VILLAGE OF ROAMING SHORES
Drinking Water Consumer Confidence Report
2017

The Village of Roaming Shores in 2017 was issued an unconditioned License to Operate {LTO} the Public Water System {PWS} by the Ohio EPA. Unconditioned means there are no pending water quality issues that need to be resolved.

The Village of Roaming Shores has prepared the following report to provide information to you, the consumer, on the quality of our drinking water. Included within this report is general health information, water quality test results, how to participate in decisions concerning your drinking water and water system contacts.

What's the source of your drinking water?

The Village of Roaming Shores receives its drinking water from a bulk water agreement with Aqua Ohio. Aqua-Ohio Water Company treats water drawn from the waters of Lake Erie. The waters of Lake Erie are considered a surface water source and require extensive treatment before it can be used as a drinking water. The treated water travels through part of more than 1,550 miles of distribution system to your homes. (Source: LAKE ERIE – Ashtabula)

Our Emergency Water Supply

The Village of Roaming Shores also has a ***back-up*** connection with the Village of Rock Creek. During 2017, we used – 0 - gallons from this connection over – 0 - days. This report does not contain information on the water quality received from the Village of Rock Creek, but a copy of their consumer confidence report can be obtained by contacting the Rock Creek Village office at 440-563-3992.

What are sources of contamination to drinking water?

The sources of drinking water both tap water and bottled water includes 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: (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 water 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, urban storm water runoff, and residential uses; (D) 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; (E) radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Available at the end of this document is the EPA Drinking Water Source Assessment for Ohio American Water Co. (now Aqua Ohio) which is the water provider for The Village of Roaming Shores. This document evaluates the potential risk of the source water Aqua uses to make potable drinking water to become contaminated from any number of sources. The risk levels are categorized as low, moderate or high susceptibility to contamination. Based on the findings of the source water assessment done by the EPA it has been determined the susceptibility to source water contamination is high

In order to ensure that tap water is safe to drink, USEPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems.

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 (1-800-426-4791)

Who needs to take special precautions?

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 infection. 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).

About your drinking water

The EPA requires regular sampling to ensure drinking water safety. The Village of Roaming Shores conducted sampling for ***bacteria, chlorine residual*** and Aqua- Ohio conducted sampling for ***inorganic; synthetic organic; volatile organic; radiological;*** contaminants during 2017. Samples were collected for a total of more than 160 different contaminants most of which were not detected in the Aqua- Ohio water supply. The Ohio EPA requires 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, though accurate, is more than one year old.

Listed below is information on those contaminants that were found in the Village of Roaming Shores drinking water.

Contaminant (units)	MCLG	MCL	Level Found	Range of Detection	Violation	Year Sampled	Typical Source of Contaminants
Microbiological Contaminants							
Total Coliform Bacteria (TC)	T.C.B Neg.	T.C.B Neg.	0	Neg. 24 - Pos. 0	No	2017	Naturally present in the environment
Total Organic Carbon[1]	NA	TT	0.74	0.59 - 1.45	No	2017	Naturally present in the environment
Turbidity (NTU)[2]	NA	TT	0.10	0.04 - 0.10	No	2017	Soil runoff
Turbidity (% samples meeting standard)	NA	TT	100	100 - 100	No	2017	Soil runoff
Inorganic Contaminants							
Fluoride (ppm)	4	4	1.06	0.82 - 1.15	No	2017	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.65	0.56 - 0.65	No	2017	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Asbestos(MFL)	7	7	<0.16	NA	No	2011	Decay pf asbestos cement water main, erosion of natural deposits
Barium (ppm)	2	3	0.019	NA	No	2017	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Copper (ppm)	1.3	AL=1.3	0.26	90% of test levels were less than .23 ppm	No	2016	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
	0	out of	10	samples exceeded the action level of 1.3 ppm for copper.			
Lead (ppb)[3]	0	AL=15	5.9	90% of test levels were less than 4.1 ppb	No	2016	Corrosion of household plumbing systems; Erosion of natural deposits
	0	out of	10	samples exceeded the action level of 15 ppb for lead.			
Volatile Organic Contaminants							
TTHMs [Total Trihalomethane] (ppb)	NA	80	86.9	0.8 - 86.9	No	2017	By-product of drinking water chlorination.
HAA5 [Haloacetic Acids] (ppb)	NA	60	82.5	23.0 - 82.5	No	2017	By-product of drinking water chlorination.
IDSE [Total Trihalomethane] (ppb)[4]	NA	80	NA	18.3 - 59.7	No	2010	By-product of drinking water chlorination.
IDSE [Haloacetic Acids] (ppb)[4]	NA	60	NA	17.7 - 38.0	No	2010	By-product of drinking water chlorination.
Chloroform	NA	NA	10.1	NA	No	2017	By-product of drinking water chlorination.
Bromodichloromethane	NA	NA	6.1	NA	No	2017	By-product of drinking water chlorination.
Dibromochloromethane	NA	NA	1.7	NA	No	2017	By-product of drinking water chlorination.

