

WATER FOR LONG ISLAND



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Articles contained in this issue: *Superfund Sites, A Closer Look* - Lawrence Aviation; *PFAS Sites on Long Island*; *The Ogallala Aquifer – A Lesson for L.I.*; *NYC and the Jamaica Queens Wells*; *Update on PFAS and 1,4 Dioxane in L.I. Wells*

A Closer Look at Superfund Sites on Long Island

Long Island has more superfund sites (combined federal and state sites) than any other region of New York State. Federal sites are controlled by the US EPA and State sites are controlled by the NYS DEC. There are currently 256 designated sites according to the *Newsday* database (last updated 3-31-2017). The cleanup process for many sites is a slow and expensive effort. Some sites are very small in terms of the land area. Other sites can be quite large and may have multiple locations that require cleanup. Some of the newest listed sites are locations with **PFAS** (per- and polyfluoroalkyl substances) contamination.¹

It should be no surprise that **90% or 231** out of 256 sites have caused **groundwater contamination**. At eleven sites that are larger than 100 acres in size, seven have significant groundwater contamination plumes. This article is a snapshot of some new sites as well as well-known superfund sites.

Lawrence Aviation Industries

This site, located in Port Jefferson Station, is 125 acres in size. It is situated in a residential/commercial area, near Long Island Sound. The

company manufactured titanium sheet metal for use in the aviation industry. Lawrence dumped hazardous waste into the environment from 1959 to 1991. The waste was dumped in several areas on site, including lagoons and cesspools. A substantial amount of waste was spilled on the land. The hazardous waste included fluorides, sludge, caustic acids and halogenated solvents. Initial enforcement at the site began in 1991. Local private wells were impacted, causing nearby residents to be connected to the public water supply. A pond and creek located to the north of the site were also contaminated as polluted groundwater drained into these water bodies. A cleanup plan was adopted in 2006. Contaminated soil was removed first and then a groundwater treatment system was begun in 2011. A groundwater plume extends to the north toward Long Island Sound. Various oil tanks and oil-soaked ground remediation actions continued into 2014 and are on-going.

The decades long cleanup (1991 to present) Lawrence Aviation is typical of large and small sites across Long Island. (See the Table of large sites at the end of the newsletter.) In recent news (April 16, 2019), a federal judge ordered the site owners to pay **\$48.11 million** to cover EPA's cleanup costs. They were also **fined \$750,000** in civil penalties for failing to disclose pertinent information.

PFAS Sites Discovered on Long Island

Several locations in Suffolk County have been polluted by **PFAS**. The **Gabreski Air National Guard Base in Westhampton** was added to the State Superfund list in September 2016. Nearby homes were connected to public water supplies due to PFOS contamination of private drinking water wells. Firefighting foam used in training operations at the airfield is believed to be the source of the contamination.

In a related incident, as many as 258 home wells in 2017 were found contaminated by **PFOA** and **PFOS** in a neighborhood in **Westhampton, NY** near the East Hampton Airport. The Town of East Hampton and Suffolk County worked to quickly connect homes to public water while the actual source of the pollution was investigated. By 2018, some residents initiated litigation against the manufactures of PFAS chemicals for damages due to the drinking water pollution. The nearby airport is a suspected source of the pollution. However, the **McArthur Airport** in Islip was found (2-2018) **not to be** the source of PFOS in a public water supply well. A Suffolk County Water Authority well is 7,500 feet away from the airport. The well is now being treated with granular activated carbon to remove the PFOS.

The Ogallala Aquifer in Crisis

The **Ogallala Aquifer**, also known as the High Plains Aquifer, is the largest aquifer system in the United States.



It lies beneath 8 Midwestern states that are the heart of the nation's farming industry. The aquifer stretches from South Dakota to West Texas and provides nearly all water for residential,

commercial and agriculture uses in the region.

This aquifer system provides 30% of all farm irrigation in the U.S.

For years, the region has known that the amount of water drawn from the Ogallala Aquifer is **unsustainable** because pumpage exceeds the recharge (e.g. the replacement) rate. The slow depletion of this vital aquifer puts the nation's food production industry at risk of collapse as the water needed to grow crops gradually disappears. Recent studies also show that groundwater depletion will "severely impact the freshwater ecosystems of the region."²

A study from Kansas predicts that the aquifer will be 70% depleted by 2060 if irrigation practices do not change.

