2024 BROOKHAVEN NATIONAL LABORATORY Water Quality CONSUMER CONFIDENCE REPORT

BNL publishes an annual water quality report to provide on-site drinking water consumers with an overview of the Lab's water quality during the previous calendar year. The purpose of this report is to inform you about where your water comes from; what analytical tests are conducted; what they reveal; how the results compare to New York State standards; and to educate you about the importance of preventative measures. Educated consumers are more likely to help protect their drinking water sources.

BNL's drinking water supply and distribution system were in full compliance with all county, state, and federal regulations regarding drinking water quality, monitoring, operations, and reporting in 2023.

BNL's Energy & Utilities (EU) Division is committed to providing over 3,000 employees, facility users, contractors, and guests annually with safe drinking water.

BNL's drinking water is regularly tested using an independent laboratory approved by the New York State Department of Health (NYSDOH). Analytical data are reviewed by the Lab's Environmental Protection Division (EPD) to ensure that testing results comply with all applicable regulatory standards. In addition, EU and EPD work with BNL's Groundwater Protection Group to make sure our potable water supply is not adversely impacted by possible groundwater contamination or remediation operations.

Water Treatment Facility Staff
(L-R) Water Operators – Steve Kelvas, Nick Krupski, Bob Kelley, Joe Stanisci, Nick Risi, Ryan Greener
Supervisor – Warren Jensen

Where Does Our Water Come From?

The Long Island aquifer system is made up of three primary formations. From the surface to approximately 150 feet below is the Upper Glacial aquifer, from 150 to 1,000 feet below is the Magothy aquifer, and from 1,000 to about 1,600 feet below is the Lloyd aquifer. As designated by the U.S. Environmental Protection Agency (EPA), Long Island's aquifer system is one of 78 "sole source" aquifers in the nation recognized under the aquifer protection program authorized by the U.S. Safe Drinking Water Act (SDWA).

Four of the Lab's six drinking water wells are in-service and draw up to 1,000 gallons per minute, or about 1.34 million gallons of water per day from the Upper Glacial aquifer to supply drinking water, process cooling water, and fire protection. The water from Well 7 is processed at BNL's on-site Water Treatment Plant. Well 10, Well 11, and Well 12 are treated with a granular activated carbon (GAC) filter, then treated for pH adjustment and disinfection prior to entering the distribution system. Last year, BNL pumped approximately 335 million gallons of water.

For questions about this report, or to speak with someone regarding your drinking water, please contact:

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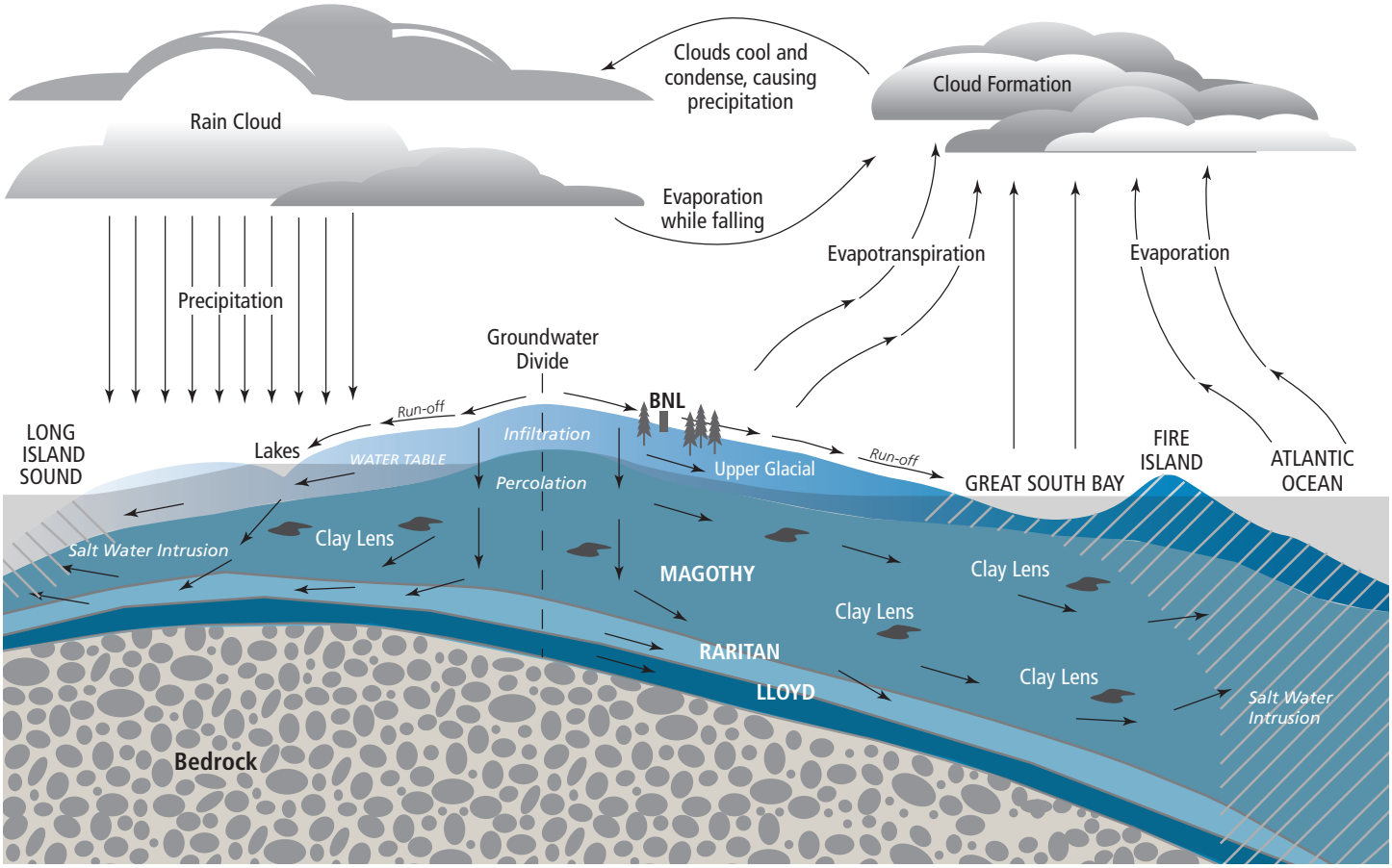

Long Island Aquifer System

What's in Our Drinking Water?

Although rivers, lakes, streams, ponds, and reservoirs are all sources of tap and bottled drinking water, most Long Island residents get their water from groundwater wells that are drilled into the underlying aquifer system. As water travels over land surfaces or through the ground, it dissolves naturally occurring minerals and radioactive material. Water can also pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbiological contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants.

In order to ensure that tap water is safe to drink, New York State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. In addition, regulations from NYSDOH and the Food and Drug Administration establish limits for contaminants in bottled water, which must provide the same protection for public health.

Source water is treated to remove substances or reduce their concentration before the water is fit for human consumption. Regardless, drinking water, including bottled water, may reasonably be expected to contain at least small amounts of contaminants; however, that does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling EPA's Safe Drinking Water Hotline at (800) 426-4791.

Some people may be more vulnerable to disease-causing microorganisms or pathogens in drinking water than others. Immunocompromised persons such as those with cancer undergoing chemotherapy, who have undergone organ transplants, with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water.

EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

BNL's Source Water Assessment

As required by the 1996 Safe Drinking Water Act, in 2003 the NYSDOH completed an assessment of the source water used by the Lab's public water system to evaluate known and possible contamination sources. The assessment includes a susceptibility rating for each well based on the risk posed by the presence of potential sources of contamination within the well's contributing area and the likelihood that the contaminants will travel through the environment to reach the well.

Although the susceptibility rating is an estimate of the potential for source water contamination, it does not mean that the water delivered to consumers is or will become contaminated. If a contaminant is present, it does not necessarily mean that there is a health risk.