Unregulated Contaminants (Results 2015) (Plant Tap) EP001	Reported Level	Range Low - High	
Chlorate (ppb)	290	140 - 290	Unregulated contaminants monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.
Chromium (total) (ppb)	.79	.2 - 0.79	
Chromium-6 (ppb)	.095	.076 - .095	
Molybdenum (ppb)	1.2	1.1 - 1.2	
Strontium (ppb)	160	140 - 160	
Vanadium (ppb)	0.24	ND - 0.24	
Unregulated Contaminants (Results 2015) (Distribution System)	**Reported Level**	**Range Low - High**	
Chlorate (ppb)	280	160 - 280	
Chromium (total) (ppb)	5.1	ND - 5.1	
Chromium-6 (ppb)	.12	.1 - .12	
Molybdenum (ppb)	1.2	1.1 - 1.2	
Strontium (ppb)	180	160 - 180	
Vanadium (ppb)	0.26	ND - 0.26	

Residual Disinfectants							
Total Chlorine (ppm)	MRDL	MRDLG	1.15 Ave.	.41 - 1.7	No	2017	Water additive used to control microbes
	4	4					

[1] The value reported under "Level Found" for Total Organic Carbon (TOC) is the lowest ratio between the percentages of TOC actually removed to the percentage of TOC required to be removed. Our water system is in compliance with TOC removal requirements if the value is greater than one (1). A value of less than one (1) indicates a violation of the TOC removal requirements.

[2] Turbidity is a measure of the cloudiness of water and is an indication of the effectiveness of our filtration system. The turbidity limit set by the EPA is 0.3 NTU in 95% of the daily samples and shall not exceed 1 NTU at any time. As reported above, the highest recorded turbidity result for 2017 was 0.10 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100.0%.

[3] 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. The Village of Roaming Shores water Department 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.

[4] Under the Stage 2 Disinfectants/Disinfection Byproducts Rule (D/DBPR), our public water system was required by USEPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE), and is intended to identify locations in our distribution system with elevated disinfection byproduct concentrations. The locations selected for the IDSE may be used for compliance monitoring under Stage 2 DBPR, beginning in 2012. Disinfection byproducts are the result of providing continuous disinfection of your drinking water and form when disinfectants combine with organic matter naturally occurring in the source water. Disinfection byproducts are grouped into two categories, Total Trihalomethanes (TTHM) and Haloaetic Acids (HAA5). USEPA sets standards for controlling the levels of disinfectants and disinfectant byproducts in drinking water, including both TTHMs and HAA5s.

Aqua Ohio - Ashtabula Water Treatment Plant also monitored for Cryptosporidium in the source water during 2010. Cryptosporidium was detected in one sample of three collected from the raw water. It was not detected in the finished water. Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes cryptosporidium, the most commonly used filtration methods cannot guarantee 100% removal. Monitoring of source water indicates the presence of these organisms. Current test methods do not enable us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease. However, immuno-compromised people 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. Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

The Village of Roaming Shores provides additional treatment. Does not apply to Non-Village Residents
The Village water department provides additional chlorination to the water received from Aqua Ohio, Inc. to ensure water quality in the distribution system. The Ohio EPA recommends that free chlorine residuals be maintained at 1.0-0.5 ppm and no less than 0.2 ppm in the distribution system.

The Village performed over 365 chlorine residual tests last year and continually monitors feed 24 hours a day to ensure water quality and safety. The results of our chlorine tests for the year 2017 are as follows: Average chlorine residual .978ppm. Maximum chlorine residual 1.50 ppm and minimum chlorine residual 0.37 ppm.

The Public is invited to participate in making decisions concerning your drinking water.

