2014 WATER quality report

TRENTON WATER WORKS

George Muschal, Mayor

Your Drinking Water:

It's high quality.

It's reliable.

And we are continuing to make the necessary investments to keep it that way.

The City of Trenton is pleased to present the

Trenton Water Works
2014 Water Quality Report

Quality drinking water is an essential resource. The good news is that your tap water is top quality! Our water meets all state and federal standards.

Trenton Water Works
P.O Box 528
Trenton, NJ 08604-0528

NOTICE TO LANDLORDS:

You are required by law to make this report available to all water consumers. Please post in a visible location or distribute to all tenants. Additional copies are available by calling 609.989.3208.

Este informe contiene información muy importante sobre su agua beber.

For more information:

The City of Trenton values the water utility's customers and works hard to ensure their satisfaction. If you have questions or comments about this report, please call our Water Quality Office at 609-989-3216 between 8:00 A.M. and 3:00 P.M., or contact the following sources of information:

New Jersey Department of Environmental Protection
Bureau of Safe Drinking Water
609-292-5550
www.state.nj.us/dep/watersupply/

U.S. Environmental Protection Agency
Safe Drinking Water Hotline
1-800-426-4791
www.epa.gov/safewater

HOW A WATER METER WORKS

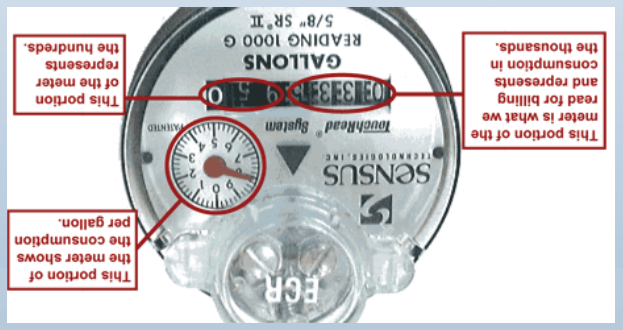
Water meters are used to measure the volume of water that passes a point in a pipe using mechanical, magnetic or electronic devices. The simplest mechanical meters measure the displacement of rotary pistons or loosely suspended disks as water flows past.

Other types of meters use speed of flow (velocity meters) to calculate volume. Impellers (multijet meters) and turbine meters use similar principles. The large turbine meters are used in high-volume pipes.

Newer meters use electromagnetic energy or ultrasonic transducers to measure flow in large-volume situations.

Different types of meters are most accurate for low, medium and high-flow applications. The low volume of residential usage is most accurately measured by the positive displacement or multijet meters.

Meters are most often made of bronze or brass and plastic and are spliced into a pipe on an inside surface near where the water enters the residence from the supplier.



A HISTORY OF WATER METERS

Water meters are essential and their history dates back to the early 1900s when engineers began to design and build them to be used throughout water systems across the world. The benefits of water meter devices range from their ability to help in the detection of leaks to their ability to give the consumer and utility information in reference to the water usage within a given network.

The origin of water meters goes back over 100 years with two separate beginnings. The National Meter Company was formed in Brooklyn, New York in 1870. This company was responsible for the production of the L.H. Nash disc meters and Empire piston meters.

Then in 1886 the Pittsburg Meter Company was founded, by George Westinghouse; later this company joined another to form Pittsburgh Equitable Meter Company in 1927, relocating to Brooklyn, New York. Pittsburgh Equitable produced several types of meters such as: Keystone compound meters, Eureka "A" turbine meters, Arctic and Tropic meters.

In 1945, the manufacturer was purchased by Willard F. Rockwell and renamed Rockwell Manufacturing Company who had a special interest in the water meters and the people who built them. In fact, Rockwell had the facility moved to Uniontown in 1953 where the brand new meter was revolutionized and called the SR (sealed register) meter. This meter was put into production and to date over 40 million SR meters are in service through several countries around the world including the United States.

