid-1976, others with more information were already showing plenty of disquiet. Nassau County, knowing the level of toxic compounds in Grumman wells, reached out to the federal Environmental Protection Agency for guidance.

In its response that August, the EPA focused less on vinyl chloride and more on the extreme levels of TCE that had been identified further down in Nassau's 1975 report. Citing the imminent banning of the chemical in food processing, such as decaffeinated coffee, where levels averaged roughly 60 parts per billion, the agency observed that "a water supply containing 500 [parts per billion of] TCE would, on this basis, be definitely unsuited for drinking purposes."

Grumman, as it had for wells

with elevated ammonia and nitrate levels, closed those with the worst TCE problems.

And, as before, it initially kept this action from the public.

Full disclosure came three months after the EPA's advisory, when an article in the Albany Times-Union newspaper revealed that "small amounts of the toxic chemical polyvinyl chloride have been found in some municipal and private water systems on Nassau County, Long Island."

A day later, Newsday reported that not only did officials find polyvinyl chloride (later corrected to vinyl chloride) at Grumman, but also TCE at the 500 parts per billion level.

Newsday offered the company's first public comment on the pollution, after a state official speculated that it could be among the possible culprits: "A Grumman spokesman denied the company's own operations were responsible for the contamination."

Grumman then posted a notice to employees that began, "Contrary to implications in the media on November 27 and 28, drinking water in the Bethpage complex has consistently met the drinking water standards under the State Public Health Law." The causes of the concern — TCE and vinyl chloride — were not covered by the law until the next year.

The response belatedly noted the company's abandoning of wells but didn't mention the high TCE levels found in some.

After this initial disclosure, then-state Assemb. Lewis Yevoli

(D-Old Bethpage) recalled speaking to a colleague who had been conversing in an Albany bar with state laboratory technicians. His concern was captured in stark language.

"The sample showed the water was so bad — he used their term — that he told me, you could take the paint off furniture," said Yevoli, 81, who served in the Assembly until 1991.

He helped convene an Assembly public hearing on the contamination that found "local officials had been derelict" in protecting the water supply.

"As long as I was involved in those days, they never admitted that they caused the problem," Yevoli said of Grumman. "It turned out to be far more serious than anyone realized."

Privately, other officials were expressing alarm, too — although the public would hardly know it.

On Dec. 2, 1976, with the crisis at Grumman now in full view, company consultants huddled behind closed doors with state, county and federal representatives. According to notes produced by Geraghty & Miller, a dispute broke out between the EPA and the state. The EPA warned, according to the handwritten notes, "Don't drink the water," prompting a state official to disagree, and the EPA to repeat its concern: "no basis for levels that are acceptable."

The same day, the now-deceased county health commissioner, John Dowling, who was listed as being present for the meeting, stated publicly: "If I lived in the area, I would con-



NEWSDAY / JOHN H. CORNELL, JR.

1979: A NEARBY SCAPEGOAT

State to Sue Firm for Polluting

Says carcinogens dumped by Hooker still appear in water near Hicksville plant

By Robert E. Kessler

The state Department of Environmental Conservation said yesterday it will sue the Hooker Chemical Corp., charging that cancer-causing vinyl chloride the company pumped into lagoons at its Hicksville plant is continuing to pollute the groundwater.

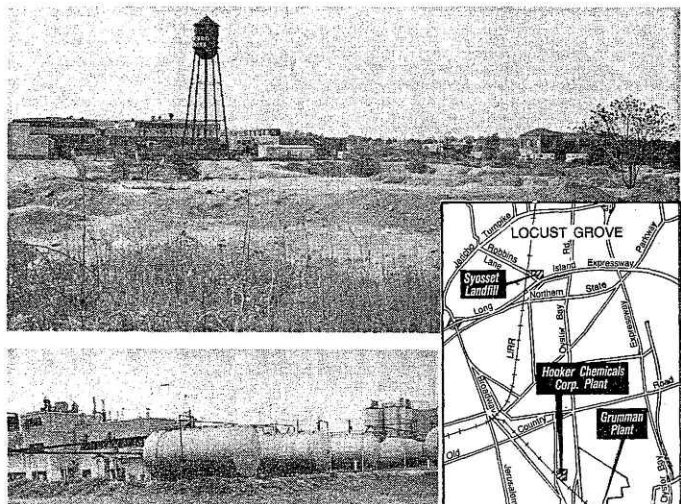
Several wells in the area that were found to contain vinyl chloride were closed around 1976, and conservation department officials stressed that there is no evidence of the chemical in any well used for drinking.

However, testing this week of closed wells on Grumman Aerospace Corp. property near the Hooker plant disclosed the same concentration of contaminants found in 1976, according to Donald Middleton, the conservation department's regional director.

At that time one well was found to contain traces of vinyl chloride while another, Grumman well 14 was found to contain 50 parts per billion of the compound. The state's suit, which Middleton said will be filed next month, will seek to force Hooker to clean up the polluted water or put expensive filtration equipment on affected well.

Hooker, the 10th largest chemical manufacturer in the country with annual sales of \$1.7 billion, has been the subject of various investigations and lawsuits because of its disposal of toxic wastes in Lake Ontario, the Love Canal near Niagara Falls, Michigan, and Louisiana.

A spokesman for Hooker, Sandie Kroeger, said that the firm would not comment until it had been



Source: Newsday, May 31, 1979

continue to drink the water. We don't have any information that the chemicals are harmful in drinking water."

Clout at apex

That Grumman had a seat at the table among regulators showed its stature as Long Island's economic powerhouse and a sophisticated political player.

Before political action committees were commonplace, Grumman had one of the nation's largest. Its corporate PAC

gave heavily — nearly \$300,000 in the 1980 federal elections alone — to all kinds of candidates, including members of congressional committees overseeing defense spending.

Locally, its influence was omnipresent. "We know that local candidates are going to support Grumman. It's ridiculous to think they're going to vote against things that Grumman stands for," the PAC chairman, Robert E. Watkins, told The New York Times.

George Hochbrueckner, a for-

mer congressman from Suffolk County who worked at Grumman facilities in the 1960s and early '70s, said he understood why officials were deferential.

"They had the clout because they had the employees," said Hochbrueckner, nicknamed "the Grumman congressman." "Politically, they were hard to beat up on."

That sway was hardly equaled by Hooker, even before its toxic dumping caused the 1978 evacuation of Love Canal near Niagara Falls.

There was no doubt Hooker was responsible for the vinyl chloride found at Grumman. But that opened the way for the blame officials placed on the company for the entire contamination crisis, TCE included, though Hooker used the chemical minimally compared to Grumman.

For a decade, the weaknesses of the case were overlooked. Although the lower levels of vinyl chloride in Grumman's wells had to have come from Hooker — Grumman didn't use the chemical — in at least one key instance the TCE could not have. Not only did the company dwarf Hooker in sheer size and sheer volume of TCE use, but, as Grumman's own consultants noted in 1978, at least one of its tainted wells was north of the Hooker plant, away from the flow of area groundwater.

No Hooker representatives were listed as having attended the Dec. 2 meeting between government and Grumman officials. In the Geraghty & Miller notes, Francis Padar, Nassau's director of environmental health, is quoted as saying, "may be only Hooker as source."

For more than a decade after, regulators offered up Hooker as the poster child for Bethpage contamination, with Grumman doing nothing evident in news reports or available documents to dispute that.

Regulators, however, sometimes suggested that Grumman wasn't completely blameless. Padar once did so himself. He issued a little-noticed public statement in December 1976 that named the polluting solvents found at Grumman and offering that the company may have had partial responsibility in putting them into the water.

But a Newsday article that same month captured the message that got through most clearly: "Most public officials speculate that the Hooker Chemical plant in Hicksville, which adjoins Grumman, is the source of the pollution."

On Dec. 3, 1976, the Bethpage Water District shut its first public supply well due to TCE contamination. In a 1977 letter, cited in the insurance cases but never publicized, it formally blamed Grumman, writing, "currently available evidence indicates that ... contamination has arisen by virtue of discharge of waste products from your company into the ground water supply."

"It was very simple: We knew Grumman was responsible," Greco, a district commissioner until 2003, said recently.

Northrop Grumman said in a filing with one of the insurance

cases that the water district simply "dropped the subject."

And when the district counsel, Anthony Sabino, spoke to the Bethpage Tribune in 1981, he blamed only Hooker. For the first time, the paper reported, he was sharing "district records of its two-year struggle to force Hooker to pay up to one million dollars for replacement costs" of the contaminated well.

Sabino recalled that the district at the time was taking its cues from the state, which decided to go after Hooker, rather than Grumman. Hooker, he explained, had already moved its operations from the area and therefore was an easier target.

"So the state tried to put the arm on Hooker," Sabino said, noting that the Bethpage Water District "assisted because we did not care where remediation funds came from."

"Don't let anyone tell you Hooker was a major contributor to current issues."