The assessment concluded that three of BNL's water supply wells were very highly susceptible to industrial solvents. Recently, BNL also determined that its six supply wells are susceptible to Per- and Polyfluoroalkyl Substances (PFAS). In August 2020, NYS established drinking water standards of 10 ng/L (parts per trillion) for PFAS compounds perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). PFOS has been detected in three wells at concentrations above 10 ng/L. To address this contamination, BNL has placed back into service GAC filtration systems at three wells to remove PFAS before the water is released into the distribution system. The GAC system on Well 11 was placed back in service in late 2020 and the GAC system for Well 10 went back into service in 2021. Well 12 and its GAC system went back into service in 2022. BNL also ended the operation of two supply wells (Wells 4 and 6) that do not have GAC filters. All in service potable supply wells and water leaving the Water Treatment Plant are now tested for PFAS on a quarterly basis.

A copy of the complete assessment may be reviewed by contacting Doug Paquette (631) 344-7046 or Jason Remien (631) 344-3477.

Water Conservation Measures

BNL's water conservation program has achieved dramatic reductions in water use since the mid-1990's. The Lab continually evaluates water conservation as part of facility upgrades, such as replacing existing conventional plumbing fixtures with low-flow devices, or new construction.

For more information on BNL's water use efficiency and management, please see BNL's Site Sustainability Plan for fiscal year 2024 at *https://www.bnl.gov/about/sustainability/reports.php*

To help the Lab conserve water, start by being conscious of your personal use, e.g., reduce faucet flow, decrease running water while not in use, and report any drips, leaks, or other plumbing problems promptly to your Facility Project Manager. Regarding process and research use, make sure temperature controls operate properly to minimize flow and specify recirculating water or air-cooled systems for new devices.

While it is important to conserve water, the EPA encourages that you run your tap water for 30 seconds to two minutes and only use cold water for drinking or cooking. Due to the aging infrastructure at Brookhaven Lab, iron and lead may leach into the water from the pipes. Flushing the water will help to remove any contaminants that may have built up while the water was sitting in the pipes.

Water Treatment Process

BNL's Water Treatment Plant can treat up to two million gallons of "raw" water per day to remove naturally occurring iron and manganese from the groundwater.

Of the four in-service drinking water wells, Well 7 provides high-in-iron source water which must be passed through the Water Treatment Plant before being distributed around the site. This water is chlorinated and the pH is adjusted before it enters the distribution system. Chlorine is a disinfection agent and prevents the spread of water borne diseases.

Water from Well 7 is aerated to reduce carbon dioxide gas and aid in iron oxidation. Lime is added to raise the pH to provide for proper corrosion control. A polymer is added to aid in flocculation in the filtration process. Flocculation, or the formation of particle aggregates which settle out of the water as sediment, begins in the retention tank. To help form "floc," water is sent from the retention tank to a slow-mix tank.

Filtration is performed using a rapid sand filter made up of sand and anthracite coal to remove all particles. Filtered water is stored in the "wet well" before it is pumped into air-stripping towers, which remove volatile organic compounds, if present, from the water being treated.

Up to 250,000 gallons of treated water is stored at the clear well before its final chlorination and distribution. Pumps send finished water from the Water Treatment Plant to the two elevated storage tanks.

Wells 10, 11, and 12 pump water that is low in iron, and does not require treatment for iron. Water from Well 10, 11, and 12 pass through GAC systems to remove PFAS before being treated with chlorine for disinfection and sodium hydroxide or calcium hydroxide for pH correction prior to being sent to the two elevated storage tanks. The water from the two storage tanks is delivered on site at 55 to 70 pounds of pressure per square inch via 45 miles of distribution pipe.

For more information on the Lab's water treatment process, visit the Water Quality website at *https://www.bnl.gov/water/*.

Plant Upgrades & Distribution System Improvements

There were several improvements made to BNL's potable water infrastructure over the past year. Below are some highlights:

- Six fire hydrants were replaced throughout the distribution system and three were removed and properly retired.
- One yard hydrant was replaced at the Wastewater Treatment Facility.
- Three defective distribution valves were replaced.
- Construction was completed on the new 500,000-gallon elevated hydrospheroid tank which will replace the 1940's era 300,000-gallon storage tank on Upton Rd. The new tank is currently awaiting painting.
- 2,500 ft of 12" cement lined ductile iron (CLDI) & 600 ft of 8" CLDI, including five new distribution valves and five new hydrants were placed in service at the new Science and User Support Center (SUSC). The new larger ductile iron water main replaced the aged, and undersized cast iron and transite piping. This new main also eliminated several dead ends in the system. The surrounding areas of the campus will see improved water flow and water quality.
- A Wachs valve exercising and turning machine was purchased and placed in service. This equipment is a full valve maintenance system equipped with everything needed to identify, access, and perform valve maintenance safely and efficiently. It allows for precise torque-controlled opening and closing of valves according to manufacturer specifications. This equipment allows for proactive maintenance of the BNL water distribution system, helping to avoid costly repairs and interruptions in service.

