CITY OF ST. MARYS, OHIO
DRINKING WATER SOURCE PROTECTION PLAN

Appendix D

Education & Outreach Materials

Source Water Protection Fact Sheet

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What is Source Water Protection?

A Source Water Assessment and Protection Program (**SWAP**) helps public water suppliers protect drinking water sources from contamination. In Ohio, the program includes surface water sources (lakes, rivers, etc.) and groundwater sources (**Aquifers** - underground water-rich zones).

A SWAP has two phases. The first is collecting and assessing information about the source water: delineating the **Source Water Protection Area**, identifying the **Potential Contaminant Sources** in that area, and determining the **Susceptibility** of the source water to contamination. The second phase is developing and implementing a local drinking water **Source Water Protection Plan**.

Source Water Protection in St. Marys

St. Marys, in conjunction with Ohio EPA, has developed a SWAP to document implementation strategies to protect the aquifers that supplies our drinking water from land-based contamination. Such a plan is very important to the health of all residents who consume the drinking water provided by St. Marys, many of them outside city limits.

The SWAP builds on a **Source Water Assessment Report** that was completed for St. Marys by Jones and Henry Engineers, a **Susceptibility Analysis** completed by Ohio EPA, and a draft program supplied by Ohio EPA. An important component of the program was the development of **Groundwater Protection Zoning Regulations** that were authorized by St. Marys Council in 2012.

St. Marys relies entirely on groundwater for its water supply. Consequently, everything in its Source Water Protection Plan is for the protection of its wells and aquifers.

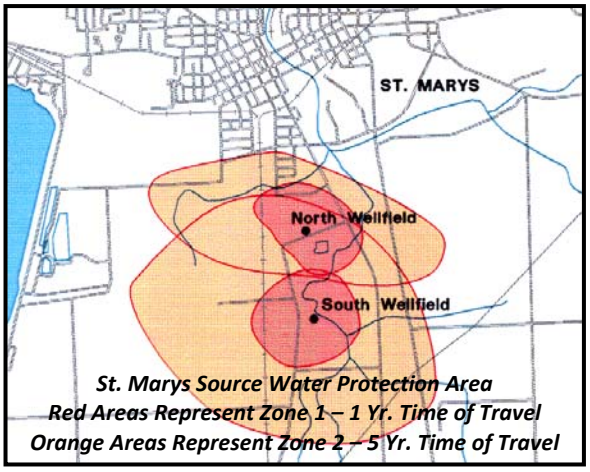
St. Marys Wells & Aquifers

St. Marys currently operates two wellfields to meet water demand; each contains two wells. A mostly clay **confining layer** of soil above both aquifers and the depth of the wells helps protect the aquifers from contamination.

South Wellfield: Development of the Barrington Wellfield began in 1943. Well No. 4, completed in 1946, is 343 feet deep. Well No. 5, completed in 1998, is 354 feet deep. The aquifer consists of sand and gravel deposits in the pre-glacial Teays River Valley with a confining layer over 200 feet thick.

North Wellfield: Development of the Jackson Wellfield began in 1967 with construction of Well No. 1. Well No. 2 was added in 1968. Both wells are 270 feet deep and intercept a bedrock aquifer with an average confining layer thickness of 75 feet.

The **St. Marys Source Water Protection Area** consists of two zones that represent 1-Year and 5-Year **Time of Travel** distances surrounding the wells. Time of travel is the time it would take for any contaminant, if discovered in the aquifers, to reach a well at current pumping rates.



St. Marys Source Water Protection Area
Red Areas Represent Zone 1 – 1 Yr. Time of Travel
Orange Areas Represent Zone 2 – 5 Yr. Time of Travel

Aquifer Susceptibility to Contamination

Ohio EPA has determined that the aquifers that supply drinking water to St. Marys have a **moderate susceptibility to contamination** because of the following within and near the Protection Area: types of potential contaminant sources and numerous oil and gas wells that provide a direct pathway for contaminants to reach the underlying aquifers. The moderate rating does not mean the aquifers will be contaminated but that conditions exist for the possibility of contamination.

Benefits of Source Water Protection

Benefits of the SWAP include helping St. Marys provide the safest and highest quality drinking water to its customers at the lowest possible cost and to plan for future expansion, development, zoning, and emergency response issues.