'Anomalous spike'

In 1979, the state sued Hooker for dumping the vinyl chloride — and TCE — that polluted Grumman's wells. Then-DEC regional director Donald Middleton declared to Newsday: "If it was in Grumman wells, it was theirs [Hooker's]."

He credited Grumman with stopping the spread of contaminants by continually extracting tainted water from its property and using it for industrial purposes.

"We're just lucky that Grumman is pumping enough water out of the ground to supply a small city, or the chemicals might be spreading through the Island's water supply," said Middleton, who did not respond to requests for comment.

While public officials stood by Grumman, it took up its own cause by carefully cherry-picking information it held privately.

In a 1982 public presentation, titled "Grumman and Long Island's Groundwater: Protecting Future Resources," the company included examples from a 1978 Geraghty & Miller report on plant industrial wastewater sampling.

The featured page showed that, at midnight, 4 a.m. and 8 a.m., Grumman was discharging an average of no more than four pounds per day of TCE back into the groundwater.

The presentation noted Geraghty & Miller's conclusion that, "independent of the time of day," the industrial wastewaters Grumman was putting back into the ground were cleaner than

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HISTORY from A11

what they pumped out.

The company, however, omitted the prior page of sampling results, which Newsday culled from the full 1978 report left unsealed in the first Travelers Insurance case.

Two days earlier at 4 p.m., during peak plant production, Grumman discharged an average of 17.17 pounds per day of TCE back into the groundwater. That would equal more than a gallon of pure TCE, enough to contaminate 292 million gallons of groundwater, according to a filing by one of the company's former insurers.

The filing called the omission "a further attempt to deflect blame for the widespread groundwater contamination." Northrop Grumman said in the insurance case that the reading was an "anomalous spike."

The full 1978 report contained another detail left out of the public presentation: The consultants attributed the levels of chemicals found to Grumman's own "housekeeping practices (spills, cleanup of equipment, etc.)"

In the late '70s, the state could have believed, as Middleton proclaimed, that Grumman's extensive pumping of industrial wastewater was saving the day, containing the pollution in the

shallowest parts of the aquifer. But 30 years later, the company acknowledged that its pumping had the opposite effect.

In a 2009 presentation, Northrop Grumman wrote that it had actually "distributed [contamination] laterally and vertically throughout the region."

Humann, the Bethpage Water District consultant, said the volume and depth of Grumman's pumping likely accelerated the pollution's spread by repeatedly extracting and returning it to the aquifer.

A slow reckoning

As national and state awareness of environmental hazards grew, Grumman's governmental relationships became less effective.

In 1979, the state established a list of hazardous waste disposal sites, the beginning of its Superfund program to identify and clean industrial contamination. Grumman eventually made the list — one of the company's drying beds for wastewater sludge alone handled 1,300 tons per year, the state reported in 1980.

Formal notice came in December 1983, when the state warned the company in a letter that it was a "potentially responsible party" for cleaning up pollution at its Bethpage facility and "may be responsible for the release or threatened release of hazardous

substances."

Because the state said it had insufficient data on Grumman's practices, the effects were minimal — almost no action was required.

But the discoveries kept escalating.

In 1986, the Navy acknowledged that "large volumes of hazardous wastes were stored" on the 100-acre piece of the Grumman site that it owned but that the company operated — and that they were kept, until 1978, "without comprehensive containment safeguards."

That same year, Nassau public works officials were investigating a countywide water shortage and drilled a series of wells. Near Grumman, they found something other than a "water quantity problem."

They discovered the plume. "While public relations was making it a quantity problem, we did a model that proved it wasn't," John Caruso, who worked for the county at the time, said in an interview.

The county asked for help from the U.S. Geological Survey. Together, they developed the first formal mapping of the contaminants spreading from Grumman's site and found them moving in much the way the company's consultants had predicted a decade before.

"A groundwater plume was

found to be sinking and moving south southeast," the report warned.

"If we would have started [the cleanup] back then," said Caruso, a former Massapequa Water District commissioner who now serves as an Oyster Bay town public works deputy, "it wouldn't be what it is now."

In December 1986, state officials met privately with Grumman and requested that the company investigate whether it had contaminated area water. An internal Grumman memo summarizing the meeting stated that the request "could be the first step leading to a very serious and expensive liability, if it were determined Grumman contributed contaminants to the groundwater and a cleanup of some kind was required."

Exactly a year later, the state changed its Superfund designation of the company's Bethpage facility, elevating the risk level: "The reason for the change is as follows: hazardous waste disposal confirmed, groundwater standards have been contravened."

This forced action from Grumman for the first time. The state reported discovery of TCE levels within the plume on the company's site at as high as 810 parts per billion, attaching a hand-drawn map that provides the contamination's earliest

known visual representation, with data "strongly suggesting an onsite source." Those levels would later rise, in some of the untreated, raw groundwater, to the tens of thousands.

Then-company spokesman Weyman Jones responded in Newsday in March 1988: "We don't agree with their reclassification and we have no evidence of any risk to the environment."

That year the Bethpage Water District privately told company officials that the second of its public supply wells was contaminated with TCE.

A private reckoning approached.

The company launched its first contamination study of the site that would be overseen by outside regulators. Later in 1988, it confirmed that rather than the vinyl chloride produced by Hooker, TCE and a similar compound, tetrachloroethene, also known as PCE, were the most prevalent contaminants in nearby groundwater.

All silent

Grumman, however, again remained quiet as it took its first remedial steps.

In March 1989, internally acknowledging the situation's gravity, it opened its first on-site installation to remove contaminants.

By August, the company was

1990-2001

BAD PROJECTIONS, LIMITED STEPS AND A BOND BETWEEN REGULATOR AND POLLUTER

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A few years after Grumman Aerospace first acknowledged a measure of responsibility for the significant groundwater pollution in Bethpage, state regulators turned to the company's own consultants to predict how far it would spread.

The consultants concluded

in 2000 that natural processes, coupled with treatments deemed minimal by water providers, would virtually eliminate the toxic plume and the need for a costlier cleanup.

The state's Department of Environmental Conservation added a cover letter and adopted the report as its own, making it a critical guide to long-term decision-making.

The future did not work out exactly as predicted. Today, con-

centrations of the most troubling plume contaminant — the carcinogenic metal degreaser trichloroethylene, or TCE — are hundreds of times worse at numerous locations.

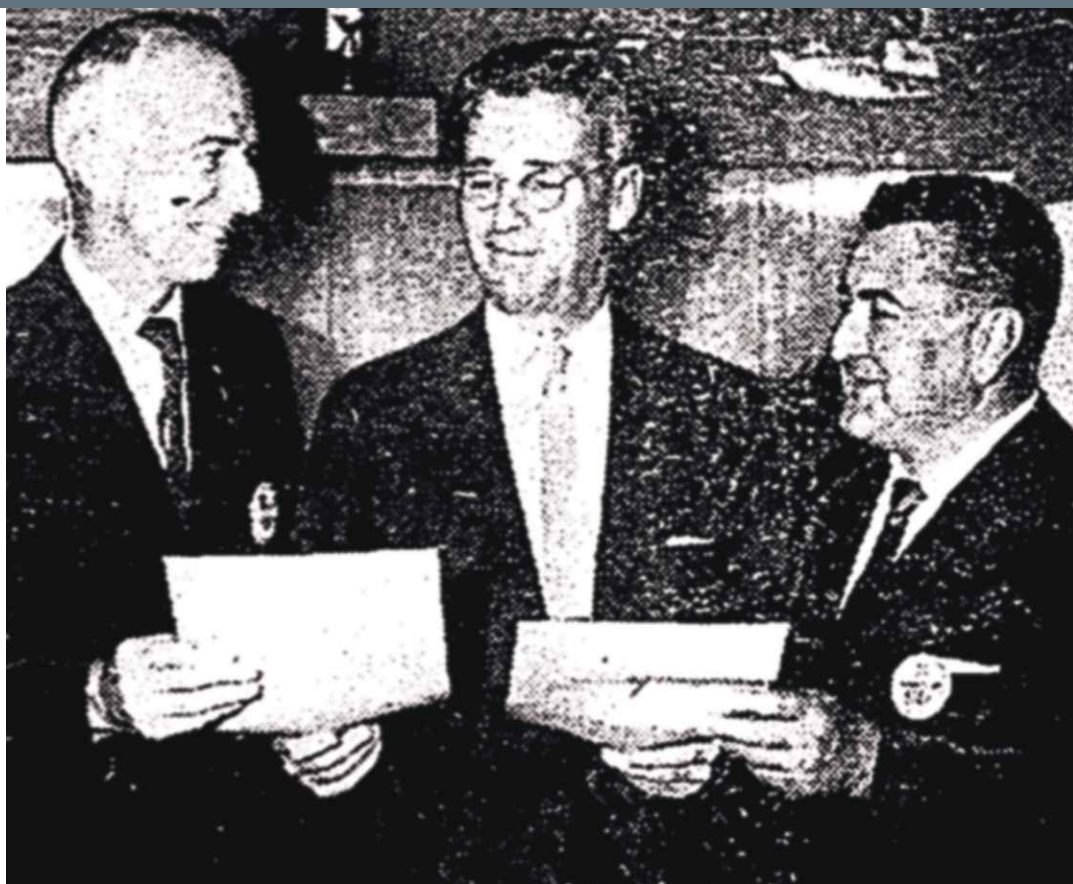
The wildly inaccurate projection epitomized how state environmental officials long acted hand-in-glove with Grumman and its successor, Northrop Grumman, in ways that served to limit corporate blame and expenses.