BNL's 2023 Drinking Water Sampling Results

BNL's drinking water and the supply and distribution system were in full compliance with all applicable county, state, and federal regulations regarding drinking water quality, monitoring, operations, and reporting in 2023. Through water sampling and testing, results show that the compounds listed below were **not detected or below the minimum detection limit (MDL)**. Thirty out of the total 172 contaminants tested were detected and are summarized in the table starting on Page 5.

11-Cl-PF3
1,1-dichloroethane
1,1-dichloroethene
1,1-dichloropropene
1,1,1-trichloroethane
1,1,1,2-tetrachloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethane
1,2-dichlorobenzene
1,2-dichloroethane
1,2-dichloropropane
1,2,3-trichlorobenzene
1,2,3-trichloropropane
1,2,4-trichlorobenzene
1,2,4-trimethylbenzene
1,3-dichlorobenzene
1,3-dichloropropane
1,3,5-trimethylbenzene
1,4-dichlorobenzene
2,2-dichloropropane
2,4,-D
2,4,5,-TP (silvex)
2-chlorotoluene
3-hydroxycardofuran
4-chlorotoluene
4-isopropyl toluene
4:2 FTS
6:2 FTS
8:2 FTS
9-Cl-PF30
alachlor
aldicarb
aldicarb sulfone
aldicarb sulfoxide
aldrin
ammonia
antimony
arsenic
asbestos
atrazine
benzene
benzo (A) pyrene
beryllium
bromobenzene
bromochloromethane
bromomethane
butachlor
cadmium
carbaryl
carbofuran
carbon tetrachloride
cesium-137
chlordane
chlorobenzene
chlorodifluoromethane
chloroethane
chloromethane
chromium
cis-1,2-dichloroethene
cyanide (as free cyanide)
dalapon
di(2-ethylhexyl) adipate
di(2-ethylhexyl) phthalate
dibromomethane
dicamba
dichlorodifluoromethane
dieldrin
dinoseb
diquat
DONA
e. coli
endothall
endrin
ethylbenzene
fluoride
freon-113
gross alpha
heptachlor
heptachlor epoxide
hexachlorobenzene
hexachloro-1,3-butadiene
hexachlorocyclopentadiene
hexavalent chromium
HFPO-DA (Gen-X)
isopropylbenzene
lindane
m,p-xylene
manganese
mercury
methomyl
methoxychlor
methyl tert-butyl ether
methylene blue active substances (MBAS)
methylene chloride
metolachlor
metribuzin
n-butylbenzene
n-propylbenzene
NFDHA
NEtFOSAA
NMeFOSAA
nitrite
oxamyl
o-xylene
pentachlorophenol
PFEESA
PFMPA
PFMBA
PFDS
PFDA
PFDOA
PFHpS
PFNS
PFNA
PFOSAm
PFPeS
PFTDA
PFTrDA
PFUnDA
picloram
propachlor
sec-butylbenzene
selenium
silver
simazine
strontium-90
styrene
tert-butylbenzene
tetrachloroethene
thalium
toluene
tolytriazole
total polychlorinated biphenals (PCBs)
total xylenes
toxaphene
trans-1,2-dichloroethene
trans-1,3-dichloropropene
trichloroethene
trichlorofluoromethane
tritium
vinyl cloride
zinc

