

Annual Drinking Water Quality Report for 2019

Kittery Water District

17 State Rd., Kittery, ME 03904

June 30, 2020

MISSION STATEMENT

Kittery Water District recognizes that water and watersheds must be preserved, conserved and protected; that an adequate supply of clean water is a basic human right; that water is a public trust, to be guarded by all levels of government acting as an equal partner with the public; and that the best advocates for water are local communities and citizens. The District strives to maintain stable water rates for domestic and municipal purposes.

The 22nd annual water quality report, in accordance with the 1996 Safe Drinking Water Act (SDWA), provides general information regarding District activities. During 2019 drinking water produced by the Kittery Water District (KWD) met or exceeded all federal and state health safety requirements.

DISTRICT ACTIVITIES IN 2019

- Produced over one billion gallons of water for the homes and businesses of Kittery, Kittery Point, parts of Eliot, the Portsmouth Naval Shipyard and a portion of York.
- Deer Ridge Lane, Kittery – installed 120 feet of high density polyethylene (H.D.P.E.) water main.
- Turkey Tail Lane, Kittery – installed 642 feet of ductile iron water main.
- Seward Farm Lane, Kittery – installed 2,280 feet of H.D.P.E. water main.
- Palmer Avenue, Kittery – installed 662 feet of H.D.P.E. water main.
- Happy Avenue, Kittery – installed 19 feet of H.D.P.E. water main, replacing 108 feet of old iron water main.
- Sunshine Lane, Kittery Point – installed 25 feet of H.D.P.E. water main.
- Pheasant Lane, Eliot – installed 630 feet of H.D.P.E. water main.
- Ripley Road, Kittery – installed 160 feet of ductile iron water main, replacing 255 feet of copper tubing.

2020 CONSTRUCTION SCHEDULE

This coming construction season, our construction crew will be performing water main upgrades to increase fire protection and replace aging infrastructure in the following locations:



MEN AT WORK



- Keen Avenue, Kittery Point
- Sunshine Lane, Kittery Point
- Bayview Lane, Kittery
- Pinkham Avenue, Kittery
- Mendum Avenue, Kittery

FILTRATION PLANT RENOVATIONS PHASE 1 ~ NEARING COMPLETION ~

The first phase of renovations to the Francis Hatch Filtration Plant at a cost of \$3.1 million will be completed early summer. The following has already been completed:

Flocculation Basin

- Incandescent lighting replaced with LED lighting
- Both flocculators replaced

Sedimentation Basin

- Incandescent lighting replaced with LED lighting
- Wooden baffle walls replaced
- Cast iron process water main was replaced with H.D.P.E. pipe and stainless steel supports

Filter Rooms

- Underdrain system for both filters #1 and #2 replaced
- Filtering media replaced in both filter beds
- Both automatic traveling bridges replaced and upgraded

Building Improvements

- Replaced front entry steps and loading dock to allow for safer chemical deliveries
- Roof truss and filter room walls painted

Process Control System

- Replaced the existing relay system with all new control and network communication system and new field instrumentation
- New design and programs for the supervisory control and data acquisition (SCADA) system

Anticipated renovations this summer:

- Replace both pre- and post- lime metering pumps including installation of variable frequency drives, new system piping and valving
- Installation of ceiling and new lighting in the control room
- Installation of variable frequency drive and new inverter duty motor for distribution finish water pump #2

FILTRATION PLANT RENOVATIONS ~ PHASE 2

Phase 2 is nearing the design stage. It will center around repairs within the clearwells and will require a complete shutdown of the facility. It is expected to take between 3 and 4 months, during which time the District will be purchasing chloraminated water from both the York Water District and the Kennebunk, Kennebunkport and Wells Water District. Phase 2 is slated for 2021 at the earliest.