Together, they chronically underestimated what has become Long Island's biggest mass of groundwater contamination and failed to curtail it almost anywhere beyond the original 600-acre Grumman complex.

Newly uncovered documents show that the state dismissed tackling the plume more decisively from the start of the official cleanup process, in 1990. It continued endorsing lowball predictions even as a key

Northrop Grumman manager sounded internal warnings that the pollution had expanded far more than expected.

"Sadly, the plume could have been substantially contained 30 years ago," said Anthony Sabino, a retired attorney who battled polluters and regulators for more than two decades as Bethpage Water District counsel. "What we are facing is the complete failure of the state under many commissioners



E. Clinton Towl, center, Grumman Aircraft president, presents land deeds in 1962 for the Bethpage Community Park site to Oyster Bay Supervisor John J. Burns, left, and Town Councilman Louis A. Sisia.

deep into private negotiations with the water district. The district wanted money to erect its first similar device, called an air stripper, for TCE-contaminated

wells.

That was the backdrop for an Aug. 16, 1989, meeting between a Grumman executive, engineer, attorney and insurance manager

and Travelers, the company's insurers. It was summarized in a particularly consequential Travelers memo, labeled "PRIVILEGED & CONFIDENTIAL"

NEWSDAY ARCHIVES

and left unsealed.

The summary began by outlining a brief history of Grumman's TCE use in an unprecedented way: "Groundwater at south end of [Grumman] complex has contained TCE for a long time. TCE has been used there since 1949," it reads, building up to: "Data is conclusive that it is Grumman plume which is contaminating the [Bethpage] Water Districts [sic] well."

After noting that the district wanted \$1.3 million from Grumman, the memo emphasized: "No question regarding liability as there are no other direct parties [that] appear to have contributed to contamination yet."

It was a remarkable conclusion after Grumman's years of challenging the extent of — and its responsibility for — the pollution.

But it was a private one, still out of the eyes of a public that had watched the company contest efforts to lay the problem at its door.

Instead of a public admission, in May 1990 one of the Grumman officials present for the insurance meeting joined a group interview with the weekly Bethpage Tribune that directly contradicted the memo's conclusion.

The paper summed up the interview this way: "Grumman doesn't admit liability on

the issue of contaminating Bethpage wells, however Grumman acknowledges that wells on their Bethpage site exceed Nassau County Board of Health standards."

According to the article, Cassell, Grumman's vice president of product integrity and environmental protection, further suggested that the contamination either entered the ground in the 1940s through Grumman's operations or that the company's pumping may have inadvertently drawn it in from neighboring manufacturing plants.

Another company official, Jack Carroll, added, "Instead of debating the facts, we are dealing with the issue."

The headline accompanying the story was "BETHPAGE WATER AMONG THE SAFEST; Rumors of Grumman Contamination Pose No Threat."

This was a last refrain from Grumman's era of open denial.

Over the next quarter century, it was replaced by a far larger commitment to extracting pollutants from its original property but also by fighting some of the most aggressive measures to address the plume as it spread.

And in that effort, Grumman was often joined by regulators.

and project managers.

"There was simply no political will to adequately resource this issue."

The state, reversing its long-time approach, recently approved a \$585 million remediation, featuring the first full plume containment effort. It mirrors what local water districts essentially called for from the beginning, when the problem's scope — and cost of fixing it — was far less.

The plan calls for Northrop Grumman and the U.S. Navy, the other responsible party as owner of about 100 acres of the old Grumman site, to foot the bill. Both have argued the plan is not scientifically based.

A new day?

While Grumman made no mea culpa, the 1990s dawned with the company displaying a new cooperation with both regulators and water providers.

In 1990, it quietly agreed to give the Bethpage Water District \$1.7 million for the first system it installed to remove contaminants from its public wells. At the same time, the company was expanding a similar effort

on its own property.

By 1998, that on-site containment network grew to include a barrier of five extraction wells that pump and treat 5.5 million gallons per day of contaminated water.

Throughout the '90s and early 2000s, Northrop Grumman was following the state environmental Superfund process for industrial pollution sites, with little outward sign of obstinance.

"We were lockstep with the DEC," said Dick Dunne, Grumman and Northrop Grumman's government relations and public affairs director between 1991 and 2002, using the acronym for the state's environmental conservation department. "They were advising us on what we should and shouldn't do. And we were listening."

There were limits, however, and they now stand as critical ones.

Early on, Grumman agreed to stop further groundwater contamination from leaving its property. But with the state's blessing, it essentially left it to the Navy to address the substantial mass that had already

escaped.

Over time, that plume has continued spreading through Bethpage to threaten public water supplies serving communities including South Farmingdale and North Massapequa, as well as parts of Levittown, Seaford and Wantagh.

In 1994, four years after its first agreement with the Bethpage Water District, Grumman paid it \$1.8 million for a second contaminant removal system.

Counting maintenance and other associated costs, the company estimates it has paid \$5.4 million to the Bethpage district for the two public treatment systems that decontaminate water before it reaches taps.

That compares to more than \$40 million for public well treatments paid by the Navy, which also operates the only completed off-site system that extracts contaminants from the plume. (Northrop Grumman hopes to open its first in early 2021.)

For a long time, few in Bethpage knew much of this sort of detail, and Grumman predicted that it could avoid any public outcry in the future.

"In the past, public concern over environmental issues associated with the facility has been minimal," Grumman's consultants, Geraghty & Miller, wrote to the state in July 1990, concluding that "heightened public concern over the company's ability to continue employment" — it still had more than 18,000 workers — was one reason "it is anticipated that the community's concern over environmental issues that arise ... will be minimal."

'Aligned' with Grumman

The relationship between Grumman and the state was sympathetic from the outset of the Superfund process that governs state environmental cleanup efforts. This was the case even after Grumman was bought by Northrop Corp. in 1994 and its presence and workforce on Long Island shrank dramatically.

Referring to state environmental officials, Stan Carey, superintendent of the Massapequa Water District — the next water provider in the path of the plume — observed, "The people running the remedial

program almost seemed like, at times, that they were aligned with the Navy and Grumman."

To chart the extent of the state's rulings favorable to the company, Newsday reviewed thousands of pages of documents from the voluminous reports issued in compliance with Superfund regulations.

These began after Grumman signed an agreement with the state in October 1990 to develop a Remedial Investigation/Feasibility Study, known as an RI/FS, to probe the extent of the mess and how best to treat it. That would lead to a binding cleanup plan, known as a Record of Decision.

The alliances, disputes and road to half measures began at the start.

Some parties deeply involved in the crisis immediately argued that containing the plume was the fundamental issue. At a December 1990 public hearing on the study, Sabino said he'd "declare war" on regulators if they didn't fully investigate the groundwater contamination and try to stop its spread.

See HISTORY on A14

HISTORY from A13

But the state dismissed that premise.

It said in a 1991 reply to his and other public comments that a full plume containment “would be a waste of time and money.”

“It could make matters worse,” the state wrote. “For example, a public supply well which otherwise would not be impacted by the plume, could become contaminated (i.e. - the plume could be deflected.)”

In their reply, they also dismissed, as not “finely tuned,” the only study that had mapped the spread of contaminants from Grumman’s property. Up until that point, the 1986 finding by Nassau County and the U.S. Geological Survey had been considered a landmark — so significant that it caused the state to elevate the site’s Superfund risk level, kicking off the remedial process.

The decision not to seek full containment reverberated for decades.

“That was a fatal-flaw decision,” said Richard Humann, president and CEO of H2M architects + engineers of Melville, a longtime environmental consultant for the Bethpage Water District. He called it “a conclusion reached with insufficient information,” one that “set the stage for a series of underestimates and a series of minimizing what the potentials could be.”

‘Not considered’ a source

In early 1992, the state issued a

1991: STATE DISMISSED PLUME CLEANUP

In the earliest days of the state’s formal cleanup process for the Grumman facility, officials saw little value in addressing off-site groundwater contamination.

Moreover, such a program may provide no benefit at all, and therefore, would be a waste of time and money.

State Department of Environmental Conservation “responsiveness summary,” April 1991

fact sheet that made clear the focus of its first formal cleanup plan would be the contaminated soil on the Grumman and Navy grounds, not the plume spreading beyond their borders.

“An offsite groundwater investigation(s) will also be performed (as a separate phase) if it is determined that more data are necessary to complete” the study, the state wrote.

