PASSAIC VALLEY WATER COMMISSION (PVWC) PWS ID NJ1605002 - 2016 WATER QUALITY DATA

				Water Treatment Plant Results		
PRIMARY CONTAMINANTS	**Compliance Achieved**	**MCLG**	**MCL**	**PVWC Little Falls WTP PWS ID NJ1605002**	**NJDWSC Wanaque WTP PWS ID NJ1613001**	**TYPICAL SOURCE**
TURBIDITY AND TOTAL ORGANIC CARBON				**Highest Result (Range of Results)**	**Highest Result (Average)**	
Turbidity, NTU	**Yes**	**NA**	**TT = 1**	**0.17 (0.03 - 0.17)**	**0.38 (0.12)**	**Soil runoff.**
	Yes	**NA**	**TT = percentage of samples <0.3 NTU (min 95% required)**	**100%**	**99.7%**	
Total Organic Carbon, %	**Yes**	**NA**	**TT = % removal; or removal ratio**	**Percent (%) Removal**	**Removal Ratio**	
				51 - 75 (35 - 50 required)	**1.0 (RAA) 0.76 - 1.0**	**Naturally present in the environment.**
INORGANIC CONTAMINANTS				**Highest Result (Range of Results)**	**Highest Result**	
Barium, ppm	**Yes**	**2**	**2**	**0.024 (0.015 - 0.024)**	**0.014**	**Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.**
Chromium, ppb	**Yes**	**100**	**100**	**0.60 (ND - 0.60)**	**ND**	**Discharge from steel and pulp mills; erosion of natural deposits.**
Fluoride, ppm	**Yes**	**4**	**4**	**0.087 (0.07 - 0.087)**	**ND**	**Erosion of natural deposits.**
Nickel, ppb	**NA**	**NA**	**NA**	**2.75 (1.54 – 2.75)**	**ND**	**Erosion of natural deposits.**
Nitrate, ppm	**Yes**	**10**	**10**	**4.05 (0.72 – 4.05)**	**0.284**	**Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.**
Selenium, ppb	**Yes**	**50**	**50**	**0.74 (ND - 0.74)**	**ND**	**Discharge from petroleum and metal refineries; Erosion of natural deposits. Discharge from mines.**
Thallium, ppb	**Yes**	**0.5**	**2**	**0.6 (ND - 0.6)**	**ND**	**Leaching from ore-processing sites; Discharge from electronics, glass, and drug factories.**

SOURCE WATER ASSESSMENT

NJDEP has prepared Source Water Assessment reports and summaries for all public water systems. The Source Water Assessment for the PVWC system (PWS ID 1605002), and NJDWSC system (PWS ID 1613001) can be obtained by accessing NJDEP's source water assessment web site at http://www.nj.gov/dep/watersupply/swap/index.html or by contacting NJDEP's Bureau of Safe Drinking Water at 609-292-5550. If a system is rated highly susceptible for a contamination category, it does not mean a customer is – or will be – consuming contaminated water. The rating reflects the potential for contamination of a source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any of those contaminants are detected at frequencies and concentrations above allowable levels. The source water assessments performed on the intakes for each system lists the following susceptibility ratings for a variety of contaminants that may be present in source waters:

Intake Susceptibility Ratings	Pathogens	Nutrients	Pesticides	Volatile Organic Compounds	Inorganic Contaminants	Radionuclides	Radon	Disinfection Byproduct Precursors
PVWC 4 Surface Water	**4-High**	**4-High**	**1-Medium, 3-Low**	**4-Medium**	**4-High**	**4-Low**	**4-Low**	**4-High**

NJDWSC 5 Surface Water	5-High	5-High	2-Medium, 3-Low	5-Medium	5-High	5-Low	5-Low	5-High

CRYPTOSPORIDIUM

Cryptosporidium is a microbial pathogen found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are viable or capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may spread through means other than drinking water.

PVWC and NJDWSC started the second round of source water monitoring in accordance with the requirements of EPA's Long Term 2 Enhanced Surface Water Treatment Rule. The data collected in 2016 is presented in the Source Water Pathogen Monitoring table below. Results of this monitoring will be used to determine whether additional treatment for removal/inactivation of *Cryptosporidium* is required for each Treatment Plant.