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Source Water Protection Plan Components

Components of the **St. Marys Source Water Protection Plan** include: protective and contaminant source control strategies, education and outreach strategies, emergency planning, ground water monitoring in some cases, and provisions for review and update of the plan.

Implementing all of the above activities can provide a number of long-term benefits, including protecting the health of consumers, preserving water resources for future generations, avoiding the expense of cleaning up a contaminated water supply or finding alternative sources of water, and preserving or enhancing the economic value of the area by securing an abundant supply of clean water.

Source Water Protection Implementation

A local **Protection Team** consisting of representatives of the St. Marys water system staff, elected officials, emergency responders, industries and businesses, and agriculture in the Protection Area has been formed. The team is charged with overseeing implementation of all components of the SWAP.

Potential Contaminant Sources

There are 20 industrial and commercial **Potential Contaminant Sources** within or near the St. Marys Source Water Protection Area. Additionally, there are homes and farms, roads, water bodies, gas and oil wells and pipelines, railroads, and other sources that have the potential to contaminate the aquifers serving St. Marys.

Protective Strategies

Protective strategies are activities that help protect a drinking water source from becoming contaminated or further contaminated. These strategies include the following:

Industrial and Commercial Facilities: Inform local facilities located within or near the St. Marys Protection Area of their location with respect to the Protection Area and of the importance of practicing **Best Management Practices** (BMPs) throughout their facility.

Abandoned Oil & Gas Wells: Work with landowners and the Ohio Department of Natural Resources to ensure that abandoned oil & gas wells that are located within or near the St. Marys Protection Area have been properly closed.

Transportation (State, County, & Local Roads, Railroads): There is a potential for spills along highways, roads, and railroads. Inform local emergency response agencies about the location of the St. Marys Protection Area, so that strategies can be developed to avoid spilled materials impacting the aquifers. Place signs along roads to advise traffic they are entering a drinking water protection area.

Agricultural & Residential: Educate about the importance of using **Agricultural Best Management Practices**, road safety with agricultural chemicals, methods to control negative impacts to surface water, etc. Educate about the importance of drinking water protection, the use and maintenance of septic systems, illegal dumping, proper waste disposal, proper well abandonment, etc.

Education & Outreach

Education and outreach materials have been developed to inform those living and working within or near the St. Marys Source Water Protection Area about where their drinking water comes from and why it is important to protect this valuable resource. Education and outreach efforts also will inform the community how their activities can potentially impact groundwater and what they can do to help prevent contamination.

St. Marys encourages all citizens to learn more about water resources, conservation, and source water protection. We offer presentations and treatment plant tours to civic groups, school children, and other interested parties. Please contact us for more information.

Drilling Well No. 4 - 1946

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Potential Impacts on YOUR Source of Drinking Water

Agriculture

Agriculture practices, such as fertilizer or herbicide and pesticide storage and handling, can impact ground water sources. Additionally, livestock yards and their associated wastes and agricultural drainage wells also can contribute to ground water contamination if not properly managed. **What you can do**: For more information call your Ohio State University County Extension Office.

Septic Systems

This includes septic tanks and leach fields. Ground water may become contaminated when the septic systems are poorly designed or improperly constructed, used, located, or abandoned. **What you can do**: If you own a septic system, make sure it is inspected regularly.

Landfills & Dumps

Abandoned landfills and old dumps are two of the most significant sources of ground water contamination – typically because of where they are located and because they were not built correctly. **What you can do**: Report illegal dumping to authorities.

