



2013 Annual Drinking Water Quality Report

Manchester Township Water Utility

Eastern Service Area

We are pleased to present you with this year's Annual Drinking Water Quality Report for our eastern service area. This area generally includes the portion of the Township lying along Route 37 and those portions lying to the east of Route 37, the Borough of Lakehurst and the Lakehurst Naval Air Engineering Station and Warfare Center. This report is a snapshot of the quality of the water provided last year. This report includes details about where the water comes from, what it contains, and how it compares to Federal Environmental Protection Agency (EPA) and State standards.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Manchester Township Water Utility tests and treats its drinking water according to EPA's regulations. **Last year, all test results met Federal Environmental Protection Agency (EPA) and State drinking water health standards.**

The Manchester Township Water Utility (PWSID # 1518005) gets its raw (untreated) water for its eastern service area from nine municipal wells sunk between 75 and 1150 feet into two underground sources of water called the Cohansey and Upper Raritan Aquifers. The Township controls the property around these wells and restricts any activity that could contaminate them. All of our water is treated at one of four treatment facilities located at or near the wells.

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, 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 storm water 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 storm water runoff and residential uses.

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 storm water runoff, and septic systems.

Radioactive contaminants, which 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.

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued the Source Water Assessment Report and Summary for our public water system, which is available at www.state.nj.us/dep/swap or by contacting the NJDEP, Bureau of Safe Drinking Water at 609-292-5550.

The source water assessment performed on our nine wells determined susceptibility ratings for each of our wells in eight contaminant categories. The following table summarizes the results of the assessments by providing the number of wells rated high (H), medium (M) and low (L) in susceptibility to each contaminant category.

	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
9 Wells	0	0	9	4	3	2	0	2	7	1	0	8	6	3	0	6	3	0	0	6	3	0	9	0

If a system is rated highly susceptible for a contamination 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.

NJDEP found the following potential contaminant sources within the source water assessment areas for our wells: underground storage tanks at two facilities. If you have any questions regarding the source water assessment report or summary, please contact the Bureau of Safe Drinking Water at swap@dep.state.nj.us or 609-292-5550.

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
(800) 426-4791**

The Manchester Township Water Utility tests and treats its drinking water according to EPA's regulations. **Last year, all test results met Federal Environmental Protection Agency (EPA) and State drinking water health standards.**

Any questions regarding the water provided by the Manchester Township Water Utility or this report may be directed to the Township's Department of Utilities at 1 Colonial Drive, Manchester, NJ 08759, (732) 657-8121. Also, the Manchester Township Council meets on the fourth Monday of each month at 6:00 p.m. in the Courtroom of the Municipal Complex at 1 Colonial Drive.

Unless otherwise noted, the data presented in the following table is from testing performed in 2013. The State requires monitoring for certain contaminants less than once per year because concentrations of those contaminants do not change frequently. As a result, some of the data, though representative of the water quality, is more than one year old. The presence of the detected contaminants in the water does not necessarily indicate that the water poses a health risk. In fact, **all of our test results were within the EPA and State drinking water health standards.**

The Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, lead, copper, radionuclides and volatile and synthetic organic compounds. Our system received monitoring waivers for asbestos for the current nine-year compliance cycle, 2011-2019, and synthetic organic compounds for the last three-year compliance cycle, 2011-2013. We are awaiting the State's determination for the current three-year compliance cycle. In addition, our system received a reduction in the monitoring requirements for lead and copper to thirty samples, once every three years; for volatile organic compounds to once every three years at three of our treatment facilities and for radiological contaminants to one sample every three years at one treatment facility and one sample every six years at two other treatment facilities.

Special considerations regarding children, pregnant women, nursing mothers, and others: Children may receive a slightly higher amount of a contaminant present in the water than do adults, on a body weight basis, because they may drink a greater amount of water per pound of body weight than do adults. For this reason, reproductive or developmental effects are used for calculating a drinking water standard if these effects occur at lower levels than other health effects of concern. If there is insufficient toxicity information for a chemical (for example, lack of data on reproductive or developmental effects), an extra uncertainty factor may be incorporated into the calculation of the drinking water standard, thus making the standard more stringent, to account for additional uncertainties regarding these effects. In the cases of lead and nitrate, effects on infants and children are the health endpoints upon which the standards are based.