Types of Contaminants

- **disinfectant and disinfection by-products:** formed when disinfectants used in water treatment plants react with bromide and/or natural organic matter (i.e., decaying vegetation) present in the source water. Different disinfectants produce different types or amounts of disinfection by-products. Disinfection by-products for which regulations have been established have been identified in drinking water, including trihalomethanes, haloacetic acids, bromate, and chlorite.
- **inorganics**: dissolved salts and metals, which can occur naturally or result from stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, farming, etc.
- **microbiological:** bacteria and viruses, which may come from sewage, livestock operations, wildlife, etc.
- **organic:** natural and synthetic compounds, including volatile organic compounds (VOCs). These chemicals are by-products of industrial processes, residential uses and petroleum production, and they can also come from gas stations, stormwater runoff, septic systems, etc.
- **perfluorinated:** man-made compounds used in firefighting foams and stain proof coatings.
- **pesticides & herbicides:** substances for, respectively, eliminating problem insects and plants, which may come from a variety of sources, such as agricultural operations, stormwater runoff, residential uses, etc.
- **radioactive:** naturally occurring, or from oil and gas production, mining activities, nuclear facilities, etc.
- **synthetic organic:** man-made compounds used for a variety of industrial and agricultural purposes.
- **volatile organic:** emitted by products including contaminants: paints and lacquer; paint strippers; cleaning supplies; pesticides, building materials and furnishings; office equipment such as copiers and printers; correction fluids and carbonless copy paper; graphics and craft materials including glues and adhesives; permanent markers; and photographic solutions.

2023 Water Quality Consumer Confidence Report Contaminants

CONTAMINANT	UNIT OF MEASURE-MENT	DATE OF DETECTION	VIOLATION (YES/NO)	LEVEL DETECTED	RANGE OF RESULTS	MCLG	REGULATORY LIMIT (MCL)	LIKELY SOURCE OF CONTAMINATION
Chlorine Residual, Free	mg/L	3/6, 5/8, 6/5, 9/11, 12/4/23	No	1.3	0.3 - 1.3	NS	4	Water additive to control microbes.
DISINFECTION BY-PRODUCTS								
Haloacetic acids	µg/L	8/7/23	No	1.6	< 2.0 - 1.6	NS	60	By-product of drinking water disinfection needed to kill harmful organisms.
Total Trihalomethanes	µg/L	8/7/23	No	12	0.6 - 12	NS	80	By-product of drinking water chlorination needed to kill harmful organisms; formed when source water contains large amounts of organic matter.
INORGANIC CONTAMINANTS								
Barium	mg/L	6/5/23	No	0.052	0.04 - 0.052	2	2	Discharge of drilling wastes.
Chloride	mg/L	1/9/23	No	77.5	49.9 - 77.5	NS	250	Naturally occurring; indicative of road-salt contamination.
Color	units	1/9/23	No	6	< 0.5 - 6	NS	15	Large quantities of organic chemicals, inadequate treatment, high disinfectant demand and the potential for production of excess amounts of disinfectant byproducts such as trihalomethanes, the presence of metals such as copper, iron and manganese; Natural color may be caused by decaying leaves, plants, and soil organic matter.
Iron	µg/L	2/6/23	No	0.1	< 0.02 - 0.1	NS	300	Naturally occuring; corrosion of plumbing.
Nickel	µg/L	6/5/23	No	0.005	< 0.005 - 0.005	NS	100	Nickel enters groundwater and surface water by dissolution of rocks and soils, from atmospheric fallout, or from biological decays.
Nitrates	mg/L	6/5/23	No	0.57	0.37 - 0.57	10	10	Erosion of natural deposits; runoff from fertilizer use; leaching from septic tanks and sewage.
Sodium*	mg/L	6/5/23	No	49.6	31.5 - 49.6	NS	NS*	Naturally occurring; road salt; water softeners.
Sulfates	mg/L	1/9/23	No	13.8	9.6 - 13.8	NS	250	Naturally occurring.
MICROBIOLOGICAL CONTAMINANTS								
Total Coliform Bacteria	NA	1/23/23, 7/10/23	No	1	0 - 1	0	2	Naturally present in the environment.
PERFLUORINATED CONTAMINANTS								
PFOS (Perfluorooctanesulfonic Acid)	ng/L	8/7/23	No	1.54	< 1.77- 1.54	NS	10	Released into the environment from widespread use in commercial and industrial applications.