Public participation and comments are encouraged at the Village of Roaming Shores Utility Study Commission which meets on a as need basis. Bring your concerns and comments to the attention of the village administrator and he will set up a meeting.

Definitions and Notes of some of the terms and items contained within the report.

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 contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
Parts per Million (ppm) or Milligrams per Liter (mg/L) are units of measure for concentration of a contaminant. A part per million corresponds to one second in a little over 11.5 days.
Parts per Billion (ppb) or Micrograms per Liter (µg/L) are units of measure for concentration of a contaminant. A part per billion corresponds to one second in 31.7 year
Action Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health.ALG's allow for a margin of safety.
The "<" symbol: A symbol which means less than. A result of <5 means that the lowest level that could be detected was five and the contaminant in that sample was not detected.
N/A- Not applicable
Level Found – This column represents average of the samples results collected, in some cases, it may represent a single sample if only one sample was collected.
Chlorine Residual- The amount of chlorine (combine and free available chlorine) remaining in water at the end of a specified contact period following chlorination.
Range of Detection's– This column represents a range of individual samples results, from the lowest to highest that were collected during the year.
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 level may rise quickly for short periods of time because of rainfall or agricultural activity. If you care for an infant you should ask for advice from a health care provider.
Total Trihalomethanes (TTHM's) – Sum of Bromodichloromethane, Bromoform, Chlorodibromomethane, and Chloroform. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
Copper – is an essential nutrient, but some people who drink water containing copper in excess of the Action Level over a relatively short timer could experience gastrointestinal distress or suffer liver or kidney damage. People with Wilson's Disease should consult their doctor.
Lead – Infants and children who drink water in excess of the Action Level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
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. Village of Roaming Shores 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 at 1-800-426-4791
http://www.epa.gov/safewater/lead
Fluoride – Some people who drink water containing fluoride well in excess of the MCL over many years could get bone disease including pain in tenderness of the bones.

If you have any question about the information in this document feel free to contact me by phone or e-mail
1-440-474-2302 wwtp@roamingshoresOH.gov Thank You, Victor Virmala, Utility Supervisor.

Drinking Water Source Assessment for the Ohio-American Water Co. Ashtabula Public Water System

Protecting Ohio's Drinking Water Sources

OhioEPA

SUMMARY

Source Water Assessment and Protection. The following report for the Ohio-American Water Company-Ashtabula Public Water System ("Ohio-American/ Ashtabula") was compiled as part of the Source Water Assessment and Protection Program for Ohio. This program is intended to identify drinking water protec-tion areas and provide information on how to reduce the risk of contamination of the waters within those areas. The goal of the program is to ensure the long term availability of abundant and safe drinking water for the present and future citizens of Ohio.

The Safe Drinking Water Act Amendments of 1996 established the national Source Water Assessment and Protection Program, targeting drinking water sources for all public water systems in the United States. A public water system is a facility that provides drinking water to 15 or more service connections or that regularly serves at least 25 people a day for at least 60 days a year, whether from an underground well or spring, or from an above ground stream, lake, or reservoir. The requirement does not address residential wells or cisterns. In Ohio there are approximately 5,800 public water systems.

Background. The Ohio-American Water Company operates the Ashtabula community public water system that serves a population of approximately 33,500 people through approximately 12,962 metered service connections. The water treatment plant obtains its water from an intake structure located in Lake Erie. Plant design capacity is 10 million gallons per day, with an average production of 6.6 million gallons per day.

Protection Areas. The drinking water source protection area for the Ohio-American/Ashtabula Water System is shown in the following figure. The Ohio EPA, with the assistance of Ohio-American Water Company staff, inventoried the facilities, water activities, and land uses within this area that potentially could contaminate the water source. Threats to Lake Erie include contamination from municipal wastewater treatment discharges, industrial waste water discharges, home sewage disposal system discharges, combined sewer overflows, runoff from residential, agricultural and urban areas, oil and gas production and transportation, and accidental releases and spills from vehicular traffic as well as from commercial shipping operations and recreational boating.

Protective Strategies. The ultimate goal of source water assessment is implementa-tion of protective strategies that will better protect the drinking water source. Strategies for protecting the Ohio-American/ Ashtabula drinking water source include the establishment (with routine updating) of an effective and efficient emergency response plan as well as a plan to educate the responsible parties of potential contaminant sources. Routine monitoring of the intakes and consultation with U. S. Coast Guard officials regarding response to threats from spills and other sources are recommended. Ohio-American/Ashtabula's contingency plan should be updated as necessary. According to the Ohio Lake Erie Commis-sion (1998), Lake Erie is an exceptional source of high quality drinking water. In order to protect this exceptional source, an extensive and coordinated Lake Erie biological and water quality monitoring system should be implemented by local, state and federal agencies.

