IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER QUALITY

2016 ANNUAL DRINKING WATER QUALITY REPORT

FROM

NORTH MIDDLETON AUTHORITY
of

NORTH MIDDLETON TOWNSHIP

240 CLEARWATER DRIVE
CARLISLE, PA 17013
(717) 243-8269

PWSID No. 7210049

WATER CONSERVATION REMINDER

Please remember it is everyone's responsibility to do his or her part to conserve our most precious resource, WATER!

Water Conservation Tips for Everyone: The average person uses about 62 gallons of water every day; the majority of water is used for laundry, toilet flushing and showering, followed by faucet use and leaky fixtures.

Try these water conservation tips and save water and money:
Replace an old toilet with a new 1.6 gallon-per-flush model. This can save 7,900 to 21,700 gallon of water per year.
Repair dripping faucets and leaking toilets (flapper valves are usually the cause). Repairs can save 10 gallons of water per person per day. A faucet dripping at one drop per second wastes 2700 gallons of water per year.
Wash clothes and dishes only when you have a full load. When replacing an older machine, consider high efficiency models, which use an average of 30% less water and 40-50% less energy. Install low-flow, water-efficient showerheads and faucets and save 1-to-7.5 gallons per minute. Taking a quick shower can save an average of 20 gallons of water.
Turn off the water when brushing your teeth or shaving to save more than 5 gallons of water per day.

For more water conservation tips visit the DEP website at www.state.pa.us

Please do your part to help conserve our most precious resource, Water!!

2016 Annual Drinking Water Quality Report

North Middleton Authority
of
North Middleton Township

Public Water Supply Identification Number 7210049

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda. **(This report contains important information about your drinking water. Have someone translate it for you, or speak with someone who understands it.)**

WATER SYSTEM INFORMATION:
This report shows our water quality and what it means. If you have any questions about this report or concerning your water utility, please contact E. Lee Koch at 717-243-8269. Safe water is vital to our community. And we want our valued customers to be informed about their water supply. We have regular Water Authority meetings on the third Monday of every month at the North Middleton Authority Administration Offices located at 240 Clearwater Drive, Carlisle, PA at 6:00 P.M. The public is welcome to attend.

SOURCE OF WATER:
The watershed or drainage area, providing our source water is the Conodoguinet Creek. The Conodoguinet Creek is the longest surface water stream in Cumberland County with a watershed, or drainage area of approximately 375 square miles extending to Fort Loudon, in Franklin County.

Excess nutrients and soil runoff from agricultural sources, construction, and urban runoff are some of the major factors affecting water quality in this watershed. Proper nutrient management and soil conservation practices can protect source water quality. Homeowners can also protect water quality by applying lawn care fertilizers, herbicides, and pesticides only when absolutely necessary and then only in the minimum quantity required. Everyone also needs to be aware that storm water catch basins in urban areas lead to streams that supply drinking water. Storm water inlets are only designed for storm water and not as a convenient disposal site for household chemicals or used motor oil. To learn more about protecting the source water quality in the watershed area you can contact a Department of Environmental Protection (DEP) regional watershed program at 717-705-4802. DEP staff protects water quality through the Source Water Assessment and Protection Program (SWAP).

A Source Water Assessment Program of the Conodoguinet Creek Intake, which supplies water to the North Middleton Authority Filtration Plant, was completed in 2003 by the Susquehanna River Basin Commission (SRBC). The Assessment has found that the Conodoguinet Creek Intake is potentially most susceptible to agricultural and urban runoff. Overall, the Conodoguinet Creek Watershed has a moderate risk of significant contamination. Summary reports of the Assessment are available on the Source Water Assessment & Protection Web page at http://www.dep.state.pa.us/dep/deputate/watermgt/wc/Subjects/SrceProt/SourceAssessment/default.htm. Complete reports were distributed to municipalities, water supplier, local planning agencies and PA DEP offices. Copies of the complete report are available for review at the PA DEP South Central Regional Office, Records Management Unit at (717) 705-4732.

The North Middleton Authority water plant is located along the Conodoguinet Creek in the eastern portion of North Middleton Township. The North Middleton Authority routinely monitors the quality of drinking water in accordance with Federal and State laws. All sources of drinking water are subject to potential contamination by compounds that are naturally occurring or man made. The compounds or contaminants can be microbes, organic or inorganic chemicals, or radioactive materials. All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminant and/or compounds. Their presence however, does not necessarily indicate that the water poses a health risk.

MONITORING YOUR WATER:
The following tables show the results of our monitoring for the period of January 1 to December 31, 2016. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data is from prior years in accordance with the Safe Drinking Water Act. The date has been noted on the sampling results table. This table may contain some terms or abbreviations you might not be familiar with. To help you with these terms we have provided the following definitions:

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

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goals 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.