continued on next page

CONTAMINANT	UNIT OF MEASURE-MENT	DATE OF DETECTION	VIOLATION (YES/NO)	LEVEL DETECTED	RANGE OF RESULTS	MCLG	REGULATORY LIMIT (MCL)	LIKELY SOURCE OF CONTAMINATION
PFOA (Perfluorooctanoic Acid)	ng/L	8/7/23	No	1.52	< 1.77 - 1.52	NS	10	Released into the environment from widespread use in commercial and industrial applications.
RADIOACTIVE CONTAMINANTS								
Gross Beta Activity (a)	pCi/L	7/10/23	No	2.21	< 0.75 - 2.21	0	4	Decay of natural deposits and man-made emissions.
Radium-228	pCi/L	4/17/20**	No	0.77	< 0.53 - 0.77	0	5	Decay of natural deposits.
SYNTHETIC ORGANIC CONTAMINANTS								
1,4 Dioxane	µg/L	11/6/23	No	0.11	< 0.02 - 0.11	NS	1	Released into the environment from commercial and industrial sources and is associated with inactive and hazardous waste sites.
Glyphosate	µg/L	7/10/23	No	6.2	< 6.0 - 6.2	700	50	Runoff from herbicide use.
VOLATILE ORGANIC CONTAMINANTS								
Bromodichloromethane	µg/L	8/7/23	No	1.7	< 0.05 - 1.7	NS	80***	By-product of drinking water chlorination needed to kill harmful organisms.
Bromoform	µg/L	8/7/23	No	5.4	< 0.05 - 5.4	NS	80***	By-product of drinking water chlorination needed to kill harmful organisms.
Chloroform	µg/L	8/7/23	No	1.5	< 0.05 - 1.5	NS	80***	By-product of drinking water chlorination needed to kill harmful organisms.
Dibromochloromethane	µg/L	8/7/23	No	3.8	< 0.05 - 3.8	NS	80***	By-product of drinking water chlorination needed to kill harmful organisms.
SAMPLING AT THE CONSUMER'S TAP (Tap water samples were collected throughout the Laboratory site) (b)								
CONTAMINANT	**UNIT OF MEASURE-MENT**	**DATE OF SAMPLING (MO./YR.)**	**AL EXCEEDANCE (YES/NO)**	**90th PERCENTILE RESULT**	**RANGE OF RESULTS**	**MCLG**	**REGULATORY LIMIT (AL)**	**LIKELY SOURCE OF CONTAMINATION**
Copper	mg/L	8/9/23	No	0.008	< 0.002 - 0.02	1.3	1.3	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.
Lead	µg/L	8/9/23	No	< 1.0	< 1.0 - 4.5	0	15	Corrosion of household plumbing systems; Erosion of natural deposits.

Table Notes:
*No MCL has been established for sodium. However, water containing more than 20 mg/L of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/L of sodium should not be used for drinking by people on moderately restricted sodium diets.
**Radium-228 is scheduled for sampling again in 2029.
*** MCL is the sum of the four compounds (Bromocloromethane, Bromoform, Chloroform, and Dibromochloromethane).
NS = drinking-water standard not specified
(a) The State considers 50 pCi/L to be the level of concern for beta particles.
(b) Sampling at the consumer's tap for lead and copper is performed every year; next sampling is scheduled for 2024. Please see article on Page 7 for health advisory information.

Unregulated Perfluoroalkyl Substances

The New York State Department of Health (NYSDOH) requires testing for some contaminants even though health advisory limits and/or maximum contaminant levels have not been established. EPA and NYS are currently reviewing some of these compounds for future regulations.