Future development and a change in land use practices may impact the ecological health of the Lake Erie watershed. This valuable water system should be protected to avoid further degradation of water quality by point and nonpoint contamination sources such as those listed above. Management measures are underway for Lake Erie through the Lakewide Management Plan (LaMP). More information can be obtained at the Ohio EPA district office in Twinsburg.

For More Information. Additional information on protective strategies and how this assessment was completed is included in the detailed Drinking Water Source Assessment Report for Ohio-American/Ashtabula. For more information on how to obtain a copy of this report, please visit Ohio EPA's Source Water Assessment and Protection Program Web page at http://www.epa.state.oh.us/ddagw/pdu/swap.html or contact Ohio-American/Ashtabula for a copy.

Current information on the quality of the treated water supplied by Ohio-American/Ashtabula is available in its Consumer Confidence Report (CCR). Ohio-American/Ashtabula's CCR is distributed annually and it reports on detected contaminants and any associated health risks from data collected during the past five years. Consumer Confidence Reports are available from Ohio-American/Ashtabula.

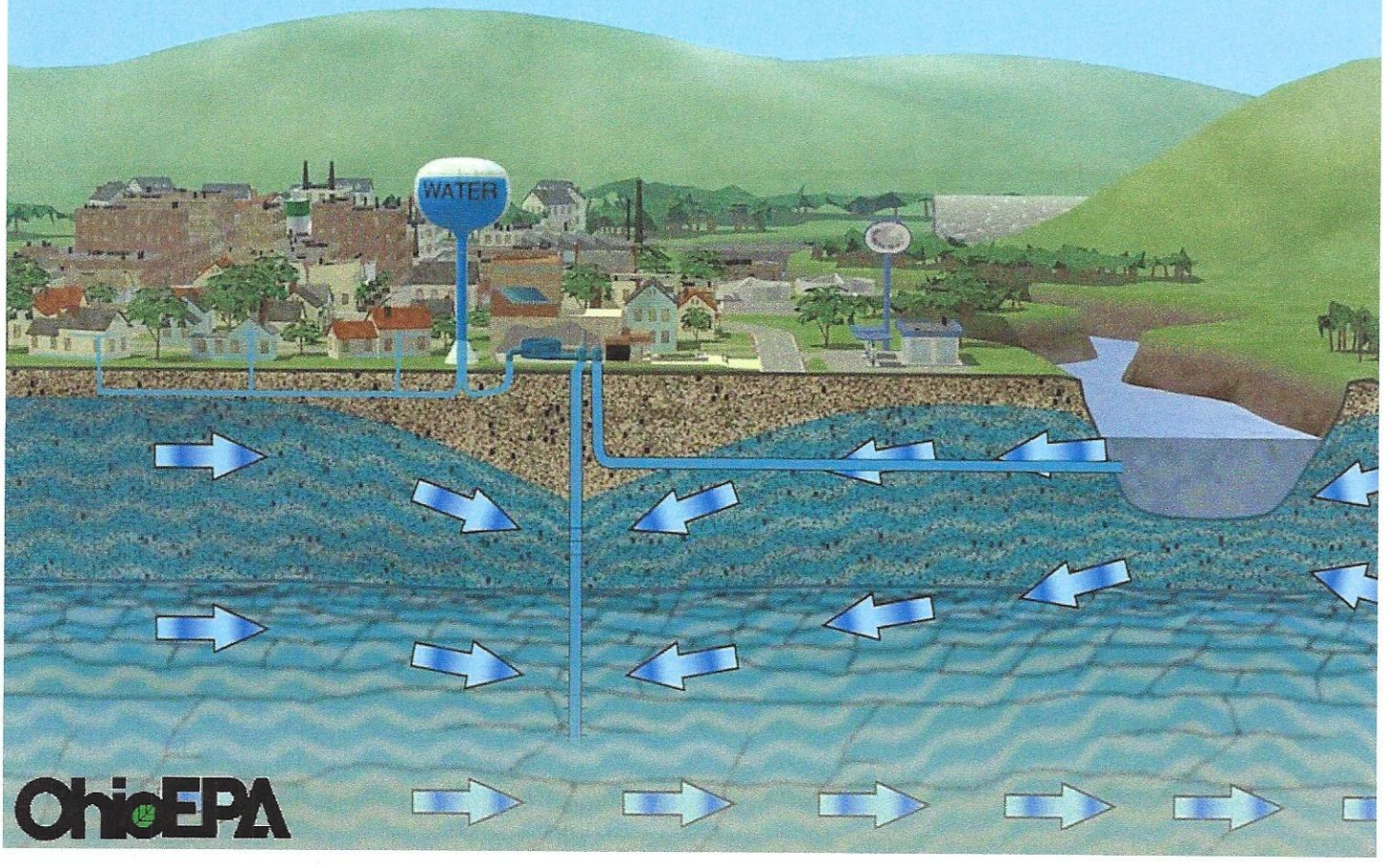
Drinking Water Source Assessment

for the Ohio-American Water Company Ashtabula Public Water System

Public Water System #0400711
Ashtabula County

Prepared by:
Ohio Environmental Protection Agency
Division of Surface Water
Division of Drinking and Ground Waters
Northeast District Office

July, 2003



OhioEPA

How to Use this Assessment

Clean and safe drinking water is essential to everyone. Protecting the source of drinking water is a wise and cost effective investment. The purpose of this drinking water source assessment is to provide information your community can use to develop a local Drinking Water Protection Program. The Drinking Water Source Assessment benefits your community by providing the following:

A basis for focusing limited resources within the community to protect the drinking water source(s).

The assessment provides your community with information regarding activities within the Drinking Water Source Protection Area that directly affect your water supply source area. It is within this area that a release of contaminants, from a spill or improper usage, may travel through the watershed and reach the surface water intake. By examining where the source waters are most sensitive to contaminants, and where potential contaminants are located, the assessment identifies the potential risks that should be addressed first.

A basis for informed decision-making regarding land use within the community.

The assessment provides your community with a significant amount of information regarding where your drinking water comes from (the source) and what the risks are to the quality of that source. This information allows your community planning authorities to make informed decisions regarding proposed land uses within the protection area that are compatible with both your drinking water resource and the vision of growth embraced by your community.