Maximum Residual Disinfectant Level (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant in 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.

Minimum Residual Disinfectant Level (MinRDL) – The minimum level of residual disinfectant required at the entry point to the distribution system.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water.

Parts per billion (ppb) or Micrograms per liter (ug/l)- one part per billion or micrograms per liter .

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million or milligrams per liter.

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

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

NORTH MIDDLETON AUTHORITY TREATMENT PLANT
DETECTED SAMPLE RESULTS PWSID#7210049

Entry Point Disinfectant Residual							
Contaminant	Minimum Disinfectant Residual	Lowest Level Detected	Range of Detections	Units	Sample Date of lowest result	Violation Y/N	Sources of Contamination
Chlorine	**0.2**	**1.33**	**1.33 – 2.6**	**ppm**	**04/21/2016**	**No**	**Water additive used to control microbes.**

North Middleton Authority Detected Sample Results cont'd PWSID# 7210049

Chemical Contaminants

Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Nitrate	**10**	**10**	**2.31**	**N/A**	**ppm**	**05/11/16**	**No**	**Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits**
Barium	**2**	**2**	**0.031**	**N/A**	**ppm**	**05/11/16**	**No**	**Discharge of drilling wastes: Discharge from metal refineries; Erosion of natural deposits**
Chromium	**100**	**100**	**1.0**	**N/A**	**ppb**	**05/11/16**	**No**	**Discharge from steel and pulp mills; Erosion of natural deposits**
Cyanide	**200**	**200**	**6.0**	**N/A**	**ppb**	**11/02/16**	**No**	**Discharge from steel/metal factories, Discharge from plastic and fertilizer factories**

Total Organic Carbon (TOC)

Contaminant	Range of % Removal Required	Range of percent removal achieved	Number of quarters out of compliance	Violation Y/N	Sources of Contamination
TOC	**15-25**	**15.0-32.0**	**0**	**No**	**Naturally present in the environment.**

Contaminant	MCL	MCLG	Level Detected	Sample Date	Violation Y/N	Source of Contamination
Turbidity	**TT=1 NTU for a single measurement**	**0**	**0.1**	**2016**	**No**	**Soil runoff.**
	TT= at least 95% of monthly samples≤0.3 NTU		**100%**	**2016**	**No**	

Turbidity is a measurement of the cloudiness of the water. It is monitored because it is a good indicator of the treatment plant filtration system.

Treatment Technique Violation for Total Organic Carbon (TOC)- North Middleton Authority did have a treatment technique violation for TOC monitoring. We did not monitor for TOC on a monthly basis beginning in December of 2015 as required, therefore the running annual average ratio became less than the required removal ratio of 1.0. Once we learned of this issue in May 2016 we began monthly monitoring and the required ratio has since been achieved. While going through this process we provided quarterly notices to each property in this area of the distribution system as required by regulation. It is important to note that TOC has no known health effects but does provide a medium for the formation of disinfection by-products. The testing for disinfection by-products which include Total Trihalomethanes and Haloacetic Acids Five were within the acceptable range for running annual averages and are included within this report.

NORTH MIDDLETON AUTHORITY DISTRIBUTION SYSTEM ANALYSIS PWSID#7210049

Lead and Copper							
Contaminant	Action Level (AL)	MCLG	90th Percentile Value	Units	# of Sites Above AL of Total Sites	Violation Y/N	Sources of Contamination
Lead	**15**	**0**	**9.0**	**ppb**	**0 of 20**	**No**	**Corrosion of household plumbing.**
Copper	**1.3**	**1.3**	**0.191**	**ppm**	**0 of 20**	**No**	**Corrosion of household plumbing.**

Chemical Contaminants								
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Total Haloacetic Acids Five	**60**	**N/A**	**31.5**	**19.3 – 32.6**	**ppb**	**2016**	**No**	**By-product of drinking water chlorination**
Total Trihalomethanes	**80**	**N/A**	**50.8**	**35.2-51.4**	**ppb**	**2016**	**No**	**By-product of drinking water chlorination**
Chlorine (Distribution)	**MRDL=4**	**MRDLG =4**	**1.06**	**0.77 – 1.06**	**ppm**	**2016**	**No**	**Water additive used to control microbes.**

Footnotes:

(a) Values from 2016. Next testing cycle is 2019

Other Violations: The North Middleton Authority staff took the November quarterly sample for Trihalomethanes and Haloacetic Acids one day earlier then the sampling plan calls for, which resulted in a failure to meet the sampling plan. Because of the action of the Authority staff you have right to know this occurred. The results of the samples were within normal tolerances for Trihalomethanes and Haloacetic Acids and are included in the tables of this report.

