

2016 drinking water quality report

BETHPAGE WATER DISTRICT

PUBLIC WATER SUPPLY IDENTIFICATION NO. 2902817

ANNUAL WATER SUPPLY REPORT

MAY 2017

The Bethpage Water District is pleased to present this year's Water Quality Report. The report is required to be delivered to all residents of our District in compliance with Federal and State regulations. We are happy to report that the District's supply water is in full compliance with all Federal, State and County regulations and that no violations exist.

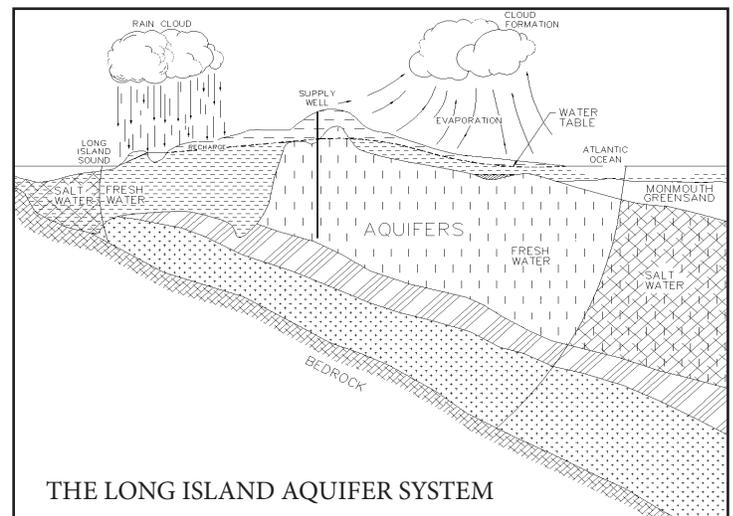
Our constant goal is to provide you with a safe and dependable supply of drinking water every day. We also want you to understand the efforts the District takes to protect our water resources and continually improve the water quality treatment process.

WHERE DOES OUR WATER COME FROM?

The source of water for the District is groundwater pumped from nine (9) wells, however only eight (8) of these wells are used for production to the distribution system, located throughout the community that are drilled into the Magothy aquifer beneath Long Island, as shown on the adjacent figure. Generally, the water quality of the aquifer is marginal and there are localized areas of contamination. Well No. 4-1 is voluntarily held in reserve due to elevated radium levels near the drinking water standard.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants.

In order to ensure that our tap water is safe to drink, the State and the EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.



THE LONG ISLAND AQUIFER SYSTEM

The population served by the Bethpage Water District during 2016 was 33,000. The total amount of water withdrawn from the aquifer in 2016 was 1.56 billion gallons, of which approximately 92 percent was billed directly to consumers. The remaining 8 percent of total pumpage was used for flushing, lost to system breaks and leaks, used for system testing and lost to inefficient water meter readings.

WATER TREATMENT

The Bethpage Water District provides treatment at all of its wells to improve the quality of the water pumped prior to distribution to the consumer. The pH of the pumped water is adjusted upward to reduce the corrosive action between the water and water mains and in-house plumbing by the addition of sodium hydroxide. An air stripping tower at Plant No. 6 is utilized to treat potable water from Well Nos. 6-1 and 6-2 for the removal of volatile organic compounds (VOCs). Similar treatment facilities are also utilized at Plant No. 4 for Well Nos. 4-1 and 4-2 and at Plant No. 5 for Well No. 5-1. In addition to the air stripping facilities, Granular Activated Carbon (GAC) filters are used at Plant 1 (Wells 7a & 8A) and Plant BGD (Well No. BGD) for primary VOC removal and, Plant 4 (Wells 4-1 & 4-2) and Plant 6 (Wells 6-1 & 6-2) for secondary polishing after air stripping. The District also utilizes ion exchange at Plant No. 1 for the removal of nitrate and at Plant BGD for the removal of perchlorate.

The District utilizes sodium hypochlorite for the purpose of disinfection and maintains a consistent residual as per Health Department guidelines.

WATER QUALITY

In accordance with State regulations, the Bethpage Water District routinely monitors your drinking water for numerous parameters. We test your drinking water for coliform bacteria, turbidity, inorganic contaminants, lead and copper, nitrate, volatile organic contaminants, total trihalomethanes, radionuclides and synthetic organic contaminants. As listed in this report, over 135 separate parameters are tested for in each of our wells numerous times per year. The table presented on page 3 depicts which parameters or contaminants were detected in the water supply. It should be noted that many of these parameters are naturally found in all Long Island drinking water and do not pose any adverse health effects. Please be assured that your drinking water meets all Federal and State water quality standards.

We, at the Bethpage Water District, work around the clock to provide top quality water to every tap throughout the community. We ask that all our customers help us protect our water resources, which are the heart of our community, our way of life and our children's future. Please call our office if you have any questions.