A start to a comprehensive plan for the watershed and source water area.

This assessment can be the beginning of a comprehensive plan for the water resource, one that addresses all of the uses the water resource provides. An ecologically healthy lake, stream and watershed will provide a stable, high quality resource for drinking water.

For information about developing a local Drinking Water Source Protection Program, please contact the Ohio EPA Division of Drinking and Ground Waters at (614) 644-2752 or visit the Division's web site at http://www.epa.state.oh.us/ddagw/pdu/swap.html.

1.0 INTRODUCTION

The 1996 Amendments to the Safe Drinking Water Act established a program for states to assess the drinking water source for all public water systems. The Source Water Assessment and Protection (SWAP) Program is designed to help Ohio's public water systems protect their sources of drinking water from becoming contaminated.

The purpose of this assessment is to identify where and how the Ohio-American Water Company-Ashtabula source water is at risk of contamination. The report:

- Identifies the drinking water source protection area which is comprised of the Critical Assessment Zone (CAZ) and the Potential Influence Zone (PIZ),
- Examines the characteristics and water quality of the lake and watershed,
- Identifies potential contaminant sources within the drinking water protection area, and evaluates impacts associated with shipping operations, and
- Discusses the susceptibility of the source water to contamination.

Results and recommendations presented in this report are based on the information available at the time of publication. Ohio EPA recognizes that additional information may become available in the future that could be used to more accurately determine the drinking water source protection area. Also, changes in land use may occur after Ohio EPA completes the potential contaminant source inventory. This report should be used as a starting point to develop a plan to protect drinking water resources.

This report was written by Kelvin Rogers, Division of Surface Water, Ohio EPA, Northeast District Office. The Ohio-American Water Company Ashtabula Water Plant Superintendent Douglas Adams assisted in the development of this report.

2.0 PUBLIC WATER SYSTEM DESCRIPTION

The Ohio-American Water Company operates the Ashtabula community public water system, which serves a population of approximately 33,500 people through 12,962 metered service connections. A community public water system is a system that regularly supplies drinking water to at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Surface water from Lake Erie is used as source water for the treatment plant. The Ohio-American Water Company-Ashtabula Water System maintains two intake structures which are located west of the mouth of the Ashtabula River. The intake structures were constructed in 1936 and 1952 and are inspected and cleaned on an annual basis.