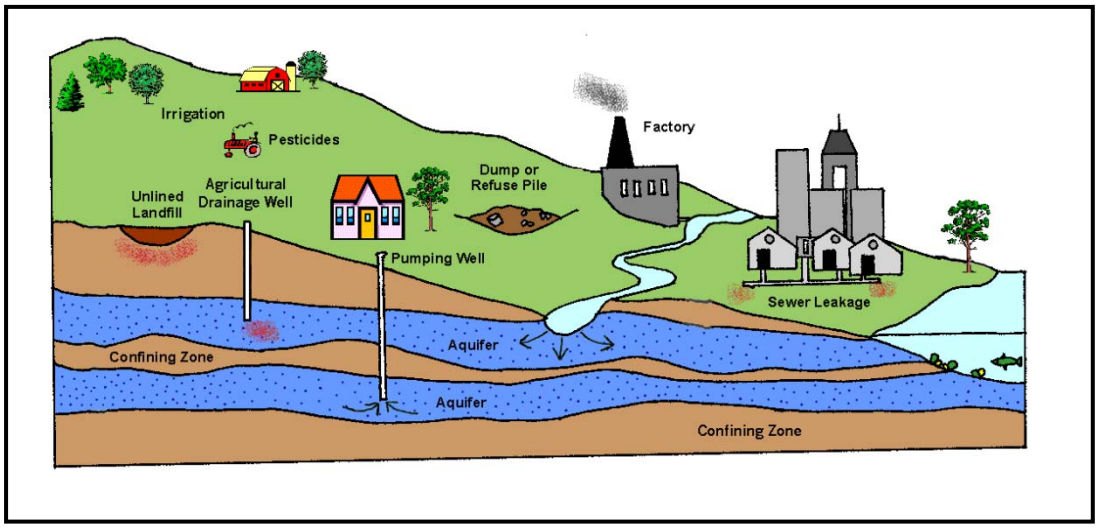
Underground Storage Tanks

Underground storage tanks are used to hold petroleum products such as gasoline, diesel fuel, and fuel oil. Because they are buried underground, leaks can go undetected for a long time. **What you can do:** If you own an underground storage tank, make sure it meets all the necessary requirements. For more information, contact the Bureau of Underground Storage Tank Regulations at (614) 752-7938.

Other Potential Contaminant Sources

If not managed properly, all of the following could be considered Potential Contaminant Sources:

- Underground injection wells.
- Businesses and Industries using chemicals or petroleum products.
- Disposal of household, agricultural, or industrial chemicals.
- Floor and storm water drains.
- Above ground storage tanks.



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LIVING IN A SOURCE WATER PROTECTION AREA
What YOU Can Do to Protect Your Source of Drinking Water

Yard Maintenance

DO

- Apply chemicals only as directed – more is not always better.
- Cultivate plants which discourage pests – this reduces pesticide usage.
- Leave lawn clippings on lawn or compost them.
- Pull weeds by hand.
- Clean up after pets.

DON'T

- Over-apply fertilizers, herbicides, or pesticides.

Automotive

DO

- Recycle used oil & antifreeze.
- Have automotive leaks fixed.
- Clean up spills immediately.

DON'T

- Pour used oil, antifreeze, or other chemicals on the ground or down a storm drain.

Storm Drains

DO

- Take unwanted chemicals to hazardous waste collection sites. Recycle used oil & antifreeze.

DON'T

- Pour chemicals into storm drains or drainage ditches.

Plumbing/Septic Systems

DO

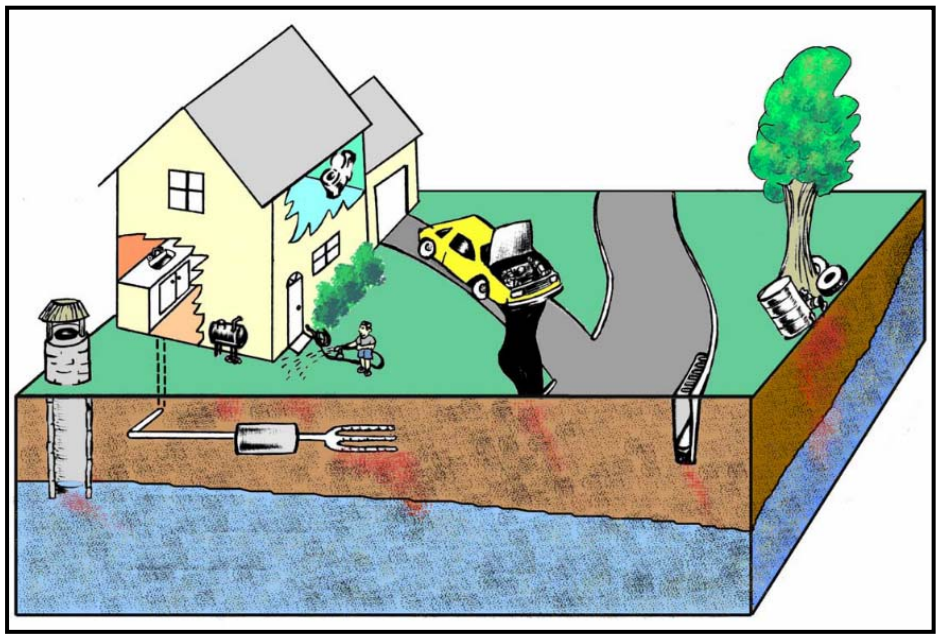
- Have your septic tank inspected regularly.
- Have your septic tank pumped at least every 5 years.
- Use phosphate-free detergents.
- Take unwanted chemicals to hazardous waste collection sites.