SOURCE WATER PATHOGEN MONITORING

	PVWC Source Waters		NJDWSC Source Water	Typical Source
Contaminant	Passaic River	Pompton River		
***Cryptosporidium*, Oocysts/L**	**0 - 0.4**	**0 - 0.857**	**0 - 0.1**	Microbial pathogens found in surface waters throughout the United States.
***Giardia*, Cysts/L**	**0 - 1.1**	**0 - 1.143**	**0 - 0.1**	

SECONDARY PARAMETERS – TREATMENT PLANT EFFLUENT

Contaminant	N.J. Recommended Upper Limit (RUL)	PVWC Little Falls WTP PWSID NJ1605002		NJDWSC Wanaque WTP PWSID NJ1613001	
		Range of Results	RUL Achieved	Result	RUL Achieved
ABS/LAS, ppb	500	ND - 129	Yes	ND	Yes
Alkalinity, ppm	NA	50 - 77	NA	44	NA
Aluminum, ppb	200	15 - 35	Yes	45	Yes
Chloride, ppm	250	102 - 146	Yes	77	Yes
Color, CU	10	ND	Yes	2	Yes
Corrosivity	Non-Corrosive	Corrosive	No	Corrosive	No
Hardness (as $CaCO_3$), ppm	250	112 - 160	Yes	72	Yes
Hardness (as $CaCO_3$), grains/gallon	15	7 - 9	Yes	4	Yes
Iron, ppb	300	ND	Yes	6	Yes
Manganese, ppb	50	2 - 5	Yes	2	Yes
Odor, TON	3	6 - 16	No	ND	Yes
pH	6.5 to 8.5 (optimum range)	7.52 - 8.33	Yes	7.98	Yes
Sodium, ppm	50	55 - 130	No*	42	Yes
Sulfate, ppm	250	49 - 90	Yes	10	Yes
Total Dissolved Solids, ppm	500	313 - 492	Yes	186	Yes
Zinc, ppb	5,000	2 - 4	Yes	8	Yes

**Compliance with the Manganese RUL is based on the average of all results.

* PVWC FINISHED WATER EXCEEDS SODIUM RUL

PVWC's finished water was above New Jersey's Recommended Upper Limit (RUL) of 50 ppm for sodium in 2016. Possible sources of sodium include natural soil runoff, roadway salt runoff, upstream wastewater treatment plants, and a contribution coming from chemicals used in the water treatment process. For healthy individuals the sodium intake from water is not important, because a much greater intake of sodium takes place from salt in the diet. However, sodium levels above the recommended upper limit may be a concern to individuals on a sodium-restricted diet. If you have any concerns please contact your health care provider.

ADDITIONAL PVWC TREATMENT PLANT MONITORING RESULTS

Detected Contaminants, ppb	Little Falls WTP Effluent Average (Range)	
Chlorate	250 (ND - 495)	Test results presented in this table were collected in 2016 as part of a study to determine the general occurrence of these contaminants. PVWC continues to participate in and support these types of regulatory and research efforts to maintain a position of leadership in drinking water supply. There are currently no drinking water standards for these contaminants although EPA has established health advisory levels for some of these to provide an estimate of acceptable drinking water levels based on health effects information. **The results observed in 2016 were well below EPA established health advisory levels.**
1,4-Dioxane	0.185 (0.18 - 0.19)	
Chloromethane	0.014 (ND - 0.55)	
Perfluorobutanesulfonic acid	0.004 (0.0032 - 0.0044)	
Perfluoroheptanoic acid	0.0038 (0.0032 - 0.0049)	
Perfluorohexanesulfonic acid	0.0049 (0.0038 - 0.0068)	
Perfluorohexanoic acid	0.015 (0.011 - 0.017)	
Perfluorononanoic acid	0.0011 (ND - 0.0043)	
Perfluorooctanesulfonic acid, (PFOS)	0.010 (0.0077 - 0.015)	
Perfluorooctanoic acid, (PFOA)	0.012 (0.0099 - 0.014)	

Health advisory levels are non-enforceable and non-regulatory and provide technical information to state agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination.