The facility expanded and designed many types of meters including the SRII in 1985 which is an upgraded piston type water meter, including electronic encoding capabilities and state of the art reading and billing capabilities.

In 1989 the company became Sensus and this is the main meter used by Trenton Water Works.

Trenton Water Works has entered into an Administrative Consent Order (ACO) with the New Jersey Department of Environmental Protection to cover the finished water reservoir. Under the ACO the construction of the cover is scheduled to be completed by July 30, 2019.

SUSCEPTIBILITY RATINGS FOR TRENTON WATER DEPARTMENT SOURCES

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category. For susceptibility ratings of purchased water, refer to the specific water system's source water assessment report.

The seven contaminant categories are defined at the bottom of the page. DEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radio-nuclides			Radon			Disinfection Byproduct Precursors		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells – 0																								
GUDI – 0																								
Surface water intakes – 1	1			1				1			1		1					1			1	1		

Pathogens: Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.

Nutrients: Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.

Volatile Organic Compounds: Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.

Pesticides: Man-made chemicals used to control pests, weeds and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atrazine, and insecticides such as chlordane.

Inorganics: Mineral-based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead, and nitrate.

Radionuclides: Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.

Radon: Colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information go to http://www.nj.gov/dep/rpp/radon/index.htm or call (800) 648-0394.

Disinfection Byproduct Precursors: A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

SOURCE WATER ASSESSMENT

Trenton Water Works draws its source water from the Delaware River through one intake. An assessment of this source water determined the following:

The susceptibility of the Delaware River to eight contaminant categories was evaluated. The Delaware River received a high susceptibility rating for pathogens, nutrients, inorganics, and disinfection byproducts (DBPs): a medium susceptability rating for pesticides and volatile organic compounds (VOCs); and a low susceptibility rating for radionuclides and radon. All surface water sources in New Jersey are considered to be highly susceptible to pathogens and have low susceptability to radionuclides and radon.

NJDEP found the following potential contaminant sources within the source water assessment area for our source:

- Agriculture, residential, urban, and commercial/industrial land use
- Sewage treatment plants
- Known contaminated sites
- Solid waste landfills, solid waste resource recovery facilities, solid waste transfer facilities, compost facilities, Class B recycling facilities
- NJPDES permitted facilities
- Underground storage tanks

Trenton Water Works also has access to purchased groundwater as an emergency water source. This water source was not evaluated during the source water assessment because it is only an emergency water source.

If you have questions regarding the source water assessment reports or summaries please contact the Bureau of Safe Drinking Water at 609.292.5550 or visit www.nj.gov/dep/watersupply/swap/assessments.htm.

Faces of Trenton Water Works

Trenton Water Works employs approximately 100 people in the areas of water treatment, laboratory analysis, customer service, and facility maintenance. We are proud of our excellent staff who are your neighbors and fellow consumers.

Trenton Water Works Water Meter Readers

ACRONYMS AND 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 using the best available treatment technology.

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.

Secondary Maximum Contaminant Level (SMCL): Any contaminant in drinking water which may adversely affect the taste, color, odor, or appearance of such water, or which may adversely affect the public welfare.

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 contamination.

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

Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements which a water system must follow.

Variances and Exceptions: State or EPA permission not to meet a MCL or a treatment technique under certain conditions.

ppm: Concentration in parts per million or milligrams per liter (mg/L); this is equivalent to $0.01 of $10,000.

ppb: Concentration in parts per billion or micrograms per liter (µg/L); this is equivalent to $0.01 of $10,000,000.

pCi/L: Picocuries per liter; a measure of radioactivity.

NLE: No Level Established

NTU: Nephelometric turbidity units (units describing how cloudy a water sample appears).

MFL: million fibers per liter.

<: When seen in the table, it usually refers to below detectable levels.

≤: Less than or equal to; when seen in the table, it usually refers to below or equal to detectable levels.

Contaminant: Anything found in water (including microorganisms, minerals, chemicals, radionuclides, etc.) that may be harmful to human health.