The Ohio-American Water Company-Ashtabula Water facility was constructed in 1939. Plant expansions were completed in 1964 and 1992. Plant design capacity is 10 million gallons per day, with a current average production of 6.6 million gallons per day. The Ohio-American Water Company-Ashtabula Water Plant treatment processes include grit removal and screening, chemical addition, flocculation, sedimentation, rapid sand filtration, fluoridation and chlorination prior to distribution. Four storage structures provide approximately 4.5 million gallons of storage capacity. The water treatment plant facility and processes are scheduled to be upgraded/replaced within the next 5 to 10 years.

3.0 DELINEATION OF PROTECTION AREAS

The drinking water protection area is comprised of the Critical Assessment Zone (CAZ) and the Potential Influence Zone (PIZ). To provide some continuity for assessing the Great Lakes intakes, the concept of a Critical Assessment Zone around each intake was developed (Great Lakes States Protocol Workgroup, August 12, 2000). The two factors used to determine the sensitivity of Great Lakes intakes are the perpendicular distance from shore or length of the intake pipeline (L) in feet, and the water depth (D) of the structure in feet. The shallower, near-shore intakes are more sensitive to shoreline influences than the offshore, deep intakes. The factor for sensitivity (S) can be calculated by the formula: LxD=S. Generally, S values less than 25,000 represent highly sensitive intakes while S values greater than 125,000 indicate lower sensitivities. See Figure 1 for the location and delineation of the CAZ and PIZ for Ohio-American/Ashtabula.

The intake structures are located on the lake bottom 2,600 feet from the shore, at a depth of approximately 25 feet. The S value for the intakes was calculated to be 65,000. In accordance with the Assessment Protocol, for S values greater than 25,000 but less than 125,000, a 2,000-foot radius around the intake should be used to delineate the Critical Assessment Zone. Accordingly, a 2,000-foot radius circle was delineated around the two intakes as the CAZ.

The protection area also includes the Potential Influence Zone (PIZ), which is broadly defined as the area along any contributing tributaries for a length that would encompass known potential contaminant sources or land uses that may impact the drinking water source. The portion of shoreline that intercepts the CAZ is considered a Potential Influence Zone. In addition, an area 1,000 feet wide was delineated on the Lake Erie shoreline near the Critical Assessment Zone plus a 1,000 foot wide area extending up the lower sections of Red Brook, the Ashtabula River and Fields Brook. The section of Lake Erie shoreline that is included in the PIZ extends from the mouth of Red Brook (approximately 3 miles west of the water plant) to the First Energy Ashtabula power plant (located approximately 2 miles east of the water plant). See Figure 1 for the location and delineation of the CAZ and PIZ for Ohio-American/Ashtabula.

4.0 HYDROLOGIC SETTING

Drinking Water Quality Summary

Available biological and chemical water quality data collected from the protection area and sampling results from finished water reported to Ohio EPA by the public water system were screened for possible water quality impacts. A review of Ohio-American/Ashtabula compliance monitoring data from 1991 through 2002 revealed no problems with any contaminants of concern that could be related to the Lake Erie source water. Table 1 provides a summary of water quality monitoring results of treated water for Ohio-American/Ashtabula.

Biological and Chemical Monitoring

Water plant personnel monitor the Lake Erie source water daily for turbidity, hardness, pH, and alkalinity. The facility also participates in monitoring common Synthetic Organic Compounds (SOCs) under Ohio EPA's annual program. Seasonal source water variations (lake turnover) and severe weather patterns affect plant operations that require changes in chemical dosing. The facility has been meeting finished water turbidity values of 0.1 NTUs (Nephelometric Turbidity Units) for more than ten years. Elevated turbidity levels indicate an increase in total suspended solids which may affect the level of treatment required by the treatment plant.

Plant staff report increased turbidity in raw water samples typically occurs during lake turnover events which normally occur twice a year. Elevated raw water turbidity also occurs in association with storm events. In addition, taste and odor problems associated with summer

algal blooms may occur infrequently from May through October, requiring the use of activated carbon in the treatment process.