Who would conduct the study? “The RI/FS will be performed by Geraghty & Miller Inc., a local environmental services firm with over 30 years of experience,” officials wrote, without noting the company had worked for Grumman for years.

Geraghty & Miller would become part of Arcadis Inc., an international environmental firm that continues to work for Northrop Grumman.

The state’s Record of Decision, released in March 1995, called mainly for the newly formed Northrop Grumman company to install soil contaminant removal systems on its property, including one near a massive storage tank that had

leaked TCE into the ground during the 1970s. The Navy, under a report specific to its property, was required to take similar action.

But the most telling details in the 1995 Grumman decision came from some of the dozens of questions gathered from the public during the hearings the year before.

“Why is a consultant working for Grumman developing a remedy for addressing the groundwater contamination?” one person asked.

The state replied that Grumman was required to hire a qualified consultant and that Geraghty & Miller fit that description. It added that state environmental officials would approve all findings.

“Had a remedy been put in place several years ago, how much less pollution would have migrated off-site, and how much less of a problem would we be facing today?”

“Certainly, additional contamination has migrated off site over the past few years,” officials wrote in response. “However, in

the opinion of the NYSDEC, the overall magnitude of the problem has not increased significantly.”

A question posed in another comment was understandable to anyone who had spent time in Bethpage: “Have there been any investigations of properties formerly owned by Grumman (e.g., Bethpage Community Park)?”

The 18-acre plot, on the eastern edge of the company’s grounds, had been gifted to the Town of Oyster Bay by Grumman in 1962. It opened two years later as a sparkling focal point of suburban life, one that eventually included a swimming pool, playground, ice skating rink and ballfield where generations of children gathered.

“You met everybody in town. Everybody went to the ice rink. Everybody went to the pool. Everybody played sports in the park,” recalled Mark Comerford, 67, a Bethpage native. “I basically grew up at that park.”

The state’s confidence in the safety of the park was evident in its response to the public comment. “A direct investigation of

the Bethpage Community Park was not conducted,” the state wrote, noting that groundwater monitoring wells had been installed immediately south of the site. “Based upon the current data, the Park is not considered to be a source area.”

A year earlier, the Navy had taken a single sample inside the park as part of a wider investigation into whether soil with the toxic industrial compound polychlorinated biphenyl, or PCB, had blown off its original site. It only tested for the carcinogen, however, at a depth of up to 6 inches and did not find enough to trigger further testing or public disclosure.

Though soil cleanup on Grumman’s property was its focus, the state signaled in the 1995 decision that it would look deeper into the spread of the plume. “A groundwater model has to be developed,” it wrote.

Then, launching a six-year process that mirrored the one just completed, the state and the Northrop Grumman consultants issued a new round of reports specific to the plume. Most notable was another company-authored feasibility study and a second Record of Decision.

During this time, the plume grew by nearly a mile, down past Hempstead Turnpike.

Meanwhile, the company and the Navy agreed, in what a federal judge later called an “informal handshake agreement,” to divide responsibilities for what was to come.

Northrop Grumman, after

2001-PRESENT

THE AWAKENING

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In spring 2001, Northrop Grumman was in the midst of selling off most of the 600-acre Bethpage home of Grumman Aerospace, the defense giant it gobbled up a few years before.

As workers conducted routine soil tests, they made a discovery that jolted the company and the community.

They found the toxic industrial compound polychlorinated biphenyl, or PCB, on the site’s far eastern boundary. While such chemicals had long been identified in the heart of Grumman’s plant, this was on

the fringe of Bethpage Community Park, a buzzing core of local activity built on land Grumman had donated to the Town of Oyster Bay four decades prior.

“Implications of PCB contamination within the park itself are enormous,” Northrop Grumman said in a May 2001 internal presentation.

The company was not overestimating matters.

On May 2, 2002, the town padlocked the 18-acre park after confirming that PCBs and various metals, including

chromium, were present in the soil.

Its former ballfield, where generations of Bethpage children played, had been Grumman’s literal dumping ground, once described by the company as an “open pit” for its wastewater sludges and solvent-soaked rags.

The field remains closed today, a 3.5-acre scar in the middle of the community, still too filled with dangerous chemicals to use.

“No other town has something like that,” said John

Coumatos, a local restaurant owner and Bethpage Water District commissioner. Of Grumman, he remarked: “They won a war — they won two wars, and we’re stuck with what’s left over. It’s not fair to us.”

From the moment the town shut the park — with then-Supervisor John Venditto saying, “Would I want one of my children sliding into home plate?” — the people of Bethpage have taken on the massive pollution problem with a new combative-ness.

Nearly 900 people jammed

the local middle school for the first public meeting after the closure. Some asked for their children to receive blood tests.

Years of public outcry, lawsuits and aggressiveness by local politicians followed until the state last year approved a \$585 million plan for all but eliminating what has become Long Island’s greatest environmental crisis.

The plan is a sea change from past efforts by the state Department of Environmental Conservation, which had misjudged and failed to halt the

funding the Bethpage Water District's first two public supply treatment systems, focused its efforts on completing and operating its large on-site containment system, part of what it says has been a \$200-million remediation commitment over the past 30 years.

The Navy in 1995 paid \$1.9 million for Bethpage's third contaminant removal system. Against a backdrop in which the state and consultants for the company were predicting minimal future plume impacts, the Navy also agreed to fund any similar treatments that might be required, whether off-site containment wells or further public treatments.

To date, the Navy has accrued costs of more than \$45 million for the public contaminant removal systems. Its total costs come to more than \$130 million, a Navy spokeswoman said.

Public underestimation, private alarm

In mid-October 2000, the state released the feasibility study that led to its plan for dealing with the growing plume.

It serves as a flashing warning sign for how the spread and severity of contamination were profoundly misjudged.

To start, Arcadis estimated that it would take at least three decades for the plume to reach further public water supplies.

It took one.

The report stated that TCE-contaminated groundwater at one public Bethpage well would

be reduced to state drinking standards of 5 parts per billion by 2012. Instead, the levels increased to 83 parts — and in 2019 stood at 349.

Perhaps most inaccurately, the feasibility study stated that any portion of the plume not cleaned up by treatment systems proposed or already in place would “undergo natural attenuation.” That meant that the toxic chemicals would ultimately dilute or be removed through various organic physical, chemical or biological processes. As the state determined in 2019, after reversing its approach to the crisis, “it is clear that natural attenuation alone in these areas would not significantly contribute to attaining groundwater quality standards.”

On their own, the feasibility study's botched projections are glaring enough. They stand out even more when contrasted with the internal alarms set off, almost simultaneously, within Northrop Grumman.

On Oct. 30, 2000, two weeks after the Arcadis report, Larry Leskovjan, then manager of Northrop Grumman's environmental, safety, health and medical operations, alerted colleagues in an internal memo of a “recent discovery that the contaminant plume has progressed much more closely to the South Farmingdale Water District supply wells than expected.”

The memo is cited in a 2014 decision by U.S. District Court Judge Katherine B. Forrest finding that Grumman's former insurers would not have to cover envi-

ronmental damage claims against Grumman, in part because the company kept it in the dark about its exposure.

Leskovjan added that data “strongly suggest[s] that this plume originated from Northrop Grumman property.” The admission was one the company still hadn't quite made publicly, even as it acknowledged some responsibility to state regulators.

A month later, according to Forrest's ruling, the company confirmed Leskovjan's warnings at a meeting with representatives of the Aqua Water District, a private provider (now known as New York American Water) with wells serving Seaford and Wantagh. Northrop Grumman revealed, Forrest wrote, that it “knew that contamination emanating from its Bethpage facility ... was expected to eventually contaminate the drinking water supplies of both” that district and South Farmingdale.

In an email three months later, Leskovjan said the water districts were concerned “as a result of recently developed information that indicates [Grumman's] groundwater plume extends much farther than anticipated.” He later noted that it was his “understanding in 2001 that Northrop Grumman potentially might be responsible for costs associated with insuring a clean water supply” to those districts, Forrest wrote.

The Navy, however, under its “handshake” deal with Northrop Grumman, was the one that ultimately paid those costs — nearly

\$28 million, according to its records.

Lack of urgency

Leskovjan's warnings were not truly reflected in the state's March 2001 Record of Decision on the groundwater plume, its first formal plan for remediating the contamination outside the former Grumman plant.

Even though the plume now covered about 2,000 acres, with its southern edge crossing Hempstead Turnpike, the state did not call for the urgent action local officials wanted.

Estimated to cost \$33.6 million, the plan recommended three primary components: continuation of Northrop Grumman's on-site containment, continuation of the drinking water treatments at public wells in Bethpage and a single new off-site contaminant removal system 4,500 feet south of a former company dumping site, to be funded and run by the Navy.

The unchosen alternatives were far more aggressive. At roughly double the cost, one called for a bank of pollutant extraction wells to rid the groundwater of toxic chemicals as they reached the outermost points of the plume.