CONTAMINANT	UNIT OF MEASURE-MENT	DATE OF DETECTION	VIOLATION (YES/NO)	LEVEL DETECTED	RANGE OF RESULTS	MCLG OR HEALTH ADVISORY LEVEL [1,2]	LIKELY SOURCE OF CONTAMINATION
Perfluorobutane sulfonate acid (PFBS)	ng/L	8/7/23	No	1.06	< 1.51 - 1.06	2000	Released into the environment from widespread use in commercial and industrial applications.
Perfluorobutanoic acid (PFBA)	ng/L	11/6/23	No	118	1.85 - 118	NA	Released into the environment from widespread use in commercial and industrial applications.
Perfluoroheptanoic acid (PFHpA)	ng/L	2/6/23	No	0.81	< 1.71 - 0.81	NA	Released into the environment from widespread use in commercial and industrial applications.
Perfluorohexanesulfonic acid (PFHxS)	ng/L	8/7/23	No	4.75	0.57 - 4.75	NA	Released into the environment from widespread use in commercial and industrial applications.
Perfluorohexanoic acid (PFHxA)	ng/L	11/6/23	No	3.11	< 1.69 - 3.11	NA	Released into the environment from widespread use in commercial and industrial applications.
Perfluoropentanoic acid (PFPeA)	ng/L	11/6/23	No	4.28	< 1.69 - 4.28	NA	Released into the environment from widespread use in commercial and industrial applications.

1 USEPA Health Advisory Levels identify the concentration of a contaminant in drinking water at which adverse health effects and/or aesthetic effects are not anticipated to occur over specific exposure durations. Health Advisory Levels are not to be construed as legally enforceable federal standards and are subject to change as new information becomes available.
2 All perfluoroalkyl substances, besides PFOA and PFOS, are considered Unspecified Organic Contaminants (UOC) which have an MCL = 0.05 mg/L = 50,000 ng/L.
NA - Not Available

Chlorine Disinfectant and Its By-Products

Each day, more than 200 million people in the U.S. consume water that has been disinfected to kill unwanted microorganisms found in source water. Worldwide, one of the most commonly used and effective disinfectants is chlorine. A form of chlorine known as sodium hypochlorite is used by BNL for disinfection of its potable water.

Disinfection Residual	2023 Annual Running Average	MRDLG
chlorine*	1.0 mg/L	4 mg/L
Disinfection By-product	**2023 Annual Average**	**MCL**
total trihalomethanes[1]	12 µg/L	80 µg/L
haloacetic acids (five)[2]	1.6 µg/L	60 µg/L

Notes:
* BNL range of results for chlorine is 0.4 - 1.3 mg/L; maximum found on 3/6, 5/8/, 6/5/, 9/11, and 12/4/23
[1] Total trihalomethanes is the sum of the concentration of chloroform, bromodichloromethane, dibromochloromethane, and bromoform.
[2] Haloacetic acids (five) is the sum of the concentration of mono-, di-, and trichloroacetic acids, and mono- and dibromoacetic acids.

Although disinfectants are effective in killing unwanted microorganisms in source water, they can react with naturally occurring organic matter and inorganics to form disinfectant by-products which may pose health risks. Under the SDWA, disinfectants and their by-products are regulated. The Lab had no violations in 2023; annual averages for chlorine residual and by-products are based on results from finished tap water.

Lead and Copper Testing

Lead and copper sampling at the required locations in August 2023 revealed BNL was in compliance with regulatory requirements.

In accordance with regulations, Brookhaven Lab sampled its water supply for lead and copper in 2023. All samples were below the action level limit for lead and copper.

In 1991, the EPA established a "lead and copper rule" to limit the concentration of lead and copper in public water. Brookhaven Lab is required to sample for lead and copper at 20 consumer taps every year and to notify those occupants of the buildings tested with the results. Results from testing performed in 2023 are shown in the table to the right. While lead was detected in some samples, the action limit was not exceeded. Testing will be performed again in 2024. If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. Lead in drinking water is primarily from materials and components associated with service lines and building plumbing. It is possible that lead levels in your building may be higher than at other buildings at the Laboratory as a result of materials and components used in your building's plumbing.

Brookhaven Lab is responsible for providing high quality drinking water. We have been working to identify any lead and/ or galvanized piping in the distribution system and will continue our ongoing work to replace lines and other components in the future. You share the responsibility for protecting yourself and can take steps to reduce your risk. When water has been sitting in a building's pipes for several hours, you can minimize the potential for lead exposure by flushing the tap for 30 seconds to two minutes before using for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at *http://www.epa.gov/safewater/lead*.