Every state in the region has the legislative authority to regulate the use of the Ogallala Aquifer to conserve it. However, some states have been more engaged in protecting the resource than others. Kansas and Nebraska illustrate the difference in approach. Both states have the authority to force farmers to reduce water use. **Nebraska has actively enforced** water use restrictions on the farming sector. **Kansas has been timid** to use its authority and instead put the power to achieve conservation in the hands of farmers. Kansas results have been underwhelming. The Kansas approach has been described as an "**orderly depletion of the aquifer rather than a plan for sustainable use.**"

Instead of being strong on water conservation, some states want to build a pipeline to bring water into the region from outside sources. But, they might not find any willing water donors.

The Ogallala experience suggests a **key question for Long Island**. With weak aquifer oversight, will we see an "**orderly depletion**" of our own sole source aquifer or will we act decisively to save our aquifer?

Update on the Jamaica Wells in Queens

The well permit for the 64 wells owned by New York City in Jamaica Queens expired in December 2017. Through 2018, concerned groups watched how the permit renewal process was handled by the NYS DEC, the agency responsible for new and renewed well permits. The answer is that **nothing happened**. The “no-action response” by the DEC suited New York City since the City believes it still retains its rights in the wells. The State’s “no-action response” extended the time when it will have to decide which wells will be re-permitted and what, if any, permit conditions will be applied to the wells.

Selling Water to Vulnerable Water Suppliers?

During the lapse in the re-permit process, New York City has reached out to offer assistance to some Nassau water suppliers having supply difficulties. The City has offered to sell water to Long Beach and to some water systems along Nassau’s north shore. Right now (May 2019), the upstate reservoirs are full and the City can afford to share some of its excess water. This would help out Long Beach that is seriously concerned with saltwater intrusion into the Lloyd Aquifer along the south shore. The water lines for City water are easily accessible to the Long Beach water lines.

Some water suppliers, such as the Water Authority of Great Neck North, are facing both saltwater intrusion and chemical contamination problems. Bringing NYC water to Great Neck might be a little more difficult but not impossible. The idea to augment local groundwater with surface water from New York City is an evolving development. But, it raises the question of what will happen to Nassau suppliers that link up with New York City when NYC needs extra water for its own residents?



The **question for Long Island:** Will Long Island implement strong conservation measures to preserve the aquifers or will we put our water future in the hands of others?

L.I. Water Facts Speakers Bureau

The members of *Water for Long Island* have pooled their talents and expertise to offer presentations to interested groups and individuals around Long Island who want more information about the aquifers and drinking water of the region. Send requests for speakers to:

WFLIspeak.optimum.net

Update on the Long Island Groundwater Sustainability Study

Bureaucratic delays in the transfer of funding to the USGS, coupled with the disruptions from the federal government shutdown, caused the well drilling for Phase One of the project to begin this spring (2019) – over two years behind schedule. Other parts of the study such as data collection and work on the computer model have been proceeding as planned. Preliminary results from new, experimental technology suggest that the saltwater front in the Lloyd Aquifer is parallel to the southern shoreline of Long Beach, rather than 3 miles off shore, as previously thought. The USGS reports the installation of the second well of 12 wells needed for the study was completed in January 2019.

The groups who promoted the *Sustainability Study* in 2016 are urging the NYS DEC to begin preparing a plan that incorporates the new knowledge developed from the Study into water management policies and practices as soon as possible.

The first meeting of the Study’s advisory committee in 2019 is now scheduled for May, 2019.

Update on Regulating Chemicals such as PFAS and 1,4 Dioxane

In December 2018, the *NY State Drinking Water Quality Council* recommended to the State Department of Health that **Maximum Contaminant Levels** (MCLs) be set for several unregulated chemicals showing up in drinking water across the state, especially on Long Island. The chemical recommendations were:

- PFOA and PFOS: a recommended MCL of 10 parts per trillion (ppt) for each and collectively, 20 ppt; and
- 1,4 Dioxane: a recommended MCL of 1 part per billion (ppb).

If adopted, New York will become one of the first states to set enforceable drinking water standards for these chemicals.

