

Source Water Assessment and Protection (SWAP) Plan

for the

City of Mount Vernon

December 2012

Developed by:

**The Mount Vernon Source Water Assessment
and Protection (SWAP) Committee**

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SECTION 1 - INTRODUCTION

The City of Mount Vernon depends solely upon ground water for its drinking water supply and recognizes the need to protect this valuable resource. This document presents the City's Source Water Assessment and Protection Plan (SWAP Plan) which explains how the drinking water source will be protected. The City will institute a comprehensive drinking water source protection program based on the strategies presented in this Protection Plan to help prevent contamination of its drinking water.

The purpose of this Protection Plan is to present workable strategies for preventing, detecting, and responding to ground water contamination within the delineated drinking water source protection area. Implementation of these strategies requires ongoing educational programs that focus the attention of public officials, public planners and engineers, planning and zoning boards, owners/operators of potential sources of contamination (including homeowners), and water system operators on ways to prevent contamination from reaching the public water supply, and how to respond if it does.

1.1 Source Water Assessment Summary A drinking water source assessment includes delineation of the "inner management zone," the area that provides ground water to the City's wells within one year of pumping and a "source water protection area," an additional area that contributes water when the wells are pumped for five years. The assessment also includes an inventory of potential sources of contamination within the protection area and an analysis of the sensitivity of the aquifer to contamination.

A drinking water source assessment for the City of Mount Vernon was originally developed by Camp Dresser & McKee (CDM) in 1997 and presented as the *Mount Vernon, Ohio Draft Wellhead Protection Plan*. CDM's assessment report included a delineated protection area and the results of a potential contaminant source inventory within the protection area. Ohio EPA updated the drinking water source assessment in 2011 and prepared a revised drinking water source assessment report (see Appendix A). The updated assessment report included a revised protection area necessitated by a change in well configuration. Ohio EPA also updated the inventory of potential sources of contamination to ensure the protective strategies documented in this Protection Plan are based on currently existing contaminant sources.

The City of Mount Vernon, Division of Water & Wastewater, operates a public water system serving over 25,000 people, some of which are located outside city boundaries. On average, 2.5 million gallons of water per day are produced from two Ranney horizontal collector wells, one located in Riverside Park and a second located opposite the park well on the west side of the Kokosing River. The Mount Vernon wellfield is situated in a north-south trending buried valley carved into shale and sandstone bedrock. The buried valley parallels the Kokosing River. Thick permeable sands and gravels deposited by glacial processes within the bedrock valley comprise the highly

productive Kokosing Buried Valley Aquifer that is the source of Mount Vernon's drinking water supply.

While the City's wells are located in a deep aquifer protected by layers of clay and gravel, the entire one and five year times of travel in the SWAP area must be evaluated to determine the susceptibility rating for the source water. The City of Mount Vernon's source of drinking water has a high susceptibility to contamination because of:

- the presence of a discontinuous protective layer of clay overlying the aquifer within the five year time of travel
- the shallow depth (less than 30 feet below ground surface) of the upper aquifer, which may have connectivity to the deep aquifer, and
- the presence of significant potential contaminant sources in the protection area.

Although the aquifer is highly susceptible to man-made contamination, it does not mean it will inevitably become contaminated. The vulnerability of the aquifer can be minimized by implementing appropriate protective measures as outlined in this plan.

1.2 Components of a Source Water Assessment and Protection Plan. There are four main components of a Drinking Water Source Protection Plan. These are:

Source Control Strategies: These are actions that will be taken to protect the drinking water source from specific potential contaminant sources.

Education and Outreach: This section will focus on making people aware of how their activities can impact their water, and what they can do to help prevent contamination.

Contingency Planning and Emergency Response: Identify alternative sources of drinking water and what to do in the event of a spill.

Ground Water Monitoring: Identify the need for additional ground water monitoring.

CDM's 1997 report included a "WHPA (wellhead protection area) Management" section, similar to a Source Water Assessment and Protection Plan, which was designed to identify potential threats to the drinking water source and to promote actions that will protect the quality of the drinking water. A copy of CDM's WHPA Management section is included in Appendix B. The CDM report included discussions of the four main components of a protection plan listed above. However, the WHPA management portion was drafted by CDM as recommendations to the City of Mount Vernon. Because no activity was initiated on these recommendations, and because the protection area changed, it was decided to redraft a protection plan focusing on the revised area, the current potential threats to the drinking water source, and the City's present-day concerns and priorities.