WATER CONSERVATION MEASURES

The underground water system of Long Island has more than enough water for present water demands. However, saving water will ensure that our future generations will always have a safe and abundant water supply.

In 2016, the Bethpage Water District continued to implement a water conservation program in order to minimize any unnecessary water use. The pumpage for 2016 was 2% more than in 2015. This increase is due to the warmer and drier weather in 2016.

Residents of the District can also implement their own water conservation measures such as retrofitting plumbing fixtures with flow restrictors, modifying automatic lawn sprinklers to include rain sensors, repairing leaks in the home, installing water conservation fixtures/appliances and maintaining a daily awareness of water conservation in their personal habits.

Consumers should be aware that Nassau County Lawn Sprinkler Regulations are still in effect. Besides protecting our precious underground water supply, water conservation will produce a cost savings to the consumer in terms of both water and energy bills (hot water).

SOURCE WATER ASSESSMENT

The NYSDOH, with assistance from the local health department, has completed a source water assessment for this system, based on available information. Possible and actual threats to this drinking water source were evaluated. The source water assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how rapidly contaminants can move through the subsurface to the wells. The susceptibility of a water supply well to contamination is dependent upon both the presence of potential sources of contamination within the well's contributing area and the likelihood that the contaminant can travel through the environment to reach the well. The susceptibility rating is an estimate of the potential for contamination of the source water, it does not mean that the water delivered to consumers is, or will become contaminated. Please refer to section "Water Quality" for a list of the contaminants that have been detected. The source water assessments provide resource managers with additional information for protecting source waters into the future.

In 2016, our drinking water is derived from eight (8) wells. The source water assessment has rated most of the wells as having a high susceptibility to nitrates and four (4) of the wells as having a very high susceptibility to industrial solvents. The very high susceptibility to industrial solvents is due primarily to point sources of contamination related to commercial/industrial activities in the assessment area. The high susceptibility of nitrate contamination is attributable to unsewered high density residential land use and related to practices in the assessment area, such as fertilizing lawns.

A copy of the assessment, including a map of the assessment area, can be reviewed by contacting the District Office.

CONTACTS FOR ADDITIONAL INFORMATION

We are pleased to report that our drinking water is safe and meets all Federal and State requirements. If you have any questions about this report or the Bethpage Water District, please contact Water District Superintendent Michael Boufis at (516) 931-0093 or the Nassau County Department of Health at (516) 227-9692. We want our valued customers to be informed about our water system. If you want to learn more, please attend any of our regularly scheduled meetings. They are normally held every other Thursday at 3:00 p.m. at the District office.

The Bethpage Water District routinely monitors for different parameters and possible contaminants in your drinking water as required by Federal and State laws. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some impurities. It's important to remember that the presence of these impurities does not necessarily pose a health risk. For more information on contamination and potential health risks, please contact the USEPA Safe Drinking Water Hotline at (800-426-4791) or www.epa.gov/safewater.

Some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, and 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). It should be noted that Cryptosporidium and Giardia are primarily found in surface waters, not groundwater and our entire water supply is derived from groundwater.

During 2014, the District collected 30 samples for lead and copper. The next round of samples will occur in 2017. If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. Bethpage Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water 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>.

Water from the Bethpage Water District has elevated levels of nitrates, but well below the maximum contamination level of 10.0 parts per million (ppm). Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six (6) months of age. High nitrate levels in drinking water can cause blue baby syndrome. The source of the nitrates is the nitrogen in fertilizers and from past on-site septic systems. If you are caring for an infant, you should ask advice from your health care provider.