2019 Water Test Results					
Contaminant:	Results:	Violation:	MCLG:	MCL:	Likely Source:
TOTAL COLIFORM BACTERIA (2019)	1 positive	No	0	1 positive per month or 5%	Naturally present in the environment.
TURBIDITY (4/19)	0.12 NTU	No	NA	0.3 NTU 95% 1 NTU 100%	Soil erosion; suspended materials.
BARIUM (12/19)	< 0.010 ppm	No	2 ppm	2 ppm	Erosion of natural deposits.
CUTTS ROAD TOTAL HALOACETIC ACIDS	20 ppb (LRAA) (Range: 13 – 24.8 ppb)	No	0	60 ppb	By-product of drinking water chlorination.
CUTTS ROAD TOTAL TRIHALOMETHANES	24 ppb (LRAA) (Range: 13 – 28 ppb)	No	0	80 ppb	By-product of drinking water chlorination.
ELIOT TANK TOTAL HALOACETIC ACIDS	29 ppb (LRAA) (Range: 24.2 – 33 ppb)	No	0	60 ppb	By-product of drinking water chlorination.
ELIOT TANK TOTAL TRIHALOMETHANES	64 ppb (LRAA) (Range: 45 – 75 ppb)	No	0	80 ppb	By-product of drinking water chlorination.
MARTIN ROAD TOTAL HALOACETIC ACIDS	31 ppb (LRAA) (Range: 19 – 38.6 ppb)	No	0	60 ppb	By-product of drinking water chlorination.
MARTIN ROAD TOTAL TRIHALOMETHANES	48 ppb (LRAA) (Range: 38 – 56 ppb)	No	0	80 ppb	By-product of drinking water chlorination.
ROUTE 1, YORK TOTAL HALOACETIC ACIDS	29 ppb (LRAA) (Range: 18 – 37.5 ppb)	No	0	60 ppb	By-product of drinking water chlorination.
ROUTE 1, YORK TOTAL TRIHALOMETHANES	42 ppb (LRAA) (Range: 28 – 46 ppb)	No	0	80 ppb	By-product of drinking water chlorination.
CHLORINE (2019)	1.7 ppm (Range: 1.2 – 1.9ppm)	No	4.0 ppm (MRDL)	4 ppm (MRDLG)	Water additive to control microbes.
NITRATE / NITROGEN (12/19)	< 1.0 ppm	No	10 ppm	10 ppm	Runoff from fertilizer use. Leaching from septic tanks, sewage. Erosion of natural deposits.
CHROMIUM (12/19)	1 ppb	No	100 ppb	100 ppb	Discharge from steel and pulp mills. Erosion of natural deposits
RADIUM – 228 (4/16)	< 3 pCi/l	No	0 pCi/l	5 pCi/l	Erosion of natural deposits.
LEAD (12/19)	1 ppb	No	0	15 ppb (AL)	Corrosion of household plumbing systems.

2019 VIOLATIONS: KITTELY WATER DISTRICT violated a drinking water standard. Even though this is not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation. We are required to monitor our drinking water for specific contaminants on a regular basis. Results of regular monitoring indicate whether or not our drinking water meets health standards. During 1/1/2019-3/31/2019, we did not test/did not test adequately for disinfection by-products. The District inadvertently collected the 1st quarter disinfection by-products samples 19 days early.

REGULATED PRIMARY DRINKING WATER STANDARDS

Our water was regularly tested for some or all the primary standard contaminants listed below, as regulated by law.