2023 Lead and Copper Sampling Results			
Location	**Faucet**	**Lead (µg/L)**	**Copper (mg/L)**
Apt. 1A	kitchen	< MDL	0.004
Apt. 10A	kitchen	4.5	0.02
Apt. 11A	kitchen	< MDL	0.006
Apt. 13C	kitchen	< MDL	< MDL
Apt. 28D	kitchen	< MDL	< MDL
Apt. 30A	kitchen	< MDL	< MDL
Apt. 34A	kitchen	< MDL	0.01
Apt. 36A	kitchen	< MDL	< MDL
Apt. 40F	kitchen	< MDL	< MDL
Apt. 41DM	kitchen	< MDL	0.004
Apt. 5A	kitchen	< MDL	< MDL
Apt. 6C	kitchen	< MDL	< MDL
Apt. 7B	kitchen	< MDL	0.008
Apt. 8C	kitchen	< MDL	< MDL
Bldg. 153	bathroom	< MDL	0.006
Bldg. 170	kitchen	< MDL	< MDL
Bldg. 257	bathroom	< MDL	0.005
Bldg. 258	kitchen	< MDL	< MDL
Bldg. 371	bathroom	< MDL	0.008
Bldg. 599	kitchen	2.8	0.07

Notes:
Action Level for Lead is 15 µg/L.
Action Level for Copper is 1.3 mg/L.

BNL's Water Main Flush Program

In accordance with American Water Works Association recommendations, unidirectional flushing of water mains using fire hydrants within a water distribution system is the most effective and economical way to cleanse and improve water quality.

Iron can get into drinking water from corrosion of cast iron, steel, and galvanized iron pipes that are used throughout the site for water distribution. The Lab's water mains are flushed twice per year to improve the quality of the water delivered to facilities by the Lab's on-site taps, and to help eliminate rusty water.

Visit the Water Quality website at *http://www.bnl.gov/water/* for some tap-water recommendations to be sure your on-site drinking water is the best possible quality.

Other Water Quality Indicators

The following maximum values were measured in samples of well water or finished water at the BNL Water Treatment Plant in 2023. Although the Lab is required to test these indicators, there are no MCLs set for these parameters.

Indicator	BNL Sample	MCL
alkalinity†	65.3 mg/L	NS
calcium†	22.6 mg/L	NS
conductivity†	456 µmhos/cm	NS
pH	8.8 standard units	NS

Notes:
NS = drinking-water standard not specified
† = measure of water hardness or dissolved salts

Definitions Used in this Report

- **90th percentile value:** The reported copper and lead values represent the 90th percentile. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90 percent of the lead and copper values detected in the water system.
- **action level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a drinking water supplier must follow.
- **granular activated carbon (GAC):** A system used to remove volatile organic compounds from ground water.
- **maximum contaminant level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as possible.
- **maximum contaminant level goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **maximum residual disinfectant level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of disinfectants is necessary for control of microbial contaminants.
- **maximum residual disinfectant level goal (MRDLG):** The concentration of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of using disinfectants to control microbial contamination.
- **micrograms per liter (µg/L):** Equals one part of liquid in one billion parts of liquid or parts per billion (ppb).
- **micromhos per centimeter (µmhos/cm):** A measure of the ability of water to conduct electricity. Conductivity effectively measures the concentration of ions, such as dissolved salts.
- **milligrams per liter (mg/L):** Equals one part of liquid per million parts of liquid, or parts per million (ppm).
- **minimum detection limit (MDL):** The lowest level to which an analytical parameter can be measured with certainty by the analytical lab performing the measurement. While results below the MDL are sometimes measureable, they represent values that have a reduced statistical confidence associated with them (less than 95 percent confidence).
- **nanograms per liter (ng/L):** Equals one part of liquid in one trillion parts of liquid or parts per trillion (ppt).
- **picocuries per liter (pCi/L):** Picocuries per liter is a measure of radioactivity in water equal to one trillionth of a curie.
- **volatile organic contaminants (VOCs):** Organic chemicals that have a high vapor pressure at ordinary room temperature. Their high vapor pressure results from a low boiling point, which causes large numbers of molecules to evaporate or sublimate from the liquid or solid form of the compound and enter the surrounding air. VOCs include both man-made and naturally occurring chemical compounds.

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