2016 DRINKING WATER QUALITY REPORT - TABLE OF DETECTED PARAMETERS⁽⁷⁾

Contaminants	Violation (Yes/No)	Date of Sample	Level Detected (Maximum Range)	Unit Measurement	MCLG	Regulatory Limit (MCL or AL)	Likely Source of Contaminant
Inorganic Contaminants							
Copper	No	September 2014	ND - 0.056 0.024 ⁽¹⁾	mg/l	1.3	AL = 1.3	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	No	September 2014	ND - 11.0 ND ⁽¹⁾	ug/l	0	AL = 15	Corrosion of household plumbing systems; Erosion of natural deposits
Arsenic	No	06/20/16	ND - 1.8	ug/l	n/a	MCL = 10	Naturally occurring
Barium	No	06/20/16	ND - 0.02	mg/l	n/a	MCL = 20	Naturally occurring
Sodium	No	05/04/16	3.6 - 16.0	mg/l	n/a	No MCL ⁽²⁾	Naturally occurring
Zinc	No	06/07/16	ND - 0.041	mg/l	n/a	MCL = 5	Naturally occurring
Chloride	No	06/20/16	4.0 - 43.2	mg/l	n/a	MCL = 250	Naturally occurring
Iron	No	06/07/16	ND - 45.0	ug/l	n/a	MCL = 300 ⁽³⁾	Naturally occurring
Manganese	No	06/20/16	ND - 150.0	ug/l	n/a	MCL = 300	Naturally occurring
Nitrate	No	05/17/16	1.3 - 6.4	mg/l	10	MCL = 10	Runoff from fertilizer and leaching from septic tanks and sewage
Sulfate	No	06/07/16	ND - 7.9	mg/l	n/a	MCL = 250	Naturally occurring
Magnesium	No	06/20/16	0.6 - 2.6	mg/l	n/a	No MCL	Naturally occurring
Calcium	No	04/25/16	1.5 - 8.0	mg/l	n/a	No MCL	Naturally occurring
Nickel	No	06/20/16	0.8 - 37.0	ug/l	n/a	MCL = 100	Naturally occurring
Ammonia	No	06/20/16	ND - 0.1	mg/l	n/a	No MCL	Naturally occurring
pH	No	06/20/16	5.4 - 8.6	Units	n/a	No MCL	Naturally occurring
Total Alkalinity	No	06/17/16	ND - 7.5	mg/l	n/a	No MCL	Naturally occurring
Total Hardness	No	06/20/16	9.8 - 24.0	mg/l	n/a	No MCL	Naturally occurring
Volatile Organic Contaminants							
1,1-Dichloroethane	No	07/01/16	ND - 0.7	ug/l	0	MCL = 5	Industrial/Commercial discharge
Trichloroethene	No	06/02/16	ND - 0.7	ug/l	0	MCL = 5	Industrial/Commercial discharge
Disinfection By-Products							
Total Trihalomethanes (THMs)	No	07/01/16	ND - 3.7	ug/l	n/a	MCL = 80	Disinfection By-Products
Unregulated Contaminants							
Perchlorate	No	06/01/16	ND - 5.7	ug/l	n/a	None ⁽⁴⁾	Fertilizers
Unregulated Contaminant Monitoring Rule and Follow Up Testing⁽⁵⁾							
1,4-Dioxane	No	04/15/16	2.1 - 12.0	ug/l	n/a	MCL = 50	Industrial/Commercial discharge
Cobalt	No	07/22/13	1.7 - 5.2	ug/l	n/a	No MCL	Naturally occurring
Strontium	No	07/22/13	14.0 - 24.0	ug/l	n/a	No MCL	Naturally occurring
Hexavalent Chromium	No	07/22/13	ND - 0.13	ug/l	n/a	MCL = 100	Natural deposits & industrial discharges
Chromium	No	07/22/13	ND - 0.38	ug/l	100	MCL = 100	Natural deposits & industrial discharges
Chlorate	No	07/22/13	ND - 200	ug/l	n/a	No MCL	Naturally occurring
Radionuclides							
Gross Alpha	No	03/01/16	0.01 - 2.84	pCi/L	n/a	MCL = 15	Naturally occurring or industrial discharge
Gross Beta	No	03/01/16	0.142 - 1.99	pCi/L	n/a	MCL = 50	Naturally occurring or industrial discharge
Radium 226 & 228 Combined	No	09/01/16	0.44 - 4.48	pCi/L	n/a	MCL = 5 ⁽⁶⁾	Naturally occurring or industrial discharge
Total Uranium	No	03/02/16	ND - 0.196	ug/l	--	MCL = 30	Naturally occurring or industrial discharge
Micro-Bacteriological							
Total Coliform	No	06/15/16	1 positive sample out of 40 monthly samples	Positive or Negative	n/a	MCL = Positive results in more than 5% of the monthly samples	Commonly found in the environment

Definitions:

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible.

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.

Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Milligrams per liter (mg/l) - Corresponds to one part of liquid in one million parts of liquid (parts per million - ppm).

Micrograms per liter (ug/l) - Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).

Non-Detects (ND) - Laboratory analysis indicates that the constituent is not present.

pCi/L - pico Curies per Liter is a measure of radioactivity in water.

⁽¹⁾ - During 2014, we collected and analyzed 30 samples for lead and copper. The 90th percentile level is presented in the table. The action levels for both lead and copper were not exceeded at any site tested. **90th Percentile Value:** The values reported for lead and copper 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% of the lead and copper values detected at your water system.

⁽²⁾ - No MCL has been established for sodium. However, 20 mg/l is a recommended guideline for people on high restricted sodium diets and 270 mg/l for those on moderate sodium diets.

⁽³⁾ - Iron is only a secondary water standard. Iron has no health effects. Therefore, exceeding the MCL represents a level at which adverse aesthetics effects start to occur.

⁽⁴⁾ - Perchlorate is an unregulated contaminant. However, the State Health Department has established an action level of 18 ug/l.