Raw Water: Water in its natural state prior to any treatment for drinking.

Source Water: Water in its natural state originating from the watershed that supplies a water system with its raw water.

Watershed: The land area from which water drains into a stream, river, or reservoir.

Treated Water: Water to be used by a public water system that has received the application of approved water treatment chemicals.

Drinking Water: Water that has been treated to comply with EPA regulations and is pumped to the water customer for use.

Turbidity: Turbidity is a measure of the cloudiness of the water, which is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.

FOOTNOTES

a. Trenton Water Works was granted a reduction in sampling frequency in accordance with 40 CFR 141.86(d)4. Minimum 50 samples are collected every three years as required. Data presented was from 54 samples collected and analyzed in 2011. TWW will be required to conduct lead and copper sampling again in 2014.

b. Stage 1 Disinfectants and Disinfectant Byproducts Rule (DBPR) monitoring is no longer required and is superseded by Stage 2 DBPR after the first quarter of 2012. Stage 2 DBPR monitoring began April 1, 2012 based on new regulations in the Safe Drinking Water Act. Data presented was sampled quarterly in 2013.

c. The regulations require that the highest Locational Running Annual Average (LRAA) for TTHM and HAA5 must be reported. If more than one monitoring location exceeds the TTHM or HAA5 MCL, the LRAAs for all locations that exceed the MCL shall be included. LRAA means the 4-quarter average for each specific sampling site location. LRAAs calculated in 2013 started with quarterly measurements from 2nd quarter of 2012.

d. Data presented is the range of sample results (not LRAA) for all monitoring locations using the 2013 quarterly results.

e. Compliance is determined based on a LRAA. TTHM was in violation before the 2nd quarter of 2013 for Site TTHM-2. The TTHM compliance for Site TTHM-2 was achieved in the 3rd quarter of 2013.

f. Number of routine samples required is 120 per month. Average number of monthly samples that collected in 2013 is 152. For systems that collect ≥ 40 samples per month, 5% of monthly samples are positive for highest level allowed (EPA MCL).

g. Turbidity is a measure of the cloudiness of the water. 99.7% of the turbidity readings in 2013 were below the treatment technique requirement of 0.3 NTU.

h. Sample frequency is 1 sample per 9 year period. The current compliance period is 2011-2019.

i. Value is taken from drinking water watch - inorganics reporting.

j. NJDEP standard.

k. Trenton Water Works was granted an SOC waiver by the NJDEP for compliance period 2011-2013. Data presented was sampled from the Delaware River and it does not represent a value for the potable water. Two samples were collected in 2012.

l. Sampling frequency is 1 sample per 9 year period. Data presented was sampled quarterly in 2006. TWW will be required to conduct sampling again in 2014.

Drinking Water Quality Results

METALS – TESTED AT CUSTOMERS' TAPS [a]

	Units	EPA's Action Level at 90%	Ideal Goal (EPA MCLG)	90% of samples were less than or equal to for 2011	2011 Number of Samples Exceeding Action Level	Violation Y/N	Source
Lead	ppm	15	0	0.003	0 out of 54	N	Corrosion of household plumbing; erosion of natural deposits.
Copper	ppm	1.3	1.3	0.07	0 out of 54	N	Corrosion of household plumbing; erosion of natural deposits.

DISINFECTION BYPRODUCTS (DBP) – STAGE 2 [b]

Sampling Sites (total eight sites)	Units	Highest Annual Average Allowed (EPA MCL)	Ideal Goal (EPA MCLG)	2013 Highest LRAA [c]	2013 Range of Values [d]	2013 Violation Y/N	Source
Total Trihalomethanes (TTHM) [e]							
Site TTHM-2	ppb	80	N/A	95	51 – 73	Y	Byproduct of drinking water disinfection
All other seven sites	ppb	80	N/A	72	23 – 67	N	Byproduct of drinking water disinfection
Five Haloacetic Acids (HAA5)							
All eight sites	ppb	60	N/A	40	3 – 44	N	Byproduct of drinking water disinfection