DON'T

- Pour chemicals down the drain.
- Use toilets as trash cans.

Additional Water Protection Ideas

- If you have a fuel oil tank, make sure it is not leaking.
- Properly seal all unused water wells on your property.



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WORKING IN A SOURCE WATER PROTECTION AREA
What YOU Can Do to Protect Your Source of Drinking Water

Spill Prevention & Containment

DO

- Provide impermeable secondary containment structures for above ground chemical & fuel storage areas.
- Ensure underground tanks meet standards set by Ohio's Bureau of Underground Storage Tank Regulations. In a Source Water Protection Area, underground tanks must be double-walled or have other forms of leak detection and prevention.
- Provide berms around chemical or fuel loading or unloading areas to help contain any leaks or spills.
- Provide storage areas for chemical drums that are roofed, have a waterproof floor without floor drains, and are securely locked.
- Install systems to prevent over-filling of tanks.

Employee Training & Contingency Planning

DO

- Have a contingency plan for accidents that may result in chemical spills.
- Train employees to store and transport chemicals properly.
- Respond to spills quickly and correctly.
- Monitor chemical inventory.

Chemical Storage & Handling

DO

- Store over a waterproof floor such as concrete.
- Install back-siphon devices to prevent reverse flow of chemicals into the water.
- Use returnable containers and mini-bulk tanks.

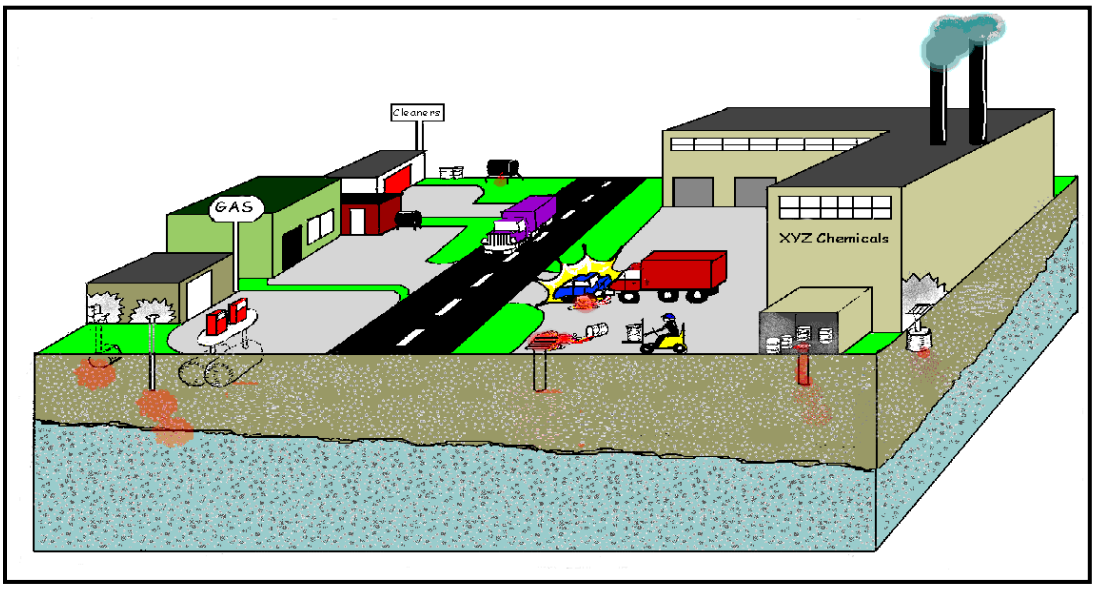
DON'T

- Pour chemicals down any drain.
- Use toilets as trash cans.