The state, however, concluded that permitting and property acquisition would be “difficult to implement” and that building the extensive apparatuses required would be “impractical.” The Navy echoed these conclusions two years later in its own Record of

Decision, which it was required to file as a federal department.

Had any of the alternatives been chosen, local water providers say, the plume could have been largely contained not far south of Hempstead Turnpike, lowering the likelihood that further public wells would have been affected.

“One foot per day, it travels,” said John Caruso, a Town of Oyster Bay public works official who has studied the contamination since he helped Nassau County develop the first plume map in the 1980s.

“It was Hempstead Turnpike. Now it's the Southern State Parkway,” Caruso said. “Where's it going to be next?”

The state's approach, however, was heartily backed by Northrop Grumman and the Navy.

“We support it fully and would strongly object if it were modified in any material way,” John H. Young Jr., a Northrop Grumman vice president, wrote to the state in early 2001. “We would be very concerned if the [proposed plan] were altered to incorporate a full containment option.”

In its own Record of Decision, the Navy concluded, “It is not economically or technically feasible to contain and treat all the contaminated groundwater that has migrated from the [Navy] site to groundwater quality standards.”

A year later, reality hit hard through an unexpected discovery.

spread of the groundwater pollution, all while relying heavily on flawed analyses provided by Grumman and its successor company, Northrop Grumman.

“The ballfield — the Bethpage Community Park — I think just kind of woke everybody up,” said Stephen Campaigne, 65, a retired Con Edison worker who has lived in Bethpage for 40 years.

A year after discovery of the park contamination, a report by a Northrop Grumman consultant, Dvirka and Bartilucci, laid out the full extent of the toxic dumping there. It found that wastewater sludge “was transported to the park property and placed in one of two sludge drying beds”; that “spent rags generated during the wipe-down of a paint booth water curtain” were “emptied into a pit located on the property”; and that the land was “utilized as a fire training area where waste



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oil and jet fuel were ignited and extinguished.”

And the soil contamination all that caused wasn't the worst of it.

In 2007, Bethpage Water District consultants were reviewing data from a U.S. Navy monitoring well just south of the park. They found the carcinogenic metal degreasing solvent trichloroethylene, or TCE, in the groundwater at 6,300 parts per billion — more than a thousand times higher than the state limit for drinking water and far more than its closest treatment system could handle.

The state identified this in 2009 as emanating from the ballfield, a clear indication the park was the source of a second plume, deeper and more contaminated than the well-established one that had poured out from Grumman's old manufacturing grounds.

For Bethpage and the communities to the south, the discovery was deeply distressing. It meant a still greater spread of groundwater contaminants and more concerns about the possible health effects, despite local water providers' assurances that they remove anything dangerous from what's delivered to taps.

For Northrop Grumman the concern grew, too. Under the state Superfund law governing hazardous waste sites, the company's responsibility rose from simply cleaning the park's soil to treating an even larger and still spreading mass of carcinogens.

The divisions between the community and the polluters also widened. As far back as 1976, the Nassau County Health Department and Grumman's own consultants had identified troubling deposits of TCE on company grounds. And by 1989, Grumman had begun a substantial effort to extract the contaminants.

But during all those years of growing concerns, no records were found in which any Grumman or government official seemed to ask, in a meaningful way, “What about the park?”

The Newsday investigation identified only two instances, both in the 1990s, in which anyone had tested Bethpage Community Park. Those, by the Navy and town, literally went little beyond scratching the surface.

'May continue to dump'

Part of the 18 acres of undeveloped land at Grumman's northeast corner by the late 1940s became, in the words of an employee at the time, a “remotely



A dedication plaque at Bethpage Community Park memorializes that the property was donated by Grumman.

located open pit” to dump its various wastes.

Aerial photographs from this era show the dirt from this portion becoming progressively darker and, as the company later put it, more “disturbed.”

This use wasn't against the law, and none of it seemed to be of concern at the dawn of the 1960s, when the Town of Oyster Bay sought land in Bethpage for a new park. So in October 1962, Grumman gifted the parcel to the town for a community gathering spot that would include a playground, swimming pool and ballfields.

When the park opened two years later, Grumman insisted on a commemoration plaque, which still is displayed next to the swimming pool.

“This appears to be a suitable site,” town Supervisor John J. Burns had told Newsday in December 1961, when the donation was first proposed. In a photograph that memorialized the land transfer months later, the supervisor smiles alongside Grumman's then-president.

By the time the deal closed, Burns knew more about the land than he had indicated.

“Grumman may continue to discharge the non-toxic liquid waste currently being discharged into the sump, and may continue to dump clean fill on the land as heretofore [sic], until the further discharge of such liquid waste and further dumping of such fill will in the Town's opinion impede development of the land,” Burns wrote in a 1962 letter to Grumman, obtained under a state Freedom of Information Law request and revealed for the first time.

The “non-toxic” reference indicates that the town was unaware that the waste posed any danger. Grumman, by available indications, could well have known otherwise.

Nassau County in 1955 had alleged, in state filings related to Grumman's application for new water wells, that even after the company treated wastewater dried on the future park property, it still contained the toxic metal chromium in levels that could contaminate the water supply.

In 2013, Northrop Grumman environmental consultants confirmed that the wastewater sludge dumped at the park also contained TCE, a volatile organic compound, or VOC, that wasn't viewed as a danger in the early 1960s but is now the plume's most prevalent contaminant.

“Whatever was disposed in the rag pit has contributed to VOCs to groundwater,” Michael Wolfert, a project director at the consulting firm, Arcadis Inc., said in a deposition taken in a federal lawsuit by Grumman's former insurers.

The insurers, including the Travelers Cos., successfully argued that Grumman didn't provide full or timely notice of potential claims it could face from its environmental practices.

Shifting blame

After the park was shuttered in 2002, Northrop Grumman expressed a willingness to work with the state on determining the extent of the soil contamination. But it also set off on a lengthy effort to limit its culpability and costs.

Its first line of attack was to try to shift cleanup responsibility to Oyster Bay and the Navy, which owned a portion of Grumman's manufacturing facility that the company operated.

In letters to the state during the summer of 2002, Larry Leskovjan, then manager of environmental, health and safety for the company, acknowledged that Grumman engaged in “the drying of metal-bearing sludges” at the future park site. Yet he argued that “the contaminants at issue related directly to Navy Industrial reserve programs and military manufacturing dictated by the government.”

The Navy, he added, conducted annual inspections of Grumman's facility and therefore “gave at least tacit” approval of the company's disposal practices.

In written responses to Northrop Grumman, the Navy said there was “little to no relevant evidence” to back up those assertions.

And because Burns' 1962 letter indicated that Grumman could continue some dumping at the site, Leskovjan wrote, “the town was aware that certain wastes and clean fill were being placed on the property.” He also suggested that Oyster Bay could have brought in its own contaminated fill after receiving the land.

The company later acknowledged it had no proof of the last point, though some coolant later leaked from the park's old ice-skating rink, which the town is responsible for cleaning up.

Three years after Northrop Grumman first attempted to shift blame, Oyster Bay sued the

company and the Navy over the contamination.

At the same time, the town worked with the state to expedite the cleanup of a seven-acre portion of the park, farthest from the ballfields, where it built a new ice-skating rink.

Aware of residents' concerns, the town pressed for “mass” soil excavation of up to 10 feet, which it deemed necessary for long-term safety and the possibility of future uses, including residential. The state — which for years had endorsed overall cleanup measures often criticized as too limited — recommended a more targeted plan, costing \$6 million, that would have left most soil in place. This, it concluded, would be “fully protective of human health and cost-effective.”

The town's plan cost nearly four times as much, or \$22 million. Defending itself in the town's lawsuit, Northrop Grumman pointed to this battle between Oyster Bay and the state, asking for a judgment that it wouldn't have to cover the town's cleanup portion because it was excessive.

It dismissed the town's argument about potential future uses by noting that the park's deed stated the land would revert to Grumman if it ceased being publicly owned.

In May 2009, then-U.S. District Court Judge Thomas C. Platt granted the company's request, ruling that the town's plan was “plainly excessive.”

The judge did not order the company to cover the \$6 million cost of the lesser plan, and Oyster Bay spokesman Brian Nevin told Newsday last month that

Northrop Grumman has never offered to pay for it.

Breaking point

As Oyster Bay was fighting Northrop Grumman on one front, Anthony Sabino, the long-time lawyer for the Bethpage Water District, was engaging the company on another.

By 2009, the new park contamination led the water district to conclude that the treatment system on one of its drinking water wells, funded by Grumman in the early 1990s, was no longer sufficient. It wanted Northrop Grumman to pay millions of dollars for an upgrade.

The company didn't share the district's concern. In a series of letters, it cited its own projections of the plume's movement and argued that it did not pose an imminent threat to the district wells.

"In fact, Northrop Grumman's consultants cannot identify what facts form the basis of the Water District's claim that there is now an emergency situation," a company lawyer wrote to the district.