Terms and abbreviations used below

- 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.
- 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 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.
- 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.

- Action Level (AL): the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- ND: not detectable at testing limit
- ppm: parts per million or milligrams per liter - equivalent to 1 inch in 16 miles or 1 penny in \$10,000
- ppb: parts per billion or micrograms per liter – equivalent to 1 inch in 16,000 miles or 1 penny in \$10,000,000
- pCi/l: picocuries per liter (a measure of radioactivity)
- n/a: not applicable

2013 WATER QUALITY TABLE

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, and 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 EPA's Safe Drinking Water Hotline (800) 426-4791.

PRIMARY CONTAMINANTS	MCLG	MCL	HIGHEST DETECTED	RANGE DETECTED	LIKELY SOURCE OF CONTAMINANT
Inorganic Contaminants ⁽¹⁾					
Arsenic (ppb) ⁽¹⁾	5	5	1	ND – 1	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm) ⁽¹⁾	2	2	0.04	ND – 0.04	Erosion of natural deposits; Discharge from metal refineries
Beryllium (ppb) ⁽¹⁾	4	4	.04	ND – 0.04	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries
Cadmium (ppb) ⁽¹⁾	5	5	.07	ND – 0.07	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints
Mercury (ppb) ⁽¹⁾	2	2	0.68	ND - 0.68	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills and croplands
Selenium (ppb) ⁽¹⁾	50	50	3.8	ND – 3.8	Erosion of natural deposits; Discharge from mines
Nitrate as Nitrogen (ppm) ⁽²⁾⁽³⁾	10	10	2.43	ND – 2.43	Runoff from fertilizer use; Leaching from septic tanks; Erosion of natural deposits
Organic Chemical Contaminants					
Total Trihalomethanes [TTHM's] (ppb) ⁽⁴⁾	n/a	80	4.0	ND – 8.0	By-product of drinking water disinfection
Haloacetic Acid Five [HAA5] (ppb) ⁽⁴⁾	n/a	60	4.5	ND – 7.3	By-product of drinking water disinfection
Radiological Contaminants ⁽⁵⁾					
Radium 226 & 228 (pCi/l)	0	5	2.2	ND – 3.8	Erosion of natural deposits
Gross Alpha Emitters (pCi/l)	0	15	6.6	4.5 – 7.9	Erosion of natural deposits
Microbiological Contaminants ⁽⁶⁾⁽⁷⁾					
Total Coliform (positive samples per month)	0	1	1	ND - 1	Naturally present in the environment
Disinfection ⁽⁸⁾					
Chlorine (ppm)	MRDLG 4	MRDL 4	0.6	0.1 – 1.2	Water additive used to control microbes
Lead & Copper ⁽⁹⁾					
	MCLG	AL	LEVEL AT 90 th PERCENTILE	# OF SAMPLES ABOVE AL	LIKELY SOURCE OF CONTAMINANT
Lead (ppb)	0	15	ND	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.1	0	Corrosion of household plumbing systems; Erosion of natural deposits

⁽¹⁾ Testing for inorganic contaminants including arsenic, barium, beryllium, cadmium, mercury and selenium is required at each treatment facility once during each three-year compliance period. In 2011, samples for inorganic

contaminants were taken at three of our four treatment facilities. The detection results do not include testing at our other treatment facility. We have not utilized and therefore have not conducted water quality testing at that facility during the last five years and EPA's regulations require exclusion of data that is more than five years old.