For the past decade or more, monitoring of water quality and biological characteristics of Lake Erie waters has not occurred on a regular basis. Although the 2000 Lake Erie Lakewide Management Plan has determined there are no use impairments to the drinking water, it does state that Lake Erie is in a state of flux and there is a distinct need for biological and water quality monitoring of the waters. It is recommended that state or federal agencies institute a coordinated long-term biological and water quality monitoring program or strategy in order to recognize current and future changes in the Lake Erie ecosystem that may impact source water quality.

It should be recognized that sampling results presented in this report can only provide information on the quality of the water at the time the sample was collected. Water quality may change over time due to a number of reasons. Therefore, it is recommended the reader consults the most recent Consumer Confidence Report (CCR) for Ohio-American/Ashtabula. All community public water systems are required to annually prepare and distribute the CCR to their customers. This report is a good source of information of health effects associated with detected contaminants. The reports contain information on the community's drinking water, including the source of the water, contaminants detected, the likely sources of detected contaminants, and the potential health effects of contaminants at levels above the drinking water standards.

5.0 POTENTIAL CONTAMINANT SOURCES

A review of available regulated facility data bases and a field survey of the Potential Influence Zone (PIZ) indicates that six oil/gas production wells and 48 potential contaminant sources are present in the PIZ. Table 2 provides a list of the identified potential contaminant sources in the PIZ. The location of potential contaminant sources in the PIZ is shown in Figure 2. The location of oil/gas production wells and pipelines in the drinking water source protection area is shown in Figure 3.

It is important to note that this inventory represents *potential* contaminant sources, and includes any source that has the *potential* to release a contaminant to surface waters in the protection area. It is beyond the scope of this study to determine whether any specific potential source is actually releasing a contaminant, or to what extent any potential source(s) may be contributing to the overall pollutant load. The sites noted as having the potential for contamination from Leaking Underground Storage Tanks (LUSTs) were identified by databases available at the time of this source water assessment. Although some of these sites may have been remediated, the potential exists for the soils around these sites to contain some petroleum contamination. For this reason, it was decided to retain these LUST sites in the Potential Contaminant Source Inventory.

The Lake Erie nearshore areas have multiple land uses, all of which have components that could cause potential sources of contamination for the source water supply including urban, suburban and rural storm water runoff, new construction site activities, river bank and lake shoreline erosion. As development of the Lake Erie nearshore areas increases, more land will be put under impervious surfaces. This will increase both volume and force of runoff and increase the potential for contamination from land use activities.

Ashtabula Harbor is a commercial shipping port for dry-bulk cargo, primarily iron ore and coal.

In the 2002 navigation season more than five million tons of coal were shipped from Ashtabula, down from more than six million tons in 2001. Although these dry-bulk materials are relatively inert with little potential for contamination of lake or tributary waters, accidental spills or releases from commercial vessels may cause contamination in the immediate areas where such releases may occur.

The transportation network in the Potential Influence Zone is a potential source of contamination through vehicular accidents that release hazardous materials. There are approximately 32 miles of state and municipal roads (with 13 stream crossings) in the Ohio-American Water Company Ashtabula Plant PIZ. Approximately 10 miles of rail lines (with five stream crossings) are located within the PIZ.

The City of Ashtabula Waste Water Treatment Plant discharges to Lake Erie immediately east of the mouth of the Ashtabula River, which is located just east of the water plant intakes.

The Ashtabula River is considered a potential source of contaminants because of its historical sediment contamination by industrial and chemical facilities, particularly along Fields Brook, the major tributary to the Ashtabula River. The majority of the industrial contamination in Fields Brook has been remediated as a Superfund site. The remaining contaminated sediments in the stream have been characterized and are expected to be dredged in the next few years. The Ashtabula River Partnership, a consortium of state and federal regulatory agencies, potentially responsible parties, commercial and municipal interests, and concerned citizens, provides oversight for this effort.

6.0 SUSCEPTIBILITY ANALYSIS

For the purposes of source water assessments, all surface waters are considered to be susceptible to contamination. By their nature surface waters are accessible and can be readily contaminated by chemicals and pathogens with relatively short travel times from source to intake. The source water assessment for the Ohio-American Water Company Ashtabula Public Water System indicates that the Lake Erie source water is susceptible to potential future contamination. Based on information compiled for this assessment, the Ashtabula drinking water source protection area is susceptible to contamination from municipal wastewater treatment discharges, industrial waste water discharges, air contamination deposition, runoff from residential and urban areas, contaminated river sediments, oil and gas production and transportation, and accidental releases and spills from rail and vehicular traffic as well as from commercial shipping operations and recreational boating.