Technology & Process Changes

DO

- Change process parameters, equipment, or the process itself to reduce the amount of waste generated.
- Redesign or reformulate end products to be less hazardous.
- Reduce raw materials used in processes.
- Contact OHIO EPA's Office of Pollution Prevention for FREE Pollution Prevention Technical Assistance.



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FARMING IN A SOURCE WATER PROTECTION AREA
What YOU Can Do to Protect Your Source of Drinking Water

Livestock Yards & Waste Storage

DO

- Clean livestock yards regularly.
- Follow Agricultural Best Management Practices (BMP) for waste storage and application.
- Check the sidewalls of earthen waste pits to ensure they have not cracked or eroded. Repair problem areas.
- Reduce the amount of water entering the livestock yard by diverting rain water away from the areas.
- Install a runoff control system.

DON'T

- Bury dead livestock on your property.

Farm Equipment

DO

- Recycle used oil, antifreeze, and batteries.
- Contain oil & grease drips.
- Fix any leaks on equipment.
- Clean up spills immediately.

DON'T

- Use old oil to kill weeds.
- Pour used oil, antifreeze, or other chemicals on the ground or down a storm drain.

Fertilizer & Pesticide Storage & Handling

DO

- Store over a waterproof floor such as concrete.
- Install back-siphon devices on your well to prevent revers flow of chemicals into the well.
- Use returnable containers and mini-bulk tanks.
- Use pesticides with less potential to leach into the ground.
- Take advantage of ODA's Pesticide Collection Program.

DON'T

- Apply more fertilizer than proper agronomic rates.
- Apply when conditions are likely to promote leaching or runoff.
- Use within 100 feet of your well.
- Put the water hose in the sprayer tank.
- Pour chemicals into storm drains or drainage ditches.

Petroleum Product Storage & Handling

DO

- Place above-ground tanks over a waterproof surface.
- Measure fuel level regularly to help detect leaks.
- Remove old tanks that are no longer used.

Plumbing/Septic Systems

DO

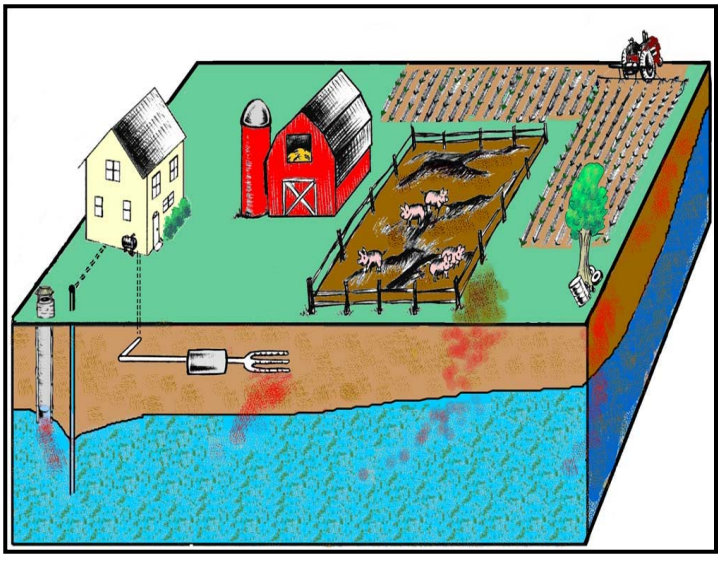
- Have your septic tank inspected regularly.
- Have your septic tank pumped at least every 5 years.
- Use phosphate-free detergents.
- Take unwanted chemicals to hazardous waste collection sites.

DON'T

- Pour chemicals down the drain.
- Use toilets as trash cans.

Additional Water Protection Ideas

- Make sure your well has a secure cap and no cracks; periodically test your well for bacteria and nitrates.
- Properly seal all unused water wells on your property.
- Do not wash spills into the ground.



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