Microbiological Contaminants	12. Cadmium	25. Acrylamide	41. Ethylene dibromide	Volatile Organic Contaminants	66a. Haloacetic acids
1. Total Coliform Bacteria	13. Chromium	26. Alachlor	42. Glyphosate	55. Benzene	66b. Methyl-Tertiary-Butyl-Ether (MTBE) (Maine MCL)
2. Fecal coliform and <i>E.coli</i>	14. Copper	27. Atrazine	43. Heptachlor	56. Carbon tetrachloride	
3. Turbidity	15. Cyanide	28. Benzo(a)pyrene (PAH)	44. Heptachlor epoxide	57. Chlorobenzene	67. Styrene
Radioactive Contaminants	16. Fluoride	29. Carbofuran	45. Hexachlorobenzene	58. o-Dichlorobenzene	68. Tetrachloroethylene
4. Beta/photon emitters	17. Lead	30. Chlordane	46. Hexachlorocyclo-pentadiene	59. p-Dichlorobenzene	69. 1,2,4 -Trichlorobenzene
5. Alpha emitters	18. Mercury (inorganic)	31. Dalapon	47. Lindane	60. 1,2 - Dichloroethane	70. 1,1,1 - Trichloroethane
6. Combined radium	19. Nitrate (as Nitrogen)	32. Di(2-ethylhexyl) adipate	48. Methoxychlor	61. 1,1 - Dichloroethylene	71. 1,1,2 -Trichloroethane
6a. Uranium	20. Nitrite (as Nitrogen)	33. Di(2-ethylhexyl) phthalate	49. Oxamyl [Vydate]	62. cis-1,2-Dichloroethylene	72. Trichloroethylene
Inorganic Contaminants	21. Selenium	34. Dibromochloropropane	50. PCBs [Polychlorinated biphenyls]	63. trans - 1,2 - Dichloroethylene	73. TTHM [Total trihalomethanes]
7. Antimony	22. Thallium	35. Dinoseb	51. Pentachlorophenol	64. Dichloromethane	74. Toluene
8. Arsenic	Synthetic Organic Contaminants including Pesticides and Herbicides	36. Diquat	52. Picloram	65. 1,2-Dichloropropane	75. Vinyl Chloride
9. Asbestos	23. 2,4-D	37. Dioxin [2,3,7,8-TCDD]	53. Simazine	66. Ethylbenzene	76. Xylenes
10. Barium	24. 2,4,5-TP (Silvex)	38. Endothall	54. Toxaphene		77. HAA5's [Haloacetic Acids]
11. Beryllium		39. Endrin			
		40. Epichlorohydrin			

DEFINITIONS OF TESTING TERMINOLOGY

Primary standards - Quality standards designed to protect your health.

Secondary standards - Standards relating to the aesthetic qualities of water like taste, odor and color that do not present a health risk.

ppm (Parts per million) – unit of measure

ppb (Parts per billion) or Micrograms per liter –unit of measure

pCi/L (Picocuries per liter) - Picocuries per liter is a measure of the radioactivity in water.

NTU (Nephelometric Turbidity Unit) - Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

TT (Treatment Technique) - A treatment technique in a required process intended to reduce the level of a contaminant in drinking water.

MCL (Maximum Contaminant Level) - The “Maximum Allowed” is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal) - The “Goal” is 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 addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

SMCL (Secondary Maximum Containment Level) - The highest level of an aesthetic water quality parameter that is allowed in drinking water.

RAA (Running Annual Average) –The average of all monthly or quarterly samples for the last year at all sample locations.

LRAA (Locational Running Annual Average) –The average of monthly or quarterly samples for the last year from the same location.

2019 TEST RESULTS FOR SECONDARY STANDARDS

	Maximum Level Detected	SMCL
Manganese	0.018ppm	.050ppm
pH	6.8	6.0-8.5
Sodium	6.2ppm	20ppm
Sulfate	<5.0ppb	250ppb
Total Chloride	<10ppm	250ppm
Total Hardness	22ppm	500ppm
Zinc	<0.010ppm	5ppm

Additional Notes:

- 1) Total Coliform Bacteria: Reported as the highest monthly number of positive samples, for water systems that take < 40 samples per month.
- 2) Gross Alpha: Action level over 5 pCi/L requires testing for Radium. Action level over 15 pCi/L requires testing for Radon and Uranium.
- 3) Lead/Copper: Action levels (AL) are measured at consumer's tap. 90% of the tests must be equal to or below the action level.
- 4) Total Trihalomethanes (TTHM)/Haloacetic Acids (HAA5): TTHM and HAA5 are formed as a by-product of drinking water chlorination. This chemical reaction occurs when chlorine combines with naturally occurring organic matter in water.
- 5) Turbidity: Turbidity is a measurement of cloudiness or suspended colloidal matter (silt). Excessive turbidity can cause problems with water disinfection. All samples taken from our system were below 0.549 ntu's for rapid sand filtration media. Therefore, our water filtration system renders your finished drinking water clear and safe to drink.