Negotiations hadn't gotten anywhere by 2010 when Sabino took his case to Sen. Chuck Schumer (D-N.Y.). Northrop Grumman, he wrote, "steadfastly refuses to be responsible for these necessary improvements based on a groundwater model that has consistently, without exception, underestimated the direction, depth, concentration of plume contaminants and the plume's impact on down gradient water suppliers."

He continued: "This perfect record of failure can not [sic] be coincidence," labeling the company's computer modeling of the plume "liability driven," with the goal "of shifting liability from the responsible parties to the residents of Bethpage."

Northrop Grumman, meanwhile, sought to discredit other information — including its own — that could increase its liability.

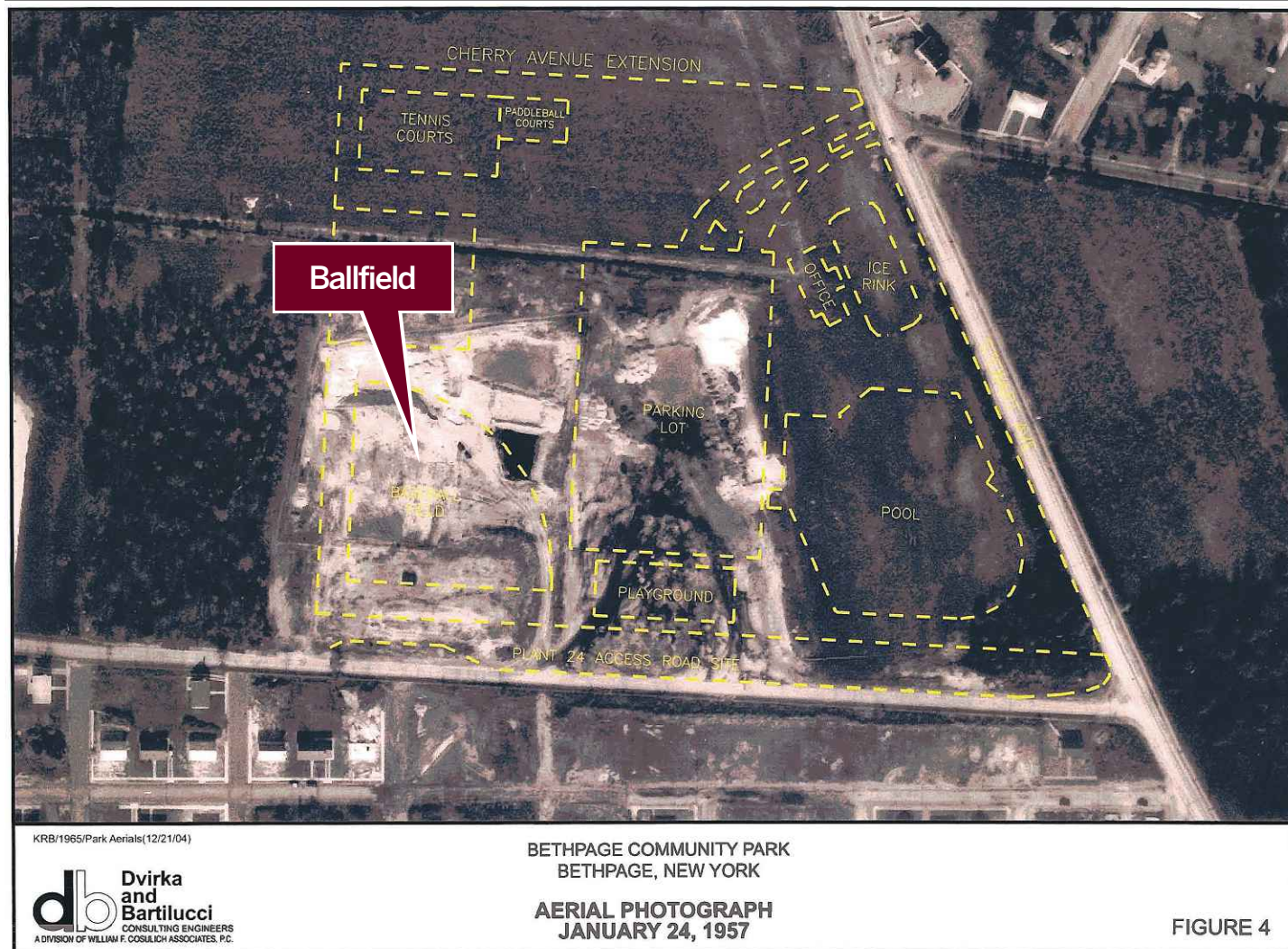
Back in 2003, the Northrop Grumman consultant Dvirka and Bartilucci had provided its vivid description of how the Bethpage Community Park ballfield came to be so polluted, pointing to the wastewater sludge placed in drying beds, the "spent rags" "emptied into a pit" and the fire training area there.

After discovery of the park plume, a second company consultant, Arcadis Inc., knocked down those findings.

"Apparent historical activities were not well understood or documented," the firm wrote as it developed the groundwater cleanup plan for the park,

BEFORE IT WAS A PARK

After Bethpage Community Park was found to be contaminated, a Northrop Grumman consultant provided aerial photos of the land as it appeared before it was donated to the town. The yellow outlines indicate the features the town would later add. The area where a ballfield would be built had been a Grumman dump site.



adding that the previous consultants' history was "speculation."

Steven Scharf, a state environmental project engineer, replied: "This is not the case at all. Grumman clearly presented information to the contrary in [a] previously submitted report." He demanded that the company reflect the 2003 history in its new material.

"The Bethpage Community Park ... and the surrounding areas, are well understood," Scharf continued, adding that "historic use(s) of the Park property are well documented."

Wolfert, one of the Arcadis employees responsible for the revision, said in his 2013 deposition in the Travelers insurance case that Northrop Grumman had directed him to make the change because the 2003 account had relied on anecdotal recollections from employees at the time.

"They therefore wanted to modify the site history to not

See HISTORY on A18



The former ballfield at Bethpage Community Park as it looks today, 18 years after officials found PCBs and various metals, including chromium, in the soil.

HISTORY from A17

look like it was so definitively known,” Wolfert said in the deposition, adding later that the company did not require him to do any further investigation of the site history.

Plume model assailed

Most critical in the state’s decisions on how to attack the plume was a computer model developed by the company’s longtime consultant, Geraghty and Miller, later absorbed by Arcadis.

It would finally be discredited when Schumer and local water providers in 2010 prevailed upon the U.S. Environmental Protection Agency and U.S. Geological Survey to launch a review.

The tensions between Schumer and the state were palpable at the time, observers remember.

Judith Enck, the EPA’s then-regional administrator, recalled attending a September 2010 meeting on the plume organized by Schumer, and being pulled aside by a Long Island-based state environmental official.

“They’re getting pushed around by the Navy and Grumman,” she recalled the person telling her of department leadership in Albany. “The state doesn’t seem capable of standing up to the Navy and Grumman.”

Enck said she had the same impression attending the meeting. “Usually, when you have Senator Schumer banging on the table, people are responsive,” she said recently. “The state took it as a state site and did not want any federal oversight.”

In a recent interview, Pete Grannis, the state environmental conservation commissioner from 2007 to 2010, maintained that his staff was not being run over by the polluters. Rather, he said, they were grappling with what had also confounded numerous past administrations. (The prior environmental commissioners could not be reached or did not return requests for comment.)

“This is something that at the time was thought to be somewhat of an intractable problem that sort of defied a solution that we could do and afford,” Grannis said. “We had serious

questions about whether it could be contained and, if not, then what could be done to protect the drinking water as this moved.

“We didn’t have a very clear picture of what we could do about it.”

Federal environmental officials’ review of the long-standing plume model was pivotal.

In a 2010 memo, the EPA concluded it should “not be used to attempt to make a reliable prediction of potential impacts on public supply wells.”

Citing several inaccurate predictions, the agency, along with the geological survey, determined in a final 2011 report that the model simulated future movement in an “incomplete” manner and “ignores information” such as the impacts of public supply groundwater pumping and discharges from treatment systems.

“That was a big turning point,” said Carey, the Massapequa Water superintendent. “It ratcheted things up to say, ‘Hey, look, we have the federal government saying now that the model that you used was flawed and that we really need to start this over and look to take a new look.’”

Another limited step

A change in approach from the state wasn’t immediate.

Its 2013 plan to address the park contamination proposed spending more than \$60 million beyond the cost of earlier state cleanup decisions, which had covered soil contamination on the Grumman site and the original groundwater plume spilling out of that property. But the new plan didn’t go as far as local water providers sought.

It included cleaning the park’s ballfield of contaminated soil — a project that still hasn’t been completed.

It also called for cleanup of contaminated soil in residential yards next to a former Grumman access road. The state had found PCB contamination up to 58 times current state standards in 2002. By 2016, Northrop Grumman had removed soil contaminated with PCBs and chromium from the yards of 30 homes.