DEFINITIONS of TERMS and ACRONYMS

ABS/LAS: Alkylbenzene Sulfonate and Linear Alkylbenzene Sulfonate (surfactants)
AL: Action Level; the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
CDC: United States Centers for Disease Control and Prevention
CU: Color unit
Disinfection By-product Precursors: A common source is naturally-occurring organic material in surface water. Disinfection by-products are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (DBP precursors) present in surface water.
EPA: United States Environmental Protection Agency
Inorganic Contaminants: 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. These contaminants may be present in source water.
MCL: Maximum Contaminant Level; 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 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.
Microbial Contaminants/Pathogens: Disease-causing organisms such as bacteria, protozoa, and viruses, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife. Common sources are animal and human fecal wastes. These contaminants may be present in source water.
MRDL: Maximum Residual Disinfectant Level; 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.
MRDLG: Maximum Residual Disinfectant Level Goal; the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination.
NA: Not applicable
ND: Not detected above the minimum reporting level.
NJDEP: New Jersey Department of Environmental Protection
NJDWSC: North Jersey District Water Supply Commission
NTU: Nephelometric Turbidity Unit
Nutrients: Compounds, minerals and elements that aid growth, which can be either naturally occurring or man-made. Examples include nitrogen and phosphorus.
Organic Contaminants/Volatile Organic Compounds: Compounds containing carbon, including synthetic and volatile organic chemicals, which are products or by-products of industrial processes or petroleum production. They are typically used as solvents, degreasers, and gasoline components. These compounds may be present in source water as a result of releases from gas stations, fuel storage tanks, industrial facilities, stormwater runoff, and other sources. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.
Pesticides (Herbicides, Insecticides, Fungicides, and Rodenticides): Man-made chemicals used to control pests, weeds, and fungus. Common sources include manufacturing centers of pesticides, and where they are used in agricultural, industrial, commercial, and residential environments. Examples include herbicides such as atrazine, and insecticides such as chlordane.
ppb: parts per billion (approximately equal to micrograms per liter)
ppm: parts per million (approximately equal to milligrams per liter)
PWS ID: Public Water System Identification
PVWC: Passaic Valley Water Commission
RAA: Running Annual Average

Radioactive Contaminants/Radionuclides: Radioactive substances that are both naturally occurring and man-made; may be present in source water naturally or as a result of oil and gas production and mining activities. Examples include radium, radon and uranium.
Radon: Colorless, odorless, cancer-causing gas that occurs naturally in the environment.
RUL: Recommended Upper Limit; the highest level of a constituent of drinking water that is recommended in order to protect aesthetic quality.
RUL Achieved: A "YES" entry indicates the State-recommended upper limit was not exceeded. A "NO" entry indicates the State-recommended upper limit was exceeded.
TON: Threshold Odor Number
TT: Treatment Technique; a required process intended to reduce the level of a contaminant in drinking water.
Turbidity: Turbidity is a measure of the cloudiness of the water, and is monitored as an indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.
WTP: Water Treatment Plant

ADDITIONAL INFORMATIONAL RESOURCES

EPA Drinking Water website: www.epa.gov/safewater
NJDEP Water Supply website: www.nj.gov/dep/watersupply
American Water Works Association (AWWA) website: www.awwa.org

EPA Safe Drinking Water Hotline: 800-426-4791
NJDEP Bureau of Safe Drinking Water: 609-292-5550
AWWA New Jersey Section website: www.njawwa.org

				DISTRIBUTION SYSTEM RESULTS	
PRIMARY CONTAMINANTS	Compliance Achieved	MCLG	MCL		TYPICAL SOURCE
MICROBIOLOGICAL CONTAMINANTS				Highest Monthly Result	
Total Coliform Bacteria, %		0	5% of monthly samples are positive	0%	Naturally present in the environment.
DISINFECTION BYPRODUCTS				Highest LRAA and Range of Results	
Haloacetic Acids (HAA5), ppb		NA	60	.0294 MG/L .002 MG/L-.0294MG/L	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM), ppb		NA	80	.0653 MG/L .0114 MG/L-.0653 MG/L	By-product of drinking water disinfection.
DISINFECTANTS		MRDLG	MRDL	Highest RAA and Range of Results	
Chlorine,ppm		4	4	0.92(Annual Running Average) 0.70-1.20	Water additive used to control microbes.
COPPER AND LEAD				90TH PERCENTILE	
Lead (ppm)		1.3	1.3	not met	Corrosion of household plumbing systems
Copper (ppm)		0.0	15.0	not met	Corrosion of household plumbing systems