1.3 Source Water Assessment and Protection Committee The Source Water Assessment and Protection Committee for the City of Mount Vernon consists of the following members:

- Richard Mavis, Mayor, City of Mount Vernon
- Dave Glass, Safety Services Director, City of Mount Vernon
- Cameron Keaton, City Engineer, City of Mount Vernon
- Judy Scott, Water/Wastewater Treatment Administrator, City of Mount Vernon
- Rob Clendening, Knox County Soil & Water Conservation District
- Siobhan Fennessy, Kenyon College, Professor of Environmental Studies
- Darrel Severns, Knox County Regional Planning

The committee represents a wide variety of viewpoints and priorities that will enhance efforts related to environmental public education, land use management, and emergency response communication. The committee will periodically review the plan and determine if any changes are necessary.

1.4 Periodic Review A protection plan is not a static document. Over time many issues related to protection planning will change; wells may be added or removed from the wellfield, existing potential contaminant sources will relocate or close, a source water protection ordinance will be passed, new education and outreach opportunities will become available and new partners in protecting the drinking water source will be identified. The protection committee needs to plan for these and other events and update the Protection Plan accordingly.

The City of Mount Vernon will review this Protection Plan annually. At a minimum, the City will consider the following when determining what needs to be updated:

Delineation

- Has the amount of pumping increased or decreased by more than 15% since the date of the most recent Drinking Water Source Assessment report?
- Have any wells been added or removed?
- Has a new wellfield been added or are there any plans for a new drinking water source?
- Is there new hydrogeologic data to refine the delineation model (e.g. flow direction, pump tests, new monitoring wells, etc.)?

If the answer to any of the above questions is yes, the City will contact Ohio EPA's Source Water Assessment and Protection program staff to determine if the protection area should be re-delineated. Mount Vernon may request assistance and guidance from Ohio EPA's SWAP staff to conduct a re-delineation.

Potential Contaminant Source Inventory

- Has the extent of the protection area changed?
- Has the community experienced rapid development and growth?
- Have land uses in and around the protection area changed substantially?
- Has management of businesses in the protection area changed?

If the answer to any of the above questions is yes, the City will update the inventory or conduct a new inventory. The City may contact Ohio EPA's Source Water Assessment and Protection program staff for guidance or assistance in conducting the inventory.

SECTION 2 - POTENTIAL CONTAMINANT SOURCE CONTROL STRATEGIES

Even though the City is the owner and operator of the community water system, it does not have jurisdiction over all of the land identified within the drinking water source protection area. Therefore, educational activities and voluntary approaches offer the greatest potential for dealing with areas outside of Mount Vernon's municipal boundaries. If these approaches are not successful, the City will work with the townships to consider alternative ideas, such as ordinances or land use overlays, outside of the municipal boundaries.

2.1 Prioritization of Potential Contaminant Sources Drinking water can be affected by pollution that enters the aquifer from individual points of discharge (point sources), or from runoff that carries pollution deposited on the land surface (non-point source). Mount Vernon used the USEPA Model Ordinance for guidance in selecting potential contaminant sources. Those sources listed as the highest priority are contained in the model and are also within the one year time of travel. Moderate priority sources are those listed in the model but within the five year time of travel. Low priority sources are either not listed in the model, are outside the SWAP protection area, or are primarily regulated by other agencies.

The following potential sources are considered to be of **HIGHEST** priority to the City of Mount Vernon, based on the relative risk of impacts they pose to source waters and the types of chemicals available at the facilities:

- American National Can
- Johnny's Auto Parts
- Mount Vernon Water Treatment Plant (above-ground storage tank)
- Highways
- Railroads

The following potential sources are considered to have a **MODERATE** priority, based on the relative risk of impacts they pose to source waters and the types of chemicals available at the facilities:

- Auto repair facilities
- Car dealers with auto repair facilities
- Car washes
- BP Bulk Plant
- Existing septic systems
- Sewer lines
- Agricultural areas
- Ross Brothers Salvage
- Machine/Metal working shops

- Recycling Center (located on Route 13 north of the City)
- Solid Waste Transfer Station