When it came to groundwater, the 2013 plan required Northrop Grumman to continue running a contaminant ex-



Anthony Sabino, attorney for the Bethpage Water District, speaks before a packed house at Bethpage

traction system at the boundary of the park — similar to the one it has operated at its original plant boundaries — to stop further migration. Since 2009, that has pumped 300,000 gallons a day of tainted water and removed 2,200 pounds of toxic chemicals, the state estimates.

The plan called, too, for new off-site extraction systems at “hot spots” of high contamination south of the park, including one that Grumman finally hopes to complete in 2021. It will be the company’s first comprehensive remedial effort outside of properties it once owned.

But, as with prior cleanup decisions, the state chose not to endorse full plume containment, which would have cost more than \$200 million and have involved an extensive series of extraction wells and piping.

“It’s the best alternative that

we can come up with,” a state public health specialist, Steven Karpinski, said at a public hearing where the plan was criticized by residents and elected officials.

Northrop Grumman endorsed the state’s approach in a public comment included in the plan document: “The NYS-DEC groundwater remedy is appropriate with some minor modifications.”

By this point, however, public knowledge, concern and outrage were erupting.

The new state effort got far more media attention than any prior ones, and the Bethpage Water District was becoming more vocal in airing its grievances, including the discovery of elevated radium levels in one of its wells.

At the same time, a state study of cancer in part of Bethpage — finding no higher overall rates — was released nearly

four years after toxic soil vapors had been found near some homes.

In a 2013 email to state environmental officials, Bethpage resident Rosalie Romano asked, “Why has the NYS DEC not been acting in the best interests of the residents of Bethpage?”

George Hignell, another longtime Bethpage resident, wrote to then-Nassau District Attorney Kathleen Rice in a pleading email that asked her to investigate why the problem had been obscured. He cited the deaths of his parents and numerous neighbors to cancer and compared the growing groundwater contamination to one of the nation’s most infamous cases of industrial pollution.

“We are the new ‘Love Canal,’” Hignell wrote, referencing the massive contamination and evacuation of a community near Buffalo. “We need you to

Reporters/writers: Paul LaRocco and David M. Schwartz **Project editor:** Martin Gottlieb **Additional editing:** Doug Dutton **Project manager:** Heather Doyle **Video director, editor:** Jeffrey Basinger
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High School during a June 2012 meeting about the community park.

help us. Please.”

Aides to Rice, now a congresswoman, said there’s no record of her office opening an investigation.

‘Master of delay’

As the pressure was rising for something more to be done, Northrop Grumman was still fighting calls for it to do — and pay— more. Nowhere was this more visible than in another courtroom skirmish, this time with the Bethpage Water District.

The district wanted nearly \$10 million to protect the public well it identified as being threatened by contamination from the park plume. It had discovered the park contamination six years before, in 2007, and started negotiating in earnest in 2009.

Early on, Sabino recalled feeling the strong implication from Northrop Grumman, passed along from elected officials in the area, that the company would relocate its 2,500 employees still based in Bethpage and blame the district if it continued to push for compensation.

At the peak of the recession,

few wanted to call the company’s bluff.

“We should have hit them hard when we had the chance,” said John Sullivan, a district water commissioner. “But we would have taken the brunt of it.”

The district finally filed a lawsuit in 2013. Sabino was feeling confident, even though the district had 12 full-time employees and a budget of a few million dollars a year and was going up against a multinational corporation with almost \$25 billion in revenue and 85,000 employees.

Well before the suit was filed, he wrote in an email to Schumer’s office: “The complaint is substantial, and the public announcement of the lawsuit will definitely embarrass Grumman and the Navy. Between the lines, it is also embarrassing to the NYSDEC who has regulated this site for 20 years with little remediation of the plume and less assistance to the affected water suppliers.”

The time spent in negotiations, however, proved fatal to the district’s case.

Northrop Grumman argued that officials had three years



Bethpage Water District Superintendent Michael Boufis, left, gives a tour of the district’s Plant 6 to Sen. Chuck Schumer (D-N.Y.), center, and then-Navy Secretary Richard Spencer in September 2017.

from the discovery of the park plume to file a claim. A judge agreed, and the district’s ratepayers footed the bill for the upgraded well treatment.

“They are the master of delay,” district superintendent Michael Boufis reflected recently, as he reached for a David vs. Goliath analogy. “This is biblical, what’s going on here.”

To the south, Massapequa Water District has been watching.

Stan Carey, the district superintendent, said it has resisted putting the same expensive contaminant treatment systems on its wells while pushing the state to contain the plume. But estimates have the mass reaching Massapequa’s early detection wells in as little as two years.

“At some point you have to start pulling it out of the ground and cleaning it up,” Carey said.

‘I said “no”’

In 2014, Joseph Saladino, then Massapequa’s Republican assemblyman, convinced the Democratic-led Assembly to pass his long-stalled bill authorizing a feasibility study for a system of hydraulic wells that would fully contain the plume at its southern edge. It was similar to proposals the state, Northrop Grumman and the Navy for years had called too costly and unworkable.

But with increased pressure from residents — and against the backdrop of the drinking water crisis in Flint, Michigan — the political climate had turned.

The Senate passed the law in June 2014. Gov. Andrew M. Cuomo signed it into law in the



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last days of the year, overriding concerns by his former environmental leadership.

Saladino, now Oyster Bay town supervisor, recalled seeing Cuomo at the wake of his father, former Gov. Mario Cuomo, in January 2015, where the governor told him, “You know, they told me to veto your bill. And I said ‘no.’”

That decision set off a new era of action by the state. Cuomo named Basil Seggos, a longtime environmentalist who had served in Cuomo’s office, the department’s commissioner and committed to a tougher approach later in 2015.

In a recent interview, Seggos reflected on the longtime stances of Northrop Grumman and the Navy. “They tend to get into cruise control unless poked and prodded,” he said. “I

believe that’s where they were.

“In the meantime, happening on the outside was a sea change in the way that the state was approaching environmental problems. You had this incredible awareness about drinking water problems nationally, certainly here in New York.”

The \$585 million state cleanup plan relies on a complex network of new pipes, treatment facilities and containment wells, similar to what the study spurred by Saladino’s bill had said was feasible.

The state says it will take Northrop Grumman and the Navy to court if they refuse to pay.

More than 1,000 residents, meanwhile, have joined class-action and personal injury lawsuits, primarily against Northrop Grumman, that allege their health ailments are a result of the contamination. The company denies responsibility, and the cases are pending in federal court.

As the fighting continues, the plume continues to grow, cleanup costs continue to rise and the health concerns continue to consume many residents.

“It’s the worst-case scenario in every way you can imagine,” said Sarah Meyland, director of the Center for Water Resources Management at New York Institute of Technology in Old Westbury. “The contamination in the groundwater system was known in the ‘70s — clearly.”

**Cuomo, leaders
react to plume
findings**

NEXT PAGE

Officials: Plume's handling 'outrageous,' 'shameful'

BY YANCEY ROY

yancey.roy@newsday.com

ALBANY — Gov. Andrew M. Cuomo and other top New York officials on Wednesday criticized aerospace giant Grumman and the U.S. Navy for keeping information secret and dragging out the cleanup of an underground contaminated plume that's been spreading for more than 50 years.

Cuomo cited a Newsday investigation in saying that he would continue to push for full containment of the so-called Grumman plume, a channel of chemical contamination that began decades ago below a Navy-Grumman site in Bethpage and has stretched to become 4.3 miles long, 2.1 miles wide and up to 900 feet deep.

"It's outrageous that for decades the U.S. Navy and Northrup Grumman slow-walked the cleanup of the Navy-Grumman plume, even though they knew its toxic chemicals were contaminating water and potentially endangering residents," Cuomo said in a statement after Newsday published *The Grumman Plume: Decades of Deceit*. Northrop Grumman is Grumman's successor.

Federal officials echoed the governor.

"Newsday's investigation exposes the concerning details of a long-standing, systemic failure to protect drinking water for residents on Long Island," Rep. Kathleen Rice (D-Garden City) said. "It is shameful that the extent of this problem was swept under the rug by Grumman executives and government officials for so long."

Rep. Tom Suozzi (D-Glen Cove) said it was time to stop dawdling.

"It is time for the Navy and Grumman to each write big checks and turn this long-overdue cleanup over to the NYS DEC and the Bethpage Water District," Suozzi said, referring to the state Department of Environmental Conservation. "No more wasting time and money on lawyers and engineers; let's get this done already."

In the report, Newsday found Grumman, as far back as the mid-1970s, knew its toxic chemi-



Sen. Chuck Schumer (D-N.Y.) comments on Newsday's investigation of the Grumman plume.

cals were contaminating local groundwater and the company buried information that could have prompted a timely cleanup.

Documents examined by Newsday revealed warnings that the plume was spreading farther and in directions different from first projected, false statements from officials blaming the pollution on a nearby manufacturer and a confidential memo from 1989 that declared Grumman's unequivocal responsibility for contamination that reached drinking water wells.

