

Understanding Quality

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. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1.800.426.4791).

About source water prior to treatment

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 activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural live stock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants that can be naturally-occurring or the result of oil and gas production and mining activities.

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

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 ($\mu\text{g/L}$); 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).

<: 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.

TWW is required to collect and analyze 50 samples from consumer taps every 3 years for lead and copper. In 2005 only 49 samples were collected successfully and analyzed. The results of the 49 samples are presented in the above table. Please note that there were no results which exceeded the action level. 90% of the lead results were below 2 ppb (EPA action level is 15 ppb). 90% of the copper results were below 0.04 ppm (EPA action level is 1.3 ppb).

TWW will be required to conduct lead and copper sampling again in 2008. In order to assure that the correct number of samples are collected, we will increase the number of customers asked to participate in the program.

Drinking Water Quality Results

Some people may be more vulnerable to contaminants 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, some elderly people, and some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. 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).

METALS—TESTED AT CUSTOMERS' TAPS^a

| | Units | EPA's Action Level at 90% | Ideal Goal (EPA MCLG) | 90% of TWW samples were less than | Number of Samples Exceeding Action Level | Violation | Source |
|--------|-------|---------------------------|-----------------------|-----------------------------------|--|---------------------------|---|
| Lead | ppb | 15 | 0 | 2 | 0 out of 49 | YES (50 samples required) | Corrosion of household plumbing; erosion of natural deposits. |
| Copper | ppm | 1.3 | 1.3 | 0.04 | 0 out of 49 | YES (50 samples required) | Corrosion of household plumbing; erosion of natural deposits. |

DISINFECTION BYPRODUCTS IN TAP WATER^b

| | Units | Highest Annual Average Allowed (EPA MCL) | Ideal Goal (EPA MCLG) | Highest Annual Average in 2007 | Range of Values | Violation | Source |
|-------------------------------|-------|--|-----------------------|--------------------------------|-----------------|-----------|---|
| Total Trihalomethanes (TTHMs) | ppb | 80 | 0 | 76 | 50—114 | NO | Byproduct of drinking water disinfection. |
| Haloacetic Acids (HAAs) | ppb | 60 | 0 | 42 | 7—61 | NO | Byproduct of drinking water disinfection. |

BACTERIA IN TAP WATER

| | Highest Level Allowed (EPA MCL) | Ideal Goal (EPA MCLG) | Highest Monthly Result | Violation | Source |
|----------------------------|--|-----------------------|------------------------|-----------|---|
| Total Coliform Bacteria | Presence of coliform bacteria 5% of monthly samples | 0 | 0 | NO | Naturally present in the environment; their presence indicates potential contamination. |
| Fecal coliform and E. coli | A routine sample and repeat sample are total coliform positive, and if one fecal or E. coli positive | 0 | 0 | NO | Human and animal fecal waste. |

CLARITY CHARACTERISTICS—TESTED AT WATER TREATMENT PLANT

| | Units | Highest Level Allowed (EPA MCL) | Ideal Goal (EPA MCLG) | Reported 2007 Constituent Level | Range | Average Value for the Year | Violation | Source |
|-----------|-------|--|-----------------------|---------------------------------|-----------|----------------------------|-----------|------------------------------|
| Turbidity | NTU | TT=1 95% of monthly samples must be at or below 0.3 NTU | 0 | 0.18 100% ≤ 0.3 NTU | 0.05—0.18 | 0.08 | NO | Soil runoff; river sediment. |

INORGANIC CHEMICALS IN TAP WATER

| | Units | Highest Level Allowed (EPA MCL) | Ideal Goal (EPA MCLG) | Reported 2007 Constituent Level | Violation | Source |
|---|-------|---------------------------------|-----------------------|---------------------------------|-----------|--|
| Barium | ppm | 2.0 | 2.0 | 0.03 | NO | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits. |
| Fluoride ^c | ppm | 4.0 | 2.0 | 0.93 | NO | Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories. |
| Nitrate (as Nitrogen) | ppm | 10 | 10 | 0.7 | NO | Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits. |
| Sodium ^d | ppm | 50 (SMCL) | NLE | 11.6 | NO | Naturally present in the environment. |
| Sulfate ^d | ppm | 250 (SMCL) | NLE | 40.9 | NO | Naturally present in the environment. |
| Hardness ^d (as CaCO ₃) | ppm | 250 (SMCL) | NLE | 91 | NO | Erosion of natural deposits. |

TOTAL CHLORINE RESIDUAL

| | Units | EPA MRDL | MRDLG | 2007 Annual Average | 2007 Highest Result | Violation | Source |
|----------------|-------|------------------------|-------|---------------------|---------------------|-----------|--|
| Total Chlorine | ppm | 4.0 as Cl ₂ | 4 | 0.73 | 1.75 | NO | Additive used for drinking water chlorination to control microbes. |

RADIOACTIVE CONSTITUENTS IN TAP WATER^e

| | Units | Highest Level Allowed (EPA MCL) | Ideal Goal (EPA MCLG) | Highest Result | Range | Violation | Source |
|-----------------|-------|---------------------------------|-----------------------|----------------|-----------|-----------|------------------------------|
| Alpha Emitters | pCi/L | 15 | 0 | 2.24 | 0.35—2.24 | NO | Erosion of natural deposits. |
| Combined Radium | pCi/L | 5 | 0 | 1.12 | 0.05—1.12 | NO | Erosion of natural deposits. |

Footnotes and Table Notes

FOOTNOTES

- Trenton Water Works was granted a reduction in frequency of sampling in accordance with 40 CFR 141.86(d)4. 49 of a required 50 samples were collected and analyzed. Data presented was sampled in 2005. System samples are being collected this year.
- These chemicals are regulated based upon the annual average of quarterly samples.
- Value is the average of daily samples, fluoride dosing was intermittent because of periodic supply issues.
- NJDEP standard.
- Data presented was sampled quarterly in 2006.

TABLE NOTES:

- The NJDEP has waived requirements to test for Synthetic Organic Compounds and pesticides because surface-water testing results indicate that they are not expected to occur in surface-water supplies in this area.
- 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 one year old. The data that does not represent the current sampling year: a) lead and copper are sampled every three years, b) radionuclides are sampled every four years.

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.