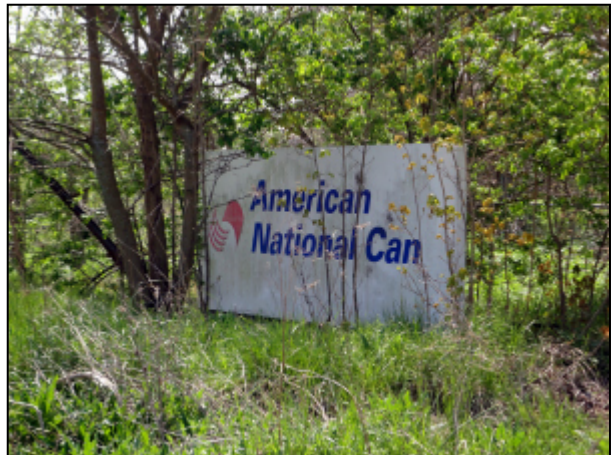
The **LOW** priority potential sources, based on relative risk of impacts they pose to source water, include:

- All active gas stations (regulated by BUSTR)
- Rolls-Royce (hazardous waste handler, regulated by Ohio EPA)
- Kokosing River
- Oil and Gas wells
- Natural gas pipeline
- Dry cleaners
- Former UST sites that have been resolved/removed
- Former sand and gravel operation (Goodwin Sand and Gravel, now Foundation Park)

Table 2-1 lists the identified potential contaminant sources and protective strategies selected by the protection committee to address them.

2.2 High Priority Sources The following includes details of the highest priority sources and the protective strategies that the City of Mount Vernon will implement:

American National Can: The American National Can (ANC) property was initially developed in the mid-1920s by Knox Tire & Rubber. Industrial activities at the facility included the manufacture of cellophane products, cans, and plastic products. Solvents, fuel oil, inks, and various other chemicals have been stored on the property at various locations. The facility was closed, and the buildings were vacated in 1998. All buildings were subsequently demolished in 2003. The concrete building pads and parking areas remain on the property. A



Voluntary Action Program (VAP) Phase I Property Assessment conducted in August 2007 concluded that “. . . there was reason to believe that a release of hazardous substances and petroleum products have or may have occurred on, underlying, or are emanating from the property.” A VAP Phase II Property Assessment was completed in September 2011 to characterize the degree and extent of impact any releases of hazardous substances or petroleum products may have had on soils and ground. The City is actively seeking to redevelop the former ANC property as part of their citywide long term plans to redevelop unused industrial properties, adding value to the City’s economic base and providing permanent jobs. The City has received Clean Ohio Revitalization Fund (CORF) funding from the Ohio Department of Development (ODOD) to help finance the cleanup. Background information on the ANC brownfields site

including a figure showing the ground water and soil sampling locations is included in Appendix C. Copies of the full CORF application and supporting documents are available for review at the Public Library of Mount Vernon and Knox County or by contacting Ohio EPA's Central District Office at 614-728-3778.



Johnny's Auto Parts: Johnny's Auto Parts is a vehicle salvage yard, spreading out over approximately 6 acres on the east bank of the Kokosing River. Johnny's Auto Parts is located within the one year time of travel zone (inner management zone) for the City of Mount Vernon's wellfield. The concerns at Johnny's Auto Parts include leaking fluids from vehicles containing volatile organic compounds, heavy metals from rusting vehicles, and other toxins such as battery acid and coolants. The City is pursuing an ordinance that will keep this

type of business out of the one year time of travel zone. If the ordinance is enacted, Johnny's Auto Parts will be grandfathered in, but it will not be allowed to expand.

Mount Vernon Water Treatment Plant:

A 650 gallon above-ground storage tank containing diesel fuel is located within 450 feet of Well 4 (West Ranney Well). This tank is used for a backup generator in the event of a power outage. The tank is on a pad, has secondary containment, and has leak detection devices. The City of Mount Vernon water treatment plant staff will monitor this site regularly for any spills or leaks, and routinely check to make sure the leak detection device is in working order.



Highways: Several highways traverse the protection area: State Routes 229, 3 (Wooster Road), 13, and US 36. There is no alternative truck or hazardous material route around the city. To alleviate the impacts of these transportation routes on groundwater quality, Mount Vernon will contact the Ohio Department of Transportation (ODOT) to erect signs on



the state routes to indicate the five year boundary of a drinking water source protection area and provide an emergency number to call in the event of an accident or spill. The City will coordinate with Knox County's Emergency Management Agency (EMA) in the event of a spill. The City will also discuss with state, county, township and city officials the use of de-icing methods and materials that reduce the chance of contaminating ground water. The City's draft SWAP ordinance would prohibit storage of snow containing road salt or de-icing chemicals in the Inner Management Zone.