It is important to note that this assessment is based on available data, and therefore may not reflect current conditions in all cases. Water quality, land uses and other activities that are potential sources of contamination may change with time. Although the source water (Lake Erie) for the Ohio-American Water Company Ashtabula Public Water System was determined to be susceptible to contamination, historically, the treatment plant has effectively treated this source water to meet drinking water quality standards.

7.0 PROTECTIVE STRATEGIES

Source water protection efforts in the Ohio-American Water Company Ashtabula drinking water source protection area should be directed toward the establishment of an effective and efficient emergency response plan as well as a plan to educate the responsible parties of potential

contaminant sources if one does not currently exist.

Lake Erie/Critical Assessment Zone (CAZ)
Source water protection efforts in the CAZ area should focus on continued monitoring of Lake Erie water quality and coordination with U.S. Coast Guard officials regarding response to spill, releases or other threats to intakes. In addition, the water system should provide education to consumers, local municipal officials and businesses on strategies to reduce contaminated storm water runoff. The water system may consider supporting prohibitions or limitations on oil and gas exploration in Lake Erie where it could directly impact the quality of the source water. Finally, Ohio EPA encourages a coordinated long-term Lake Erie biological and water quality monitoring program, including support of the Lake Erie Lakewide Management Plan (LaMP).

Potential Influence Zone (PIZ)

Some protective strategies that may be applicable to the potential influence zone include:

Commercial/Industrial Activities
- Provide education (material/meetings) to local businesses on topics such as testing and maintenance requirements.
- Use routine inspections as an educational opportunity.
- Monitor compliance with existing regulations through inspections and/or contact with regulatory agencies (such as the local fire department or the Ohio EPA).
- Encourage/arrange hazardous materials training for local businesses and their employees.
- Encourage/arrange waste and disposal assessments for local businesses.
- Request installation of engineering controls for existing facilities.
- Encourage facility spill/contingency planning (also consider working with fire departments).
- Encourage local businesses to implement pollution prevention strategies.

Oil & Gas Production Wells
- Provide education (material/meetings) to owners and land owners on maintenance.
- Ensure/monitor proper operation and maintenance.
- Develop an early warning system for accidental spills/releases.

Transportation and Spills
- Contact the Coast Guard, local fire department and local emergency planning agency about the location of the drinking water source protection area.
- Develop an early warning system for spills/releases.
- Include drinking water source protection in response planning and response personnel training.
- Work with local transporters on protection area awareness.
- Create hazardous materials routes around the protection area and require/encourage transporters to use them.

Education and Outreach
Informing people who live, work, or own property within your protection area about the benefits of drinking water protection is very important. Although some communities develop their own educational outreach resources, assistance is available at no cost from various agencies. For example, staff from Ohio EPA's Office of Pollution Prevention can visit businesses (free of

charge) and provide recommendations on how they can modify their processes, materials and practices to generate less pollution in a cost-effective and technically feasible manner. An effort should be made to educate homeowners and businesses of the potential threat their activities can pose to the water supply.

Coordination with Existing Activities

Many local groups are engaged in programs that complement public water source protection efforts. Working with groups such as the Natural Resources Conservation Service, the local Soil and Water Conservation Service, the Farm Bureau, or a local watershed planning organization ensures coordination of their respective programs.

Zoning Ordinances

A water protection zoning ordinance is a regulatory control that typically places some restrictions or standards on activities conducted within a specified zone (such as the Potential Influence Zone). Such ordinances enable the municipality to require people who live or work in the area to avoid contaminating the source of the drinking water. Ordinances can help ensure best management practices are being employed at local businesses and can help reduce the volume of contaminants stored within the protection area. Ohio-American/Ashtabula may want to consider working with the townships and municipalities in the protection area to develop zoning overlays that require specific standards for chemical storage, handling of waste materials, and other source control strategies. Several communities in Ohio have enacted very successful drinking water source protection ordinances. Copies can be obtained by contacting Craig Smith at (614) 644-3144.

Future development and a change in land use practices and water activities may impact the ecological health of Lake Erie and affect the CAZ. This valuable water system should be protected to avoid further degradation of water quality by the excessive loadings of nutrients and suspended solids. Watershed management plans for this area should be drafted and utilized to guide future protection activities.

REFERENCES

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