While PFOA and PFOS are being discovered in New York water both upstate and downstate, the situation for 1,4 Dioxane is very different. **The vast majority of 1,4 Dioxane detections are on Long Island.** The treatment for PFOA and PFOS uses methods and systems that are already commonly used by water suppliers for other chemicals such as volatile organic compounds, the number one drinking water pollutant on Long Island. For 1,4 Dioxane, an entirely new system for water treatment (**Advanced Oxidation Process**) will be needed. The current estimate is that 185 wells may be affected and the cost to treat these wells could reach \$840 million.³

Resistance to Strong PFAS Regulation is Growing

Even though the states are moving ahead, the US EPA, which refused in 2018 to set standards for PFAS chemicals, announced in February 2019 that

it will begin the process of setting national standards. **EPA estimates final MCLs may be adopted by 2024.** Early indications are that the levels EPA might adopt are weaker than ones being developed and adopted by the states.

At the same time, the Department of Defense is pushing EPA to adopt weaker standards for cleaning up chemicals in groundwater from military facilities and bases. **The military is specifically concerned about PFAS and its connection to firefighting foams** known to be a source of groundwater contamination. PFAS is also contained in many products used at military installations. **A 2017 survey found 401 military facilities known to use PFAS-containing materials. PFAS in drinking water has shown up at 126 military-related locations.** The Pentagon is pushing for a cleanup standard of 380 parts per trillion (ppt); this is 30-times weaker than the possible EPA drinking water standard of 70 ppt.⁴

1,4 Dioxane Detection Update

In 2017, the NYS DEC ordered all superfund and RCRA sites to test for 1,4 Dioxane in groundwater plumes from each location. At this point, the full results are not expected before December 2019. 1,4 Dioxane is strongly associated with various commonly found VOCs in groundwater including: TCA (trichloroethane), DCE (dichloroethene), TCE (trichloroethylene), and PERC (tetrachloroethylene).

Recent test results (2018) of the Northrop-Grumman/Navy site in Bethpage, N.Y. show 1,4 Dioxane is in a large majority of the test wells sampled.

UPDATE ON L.I. FERTILIZER BILL

The NYS legislation that restricts commercial fertilizers sold on Long Island to a maximum of 12% nitrogen by weight is being considered in the State Assembly and State Senate. It also requires the nitrogen to be in a slow-release form. **A-4568** (Englebright et al.) has passed both the ENCON and Codes Committees. **S-2130** (Kaminsky et al.) is in the ENCON Committee.

Table 1: Large Contaminated Sites on Long Island

All of the sites listed here are either a state or federal superfund (SF) site or a RCRA site that has caused significant groundwater contamination and generated a major groundwater plume.

Site Name	Location	Type: SF or RCRA*	Use of Site	Contaminants	Size in Acres
Brookhaven Nation Lab (BNL)	Brookhaven township	Federal & State SF	Scientific and military research	PCBs, VOCs, Cesium 137, Strontium-90, Tritium, mercury, lead, asbestos	5,265
New Cassel/Hicksville Contamination region Numerous industries	New Cassel, Town of N. Hempstead	State SF	Industrial area	PCE, TCE	2,200
Northrop Grumman	Bethpage, Oyster Bay	Federal RCRA	Manufacturing	TCE, PCE, DCE, Vinyl chloride, chromium	605
Naval Weapons Industrial Res. Plant	Bethpage Oyster Bay, Grumman Blvd	Federal RCRA	Military & Aerospace	VOCs, PCBs, SVOCs, metals, pesticides, radium and radionuclides	358
North Sea Landfill	Southampton Township	Federal SF	Municipal landfill	Ammonia, iron, manganese	130
Lawrence Aviation Industries	Port Jefferson Station	State SF	Manufacturing	PCBs, Acids, Fluorides, TCE, Halogenated Solvents	125.8

* RCRA stands for Resource Conservation and Recovery Act site

For more information about **Water for Long Island**, go to our website at:

www.waterforlongisland.org

¹ Names for the PFAS compounds are as follows:

- PFAS: per- and polyfluoroalkyl substances
- PFOA: perfluorooctanoic acid
- PFOS: perfluorooctane sulfonate
- PFCs: perfluorinated compounds

² Frankel, Jeremy, 2019, Crisis on the High Plains: The Loss of America’s Largest Aquifer – The Ogallala, *Renewable Resources Journal*, Vol. 33, No. 3, pg 14 – 19.

³ Schwartz, David, Feb. 18, 2019, New Treatment Systems Could Hike Water Bills, *Newsday*.

⁴ Lipton, Eric and J. Turkewitz, March 15, 2019, Pentagon Pushes for Weaker Standards on Chemicals Contaminating Drinking Water, *The New York Times*.