Sen. Chuck Schumer (D-N.Y.) said the water supply for more than 200,000 people "could be poisoned."

"What they talk about at Grumman is just appalling," the senator, at an unrelated event in Alberston, said in reference to the Newsday investigation. "We always suspected that what they were saying about the source of the pollution and the toxicity was" disingenuous "and this sort of confirms it."

Nassau County and the U.S. Geological Survey identified the contamination as a plume in 1986 — it has doubled in size since, and is moving at a pace of a foot per day toward Great South Bay.

The plume is now classified as a hazardous waste site under the Superfund program and considered one of the most complex in the nation. Although it contains more than 20 contaminants, the most significant is the metal degreaser trichloroethylene, or TCE, which has found its way into local drinking water.

Grumman once employed 20,000 at its Long Island site, known for building World War II fighter planes and the lunar module.

Combined, Northrop Grumman and the Navy say they have spent more than \$300 million on the cleanup.

But last fall, over the objections of those two entities, the Cuomo administration announced it would move forward with what it called a \$585 million comprehensive remediation plan. The plan includes using wells to pump and treat millions of gallons of water per day.

In his statement Wednesday, the governor reasserted his commitment to the cleanup.

"Jobs and industry are obviously critically important, but we cannot sacrifice the health of our communities," Cuomo said. "This administration does not sit idly by and that's why

we initiated the full containment of the plume and we will work until the job is done. We will continue to prioritize actions across the state to hold U.S. Navy, Northrup Grumman and other polluters accountable and ensure the safe and protective cleanup of our industrial past."

Northrop Grumman has defended its disposal practices as legal at the time. In a statement provided in response to the Newsday report, spokesman Tim Paynter said the company has worked closely with federal and state agencies "to develop and implement scientifically sound remediation strategies that protect human health and environment."

The company noted it has installed five containment wells along the southern boundary of the former 600-acre parcel and has extracted 18,000 gallons of contaminated groundwater over the last two decades.

Said Paynter: "Northrop Grumman remains committed to working with all stakeholders to provide for fact-based, scientifically-sound remediation efforts that advance the cleanup and help protect the community without unnecessary disruption and potential harm."

With Bart Jones

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CORRECTIONS

Luis Real allegedly crashed through a fence and landed his pickup truck on a parked car Monday night in Brentwood. The information was incorrect in Wednesday's edition.

THIS DATE IN HISTORY

1792 President George Washington signed an act creating the United States Post Office Department.

1905 The U.S. Supreme Court, in *Jacobson v. Massachusetts*, upheld, 7-2, compulsory vaccination laws intended to protect the public's health.

1962 Astronaut John Glenn became the first American to orbit the Earth as he flew aboard Project Mercury's Friendship 7 spacecraft.

1987 A bomb left by Unabomber Ted Kaczynski exploded behind a computer store in Salt Lake City, seriously injuring store owner Gary Wright. Soviet authorities released Jewish activist Josef Begun.

2003 A fire sparked by pyrotechnics broke out during a concert by the group Great White at The Station nightclub in West Warwick, Rhode Island, killing 100 people and injuring about 200 others.

2007 In a victory for President George W. Bush, a divided federal appeals court ruled that Guantanamo Bay detainees could not use the U.S. court system to challenge their indefinite imprisonment.

EDITORIAL

Grumman's legacy of deceit

It should be held to account for the contamination it caused in Bethpage

BY THE EDITORIAL BOARD

Few Long Island legacies were as well-buried as the one that once belonged to Grumman. The Bethpage-based aerospace giant was the pride of the region for its aviation accomplishments, the role it played as the Island's economic engine, and the seemingly magnanimous way it treated its workers and the community.

Now its reputation lies in tatters, and deservedly so.

The most consequential thing it left Long Island, it turns out, was the monstrous plume of contamination infecting Long Island's sole-source aquifer, a plume created by chemicals Grumman dumped on its 600-acre site, a plume packed with carcinogens that now threatens the drinking water of 250,000 residents of Nassau County.

Deliberately deceitful

That would have been stain enough. But the horror of this story lies in the deliberate deception practiced by Grumman, which allowed the plume to grow and put ever more people at risk. The deception — unmasked by Newsday in its meticulously documented investigation, "The Grumman Plume: Decades of Deceit" — was undeniable. It was relentless. It was and will be catastrophically costly. And it left generations of local residents worried about the water they drink and its impact on their health and that of their children.

It is difficult to imagine a more comprehensive compendium of corporate bad behavior. As early as 1955, the Nassau County health department said toxic waste from

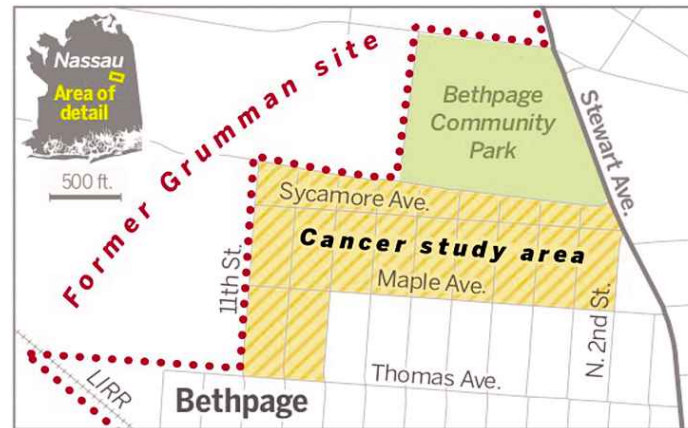


Demonstrators greet people arriving for a June 2012 meeting with the state to discuss the Bethpage Community Park, which was contaminated by Northrop Grumman.

Grumman could contaminate drinking water wells "a considerable distance" away. By the mid-1970s, the company knew for sure its chemicals were polluting groundwater. But for decades, Grumman denied the existence of the plume, the extent of the plume, its role in creating the plume, and the threat the plume posed to residents. Documents gathered by reporters Paul LaRocco and David M. Schwartz show that Grumman outright lied. It withheld information. It hid data. It co-opted elected officials. It minimized risks and concerns. It blamed another contractor for the pollution. It even tried to discredit its own information — all of it done to try to limit its culpability, liability and costs.

At every juncture, when faced with doing the right thing, Grumman chose to do the wrong thing.

Joining Grumman in its duplicity — at various times and to varying degrees — were the U.S. Navy, which owned part of Grumman's facility, Nassau County health officials and, most prominently and most shamefully because it



was the watchdog, the state Department of Environmental Conservation.

Now, the DEC under Gov. Andrew M. Cuomo and Commissioner Basil Seggos is riding herd on Grumman's successor, Northrop Grumman, and the Navy, holding them accountable, pushing a \$585 million containment plan for 24 wells and treatment systems operating for 110 years, and putting up the money while promising to seek reimbursement from both bad actors. That is to its credit. But for many years in the past, the agency was allied with Grum-

man. It adopted the company's reports as its own, and minimized the risk.

The conclusion is clear: Had Grumman started vigorous cleanup efforts when it knew the plume existed, the contamination wouldn't be nearly the problem it is today.

The plume is now a monster — 4.3 miles long, 2.1 miles wide and 900 feet deep. It moves one foot per day, and has traveled south of the Southern State Parkway. It contains a devil's brew of insidious substances, including 13 known, likely or suspected carcinogens. Local taxpayers have

shelled out more than \$50 million so far to keep their drinking water clean.

Beyond the plume

But the plume also has taken a personal toll, especially in Bethpage, where home values have suffered and residents have never received sufficient answers to questions about whether the contamination caused the cancers suffered by many in the community. Such factors deepen the sense of institutional betrayal.

Grumman once was a source of pride, Long Island's largest employer with 20,000 workers. Its constellation of related businesses was endless. It made the lunar landing module and World War II Hellcat fighter jets, sponsored youth sports teams and hosted massive company picnics.

What Grumman did is a lesson about the zealous pursuit of corporate profits. It's a cautionary tale about regulators becoming too friendly with those they regulate, and about elected officials turning a blind eye. And it's a warning about future discoveries of contamination: There is a tremendous cost to delaying needed cleanups.

The road forward is clear. The state DEC, moved to action by a 2014 bill from then-State Assemb. Joseph Saladino requiring a feasibility study on a well plan similar to the one adopted, must not let up on its cleanup plan. It must keep pushing Grumman and the Navy to pay the ghastly cost of their mess. Sen. Chuck Schumer and Rep. Tom Suozzi should keep the heat on the Navy. A definitive cancer study should be done, and Grumman and the Navy should pay for it; Bethpage residents deserve answers after all these years.

Grumman's lunar module still sits proudly on the surface of the moon. The company's toxic chemicals lurk silently beneath the surface of Long Island. Both bear the stamp, "Made in Bethpage, New York."

That is Grumman's true legacy, and its forever shame.

DANIEL GOODRICH

NEWSDAY / ANDREW WONG