BACTERIA IN TAP WATER

	Highest Level Allowed (EPA MCL)	Ideal Goal (EPA MCLG)	2013 Highest Monthly Result	2013 Violation Y/N	Source
Total Coliform Bacteria [f]	Presence of coliform bacteria 5% of monthly samples	0	1 positive sample out of 154 (0.65%)	N	Naturally present in the environment; their presence indicates potential contamination
Fecal coliform and E. coli	A routine sample and repeat sample if total coliform positive, and if one fecal or E. coli positive	0	0	N	Humans and animal fecal waste

CLARITY CHARACTERISTICS – TESTED AT WATER TREATMENT PLANT

	Units	Highest Level Allowed (EPA MCL)	Ideal Goal (EPA MCLG)	Highest Reported 2013 Constituent Level	2013 Range of Values	2013 Average Value	2013 Violation Y/N	Source
Turbidity [g]	NTU	TT=1 NTU	0	0.80	0.04—0.80	0.10	N	Soil runoff; river sediment.
		95% of monthly samples must be at or below 0.3 NTU	N/A	99.7% of samples ≤ 0.3 NTU	N/A	N/A	N	

INORGANIC CONTAMINANTS

	Units	Highest Level Allowed (EPA MCL)	Ideal Goal (EPA MCLG)	Reported 2013 Constituent Level	2013 Violation Y/N	Source
Asbestos [h]	MFL	7	7	<0.09	N	Decay of asbestos cement water mains; Erosion of natural deposits.
Fluoride [i]	ppm	4	2	1.34	N	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate (as Nitrogen)	ppm	10	10	0.804	N	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Sodium [j]	ppm	50 (SMCL)	NLE	16.1	N	Naturally present in the environment.
Sulfate [j]	ppm	250 (SMCL)	NLE	14.6	N	Naturally present in the environment.
Hardness [j] (as $CaCO_3$)	ppm	250 (SMCL)	NLE	112	N	Erosion of natural deposits
Chloride [j]	ppm	250 (SMCL)	NLE	45.2	N	Naturally present in the environment and road salt.
Mercury	ppb	2	2	0.036	N	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland

SYNTHETIC ORGANIC COMPOUNDS (SOC) [k]

	Units	Highest Level Allowed (EPA MCL)	Ideal Goal (EPA MCLG)	2012 Highest Result	Violation Y/N	Source
Di (2-ethylhexl) phthalate	ppb	6	0	0.31	N	Discharge from rubber and chemical factories

TOTAL CHLORINE RESIDUAL

	Units	EPA MRDL	MRDLG	2013 Annual Average	2013 Highest Result	2013 Violation Y/N	Source
Total Chlorine	ppm	4.0 as Cl_2	4	0.74	1.24	N	Water additive used to control microbes.

RADIOACTIVE CONTAMINANTS IN TAP WATER [l]

	Units	Highest Level Allowed (EPA MCL)	Ideal Goal (EPA MCLG)	2006 Highest Result	2006 Range of Values	Violation Y/N	Source
Alpha Emitters	pCi/L	15	0	2.24	0.35—2.24	N	Erosion of natural deposits.
Combined Radium	pCi/L	5	0	1.12	0.05—1.12	N	Erosion of natural deposits.

TABLE NOTES

1. The NJDEP has waived requirements to sample for SOC (primarily pesticides) for the compliance period 2011-2013 because surface-water testing results indicate that they are not expected to occur in surface-water supplies in this area. Data presented was analyzed for raw water samples from the Delaware River by the New Jersey Department of Health and Senior Services in 2012.
2. The NJDEP allows Trenton Water Works to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than once year old. The data the does not represent the current sampling year: 1) lead and copper; 2) synthetic organic compounds; 3) radioactive contaminants.