EDUCATIONAL INFORMATION:

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 Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791.

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 radioactive material, and can pick-up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include:

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

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

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

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

(E) Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Water Hardness
Dissolved harmless minerals in water, such as calcium or magnesium, are responsible for that white residue in your coffeepot or on your showerhead. North Middleton Authority's water is considered hard due to the amount of dissolved calcium and magnesium in our water source.

Why does the water sometimes taste or smell "funny"? Some people do not like the taste of chlorine that is added to the water supply to kill germs. Also, as algae grow in surface water, such as the Conodoguinet Creek, they give off harmless, smelly chemicals that can cause unpleasant tastes in drinking water. This is more common during periods of drought. If you do not like the taste of the drinking water, store some in closed glass containers in the refrigerator. Warm drinking water has more "taste" than cold water.

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

INFORMATION ABOUT 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. North Middleton Authority 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 800-426-4791 or at *http://www.epa.gov/safewater/lead.*

OTHER INFORMATION:

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 advice from your health care provider.

Special Notice To At Risk Populations
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 microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

If you have questions or would like additional information regarding this report please call our office at (717) 243-8269.

Source Water Assessment Summary
North Middleton Authority
Conodoguinet Creek Watershed

Introduction

Pennsylvania Department of Environmental Protection (Pa. DEP) is required by the 1996 Safe Drinking Water Act to complete assessments of potential contaminants that may degrade the raw water quality of public drinking water sources. This Source Water Assessment and Protection (SWAP) Summary provides information to support local and state efforts to preserve raw water quality within the Conodoguinet Creek Watershed. The assessment covers the intake operated by the North Middleton Authority (NMA). The assessment addresses raw water quality only, not the finished drinking water distributed by the water suppliers.

Drinking Water Sources

The NMA intake is located on the Conodoguinet Creek, North Middleton Township, Cumberland County. Land use in the watershed is approximately 62% agriculture, 33% forested, and 5% developed lands. The remaining less than 1% is water and transitional land. An average of .3 million gallons of water is withdrawn from the intake daily. The population served by the intake exceeds 9,500 people. The communities served by the water supplier include North Middleton Authority and surrounding areas.

Water Quality and Water Treatment Information

Raw water is filtered and treated with chlorine for disinfection, prior to being distributed to the customers. Additional information about treated water quality can be obtained from the water supplier's *Annual Water Supply Report.*

Evaluation of Significant Potential Sources of Contamination

The assessment addresses contaminants that may enter the water drawn from the Conodoguinet Creek. The contaminants evaluated in the assessment include regulated discharges and nonpoint sources of pollution. The table below describes the significant potential sources of contamination. Each source has been given a qualitative susceptibility rating according to its potential to impact the water supply source. An "A" rating represents the highest priority rating. An "F" rating is considered to be the lowest priority contaminant issue. The complete matrix analyses can be found in the full SWAP report.

Table 1. – Contaminant Priority Listing for the Conodoguinet Creek Watershed

Source of Contaminants	Protection Priority
Agriculture - crops	A
Agriculture - livestock	A
Urban Runoff	A
Industrial Discharges	B
Transportation Corridors	C
Sewage Treatment Facilities	C
Residential / Golf Courses	C
On-Lot Septic	D
Petroleum Storage Tanks, Gas/Service Stations	D
Landfills	E

As indicated above, agricultural activities, urban runoff, and potential for spills from industrial sites and transportation corridors are the most significant potential sources of contamination to Conodoguinet Creek. Increasing residential development also poses some threat to raw water quality. Lawn care chemicals, septic systems and increased runoff from these areas contribute to water quality degradation. However, no contaminants are found in concentrations that require the water supplier to significantly alter their treatment procedures.

Ongoing Watershed Protection Activities

Industrial and municipal discharges into the Conodoguinet Creek and its tributaries are controlled by state and federal regulations. Several efforts are also currently addressing problems associated with nonpoint source pollution. Several grant projects are focused on reducing agricultural runoff to selected tributaries in the Conodoguinet Creek Watershed.

Source Water Protection Needs

Based on the assessment, several critical areas within the watershed require attention to reduce agricultural runoff. Best Management Practices would greatly diminish nutrient runoff from agricultural fields, and help to filter contaminants flushed from developed areas. Emergency response plans should be available in the event of an accidental spill into the Conodoguinet Creek from a roadway or industrial facility.

Additional Information

The final SWAP Report for the North Middleton Authority is available from PA DEP.