- (2) Testing for nitrate is required each year at each treatment facility that is utilized during the year to deliver water to the distribution system. In 2013, samples for nitrate were taken at three of our four treatment facilities. The detection results do not include testing at our other treatment facility. We have not utilized and therefore have not conducted water quality testing at that facility during the last five years and EPA's regulations require exclusion of data that is more than five years old.
- (3) In January, we received a violation from NJDEP for failing to deliver within the required timeframe the results of nitrate testing conducted in December 2012. Although the required water sample was taken and analyzed for nitrate in December 2012 and the testing lab that conducted the analysis of the water sample electronically transmitted the result to NJDEP's reporting site within the required time frame, the lab erred in its submission of the result and it was not properly received by NJDEP's reporting site. The lab resubmitted the result, which was accepted, but not within the required time frame resulting in the reporting violation. The lab's quality control measures regarding data entry of test results are anticipated to insure future test results are correctly reported to NJDEP in a timely manner.
- (4) Tested in 2013. Testing for Total Trihalomethanes (TTHM) and Haloacetic Acid Five (HAA5) in the distribution system is required during each quarter.
- (5) The required frequency of testing for radiological contaminants is based upon prior sampling results and varies among our treatment facilities. Samples were taken at Treatment Facilities #2 and #5 during 2011 and at Treatment Facility #7 during 2010. The detection results do not include testing at our other treatment facility. We have not utilized and therefore have not conducted water quality testing at that facility during the last five years and EPA's regulations require exclusion of data that is more than five years old. For each radiological contaminant, compliance with drinking water standards is based upon the average of four quarterly samples.
- (6) Tested in 2013. At least 30 water samples for total coliform analysis are collected each month throughout the distribution system. During 2013, one sample tested positive for total coliform bacteria which then tested negative for e coli bacteria. Repeat samples taken at and in the vicinity of the original sample all tested negative for total coliform bacteria.
- (7) In March, we received a violation from NJDEP for failing to deliver within the required timeframe all of the results of the total coliform testing conducted in February. Although all of the required water samples were taken and analyzed for total coliform in February and the testing lab that conducted the analyses of the water samples electronically transmitted the results to NJDEP's reporting site within the required time frame, some of the results were rejected by the reporting site. The lab resubmitted the results of the rejected samples, which were accepted, but not within the required time frame resulting in the reporting violation. To insure future test results are reported by the laboratory to NJDEP in a timely manner, we now verify NJDEP's receipt of all water quality test results prior to the required date for reporting them.
- (8) Tested in 2013. At least 30 representative water samples are taken each month throughout the water distribution system and analyzed for the chlorine residual.
- (9) Tested in 2012. Testing for lead and copper is required once every three years when at least 30 representative samples are taken throughout the system. Not more than 10%, or 3 samples, may exceed the action level.

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 service lines and home plumbing. Manchester Township 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 or at <http://www.epa.gov/safewater/lead>.

Nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

Secondary Standards measure the aesthetic quality of drinking water. They are not known to pose a health threat at levels encountered in drinking water. The recommended limits on these standards refer to concentrations that might be a nuisance to the customer. The recommended limit for manganese was exceeded in our distribution system, as follows:

SECONDARY STANDARDS ⁽¹⁾	RECOMMENDED LIMIT	HIGHEST DETECTED	RANGE DETECTED	LIKELY SOURCE OF CONTAMINANT
Manganese (ppb) ⁽²⁾⁽³⁾	100 ⁽³⁾	222	ND – 222	Dissolution of natural deposits

- (1) Testing for secondary standards including manganese is required at each treatment facility once during each three-year compliance period. Samples for secondary standards were taken at three of our four treatment facilities during 2011. The detection results do not include testing at our other treatment facility. We have not utilized and therefore have not conducted water quality testing at that facility during the last five years and EPA's regulations require exclusion of data that is more than five years old. During 2013 two samples were taken for manganese within the water distribution system and one sample was taken for manganese at one of our treatment facilities.
- (2) The recommended upper limit for manganese is based on staining of laundry. We add a sequestering agent to our water where necessary to minimize the effects of manganese staining. Manganese is an essential nutrient, and toxicity is not expected from levels encountered in drinking water.
- (3) The recommended upper limit for manganese is 100 due to our addition of a sequestering agent to our water. Both distribution samples for manganese during 2013, which were taken from the same location, exceeded the recommended upper limit for manganese. During the prior seven years, the concentrations of manganese in samples from that site were consistently below half of the recommended upper limit. The manganese concentration of a sample taken at our treatment facility nearest the distribution sample site on the same day as one of the distribution samples was slightly over half of the concentration of manganese in the distribution sample. We are investigating to determine the cause of the sudden increase in the concentration of manganese at the distribution sample site and will take appropriate measures in response to our findings.

Conclusion

In 2013, all test results of the drinking water provided by the Manchester Township Water Utility met all Federal Environmental Protection Agency (EPA) and State drinking water health standards.