IMPORTANT INFORMATION

Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with household plumbing. KWD is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When water has been sitting in household piping for several hours, the potential for lead exposure can be minimized by flushing your tap for up 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 or at <http://www.epa.gov/safewater/lead>.

MCLs

Maximum Contaminant Levels are set at very stringent levels. A person would have to drink 2 liters of water every day at the MCL level over the course of a lifetime to have a one-in-ten thousand chance of acquiring any adverse health effect.

Source Information

The District obtains our water from four man-made ponds in the town of York, Maine: Boulter Pond, Middle Pond, Upper Folly Pond and Bell Marsh Reservoir. The watershed for these ponds has been tested for potentially harmful pathogens such as cryptosporidium, giardia, and E-Coli. None were detected. Our source water protection program prohibits all but passive recreation around the reservoirs. Frequent watershed protection patrols assure compliance with our watershed protection policies.

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, radioactive material, and substances resulting from human or animal activity. The Maine Drinking Water Program assessed public water supplies statewide in 2003 as part of the Source Water Assessment Program. The assessment considered geology and hydrology, land uses, water testing information, and the extent of land ownership or local ordinance protection to determine how likely the drinking water source is to be contaminated in the future. This evaluation reflected positively on the District's watershed. The assessment is available to the public upon request. For more information, contact the Drinking Water Program at 207-287-2070.

The District's water treatment and filtering facility is located at Boulter Pond in York. The filtration process includes the addition of alum and hydrated lime to coagulate organic materials in the raw water. Sodium permanganate is added to oxidize iron and

manganese. As water passes through a sedimentation process, organic materials settle out. Water is filtered as it passes through a bed of washed, filtering sand. After filtering, the water is treated with sodium hypochlorite for disinfection. Hydrated lime is added to adjust water pH. Prior to leaving the plant, a corrosion control chemical, trade name AQUA MAG 9600, is added to reduce distribution system pipe corrosion.

Health Information

Contaminants that may be present in source water include:

Microbial contaminants such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Radioactive Contaminants which can be naturally occurring or be the result of oil and gas production and mining activities.

Organic chemical contaminants including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and can also come from gas stations, urban runoff, and septic systems.

Our watershed monitoring program has tested for the above contaminants. None were detected. Should any contaminants be introduced, our water treatment process assures that the maximum contaminant level will be below State standards for safe drinking water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons (such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people 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 providers about drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Public Participation

The Kittery Water District was established in 1907 by the Maine Legislature and is not a part of town government. The Board of Trustees meets with the Superintendent each week on Wednesdays at 7:30 a.m. at the office of the Kittery Water District. This meeting is open to public participation.

Important Telephone Numbers and Email Addresses

Kittery Water District Office	439-1128, 439-8549 (fax)
Kittery Water District Website	www.kitterywater.org
Email address	kitterywater@comcast.net
Kittery Water District Treatment Facility	363-4252
Kittery Police Dispatch (after hour emergencies)	439-1638
Michael S. Rogers, Superintendent	439-1128
Superintendent's email address	mrogerskwd@gmail.com
Caroline D. Rose, Trustee, President	crosekwd@gmail.com
James E. Golter, Trustee, Treasurer	jgolterkwd@gmail.com
Julia H. O'Connell, Trustee, Secretary	kwdjulia@gmail.com
ME PUC's Consumer Assistance Division	1-800-452-4699
ME DHS, Drinking Water Program	1-207-287-2070
EPA's Safe Drinking Water Hotline	1-800-426-4791

The Kittery Water District's Public Water System Identification Number (PWSID) is ME0090790.

Kittery Water District
17 State Road
Kittery, ME 03904-1565

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