⁽⁵⁾ - UCMR3 - Unregulated Contaminant Monitoring Rule 3 is a Federal water quality sampling program where water suppliers sample and test their source water for 1 year. Testing was conducted in 2013. Results will be used by the USEPA to determine if the contaminants need to be regulated in the future.

⁽⁶⁾ - Combined Radium 226 and 228 has an MCL = 5.

⁽⁷⁾ - Copies of the Supplemental Data Package, which includes the water quality data for each of our supply wells utilized during 2014, are available at the Bethpage Water District office which is located at 25 Adams Avenue, Bethpage, New York and at the Bethpage Public Library.

Bethpage Water District
 25 Adams Avenue
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The Bethpage Water District conducts over 10,000 water quality tests throughout the year, testing for over 135 different parameters in our water supply including as listed on this sheet:

COST OF WATER

The District utilizes a step billing schedule as shown in the table. The average consumer is being billed at \$1.05 per 1,000 gallons of water used. That's 10 gallons for one penny!!

Step Schedule of Water Rates (per quarter)

Consumption (gallons)	Charges
Up to 10,000	\$7.50 minimum
10,001 - 35,000	\$1.25/thousand gallons
35,001 - 60,000	\$1.60/thousand gallons
60,001 - 100,000	\$1.95/thousand gallons
Over 100,000	\$2.60/thousand gallons

WATER SYSTEM IMPROVEMENT

The District continuously evaluates its infrastructure to determine what improvements need to be made.

Last year the District completed the construction of a new 2.0 MG ground storage tank and booster station at BGD Plant. In addition, it completed the construction of a new transmission main on Evelyn Drive and Plainview Road.

Cadmium	Dicamba	Chlorodifluoromethane	N-Propylbenzene
Fluoride	Pentachlorophenol	1,1-Dichloroethene	1,3,5-Trimethylbenzene
Mercury	Hexachlorocyclopentadiene	Methylene Chloride	Tert-Butylbenzene
Langlier Saturation Index	bis(2-Ethylhexyl)adipate	Trans-1,2-Dichloroethene	1,2,4-Trimethylbenzene
Selenium	bis(2-Ethylhexyl)phthalate	cis-1,2-Dichloroethene	Sec-Butylbenzene
Silver	Hexachlorobenzene	2,2-Dichloropropane	4-Isopropyltoluene (P-Cumene)
Color	Benzo(A)Pyrene	Bromochloromethane	N-Butylbenzene
Turbidity	Aldicarb Sulfone	1,1,1-Trichloroethane	Methyl Tert. Butyl Ether (MTBE)
Odor	Aldicarb sulfoxide	Carbon Tetrachloride	
Nitrite	Aldicarb	1,1-Dichloropropene	
Total Dissolved Solids	Total Aldicarbs	1,2-Dichloroethane	
Detergents (MBAS)	Oxamyl	1,2-Dichloropropane	
Free Cyanide	Methomyl	Dibromomethane	
Antimony	3-Hydroxycarbofuran	Trans-1,3-Dichloropropene	
Beryllium	Carbofuran	cis-1,3-Dichloropropene	
Thallium	Carbaryl	1,1,2-Trichloroethane	
Lindane	Glyphosate	Tetrachloroethene	
Heptachlor	Diquat	1,3-Dichloropropane	
Aldrin	Endothall	Chlorobenzene	
Heptachloro Epoxide	1,2-Dibromoethane (EDB)	1,1,1,2-Tetrachloroethane	
Dieldrin	1,2-Dibromo-3-Chl.Propane	Bromobenzene	
Endrin	Dioxin	1,1,2,2-Tetrachloroethane	
Methoxychlor	Chloroacetic Acid	1,2,3-Trichloropropane	
Toxaphene	Bromoacetic Acid	2-Chlorotoluene	
Chlordane	Dichloroacetic Acid	4-Chlorotoluene	
Total PCBs	Trichloroacetic Acid	1,2-Dichlorobenzene	
Propachlor	Dibromoacetic Acid	1,3-Dichlorobenzene	
Alachlor	Total Haloacetic Acid	1,4-Dichlorobenzene	
Simazine	Chloroform	1,24-Trichlorobenzene	
Atrazine	Bromodichloromethane	Hexachlorobutadiene	
Metolachlor	Dibromochloromethane	1,2,3-Trichlorobenzene	
Metribuzin	Bromoform	Benzene	
Butachlor	Dichlorodifluoromethane	Toluene	
2,4-D	Chloromethane	Ethylbenzene	
2,4,5-TP (Silvex)	Vinyl Chloride	M,P-Xylene	
Dinoseb	Bromomethane	O-Xylene	
Dalapon	Chloroethane	Styrene	
Picloram	Trichlorofluoromethane	Isopropylbenzene (Cumene)	