Railroad: A CSX railroad also traverses through the protection area. The Mayor of the City of Mount Vernon will contact CSX to determine if they have a plan for spill cleanup and inform them of the location of the protection area. Knox County EMA will also be made aware of the potential for spills along the railroad.

2.3 Moderate Priority Sources In addition, the following protective strategies will be in place for these Moderate priority sources:

Septic Tanks and Leach Systems: The majority of the residences falling within the Source Water Assessment and Protection Area are served by a centralized sewer system. However, isolated residential septic tanks and leaching systems are present within the protection area. For the septic system areas, the City of Mount Vernon will:

- Identify all residences and businesses using septic tanks and leach systems.
- If a residence or business is within 200 feet of an easement that contains a sewer main, the Knox County Health Department will require these residents and businesses to abandon their onsite sewage disposal systems and connect to the City's sewer system, per Ohio Administrative Code (OAC) 3701-29-02 (L) and (M) and Ohio Revised Code (ORC) 6117.51 (D).

The City of Mount Vernon will also coordinate with the Knox County Health Department to limit new septic systems in the protection area

Sewer Lines: The sanitary sewer system has portions in the drinking water source protection area that were built between 1915 and 1920. Some of these sewers are located within the drinking water source protection area. The City will:

- Cooperate with the Ohio EPA and other appropriate agencies to ensure compliance with all existing pretreatment and discharge regulations.
- Maintain maps showing the precise location of all sanitary sewers.

Underground Storage Tanks (USTs) and Leaking Underground Storage Tanks (LUSTs): USTs and LUSTs are located within the drinking water source protection area. The Bureau of Underground Storage Tank Regulations (BUSTR) regulates the existing underground tanks and requires that businesses comply with existing regulations. The City of Mount Vernon will implement the following procedures for new tank installations:

- Prohibit installation of any new underground storage tanks within the one year TOT zone.
- Any existing underground storage tanks will be “grandfathered” in and will be required to register with the City.

These procedures are outlined in more detail in the draft Source Water Protection Overlay District ordinance (see Appendix D).

2.4 Land Use Controls / Ordinance A Source Water Protection Overlay District ordinance is being developed for the City of Mount Vernon. A draft version of the ordinance is found in Appendix D. Once finalized, it will be presented to City Council for passage. The ordinance prohibits certain activities from occurring within the one year time of travel zone, such as:

- Installation of new underground or above-ground storage tanks containing petroleum or other chemicals
- Disposal of solid or hazardous waste
- Storage of road salt
- Outside storage of fertilizers, pesticides, herbicides, or fungicides
- Animal feedlots
- Dry cleaners/Commercial Laundries
- Industrial operations
- Chemical or biological laboratories
- Metal finishing and fabrication, machine shops
- Motor vehicle repair shops, gas stations, junk yards, car washes
- Printing or photo shops
- Wood finishing or furniture stripping businesses;
- Bus/Truck terminals
- Electrical/electronic component manufacturing and assembly
- Leather tanning and finishing
- Injection wells

Additional restrictions and details about these activities, along with exceptions for existing facilities, can be found in the draft ordinance in Appendix D.

Table 2-1. Prioritization of Potential Contaminant Sources in Mount Vernon's Drinking Water Source Protection Area.

Potential Contaminant Source	Location	Concerns	Strategies	Implementation Date	Priority
American National Can	1 year TOT	Historic contamination	Receive periodic reports from cleanup and monitoring efforts; apply for CORF grant to secure former landfill waste;	The City has recently received this grant	High
Johnny's Auto Parts*	1 year TOT	Junk yard – leaking fluids	Ordinance to prohibit expansion; inspections by City personnel	When ordinance is passed	High
Mount Vernon WTP	1 year TOT	AST	Add leak detection alarm & periodic inspections	Immediately	High
Auto Repair Facilities*	5 year TOT	Chemical and petroleum product storage, spills	Letter & Brochure	12/31/2013	Moderate
Car Dealers (with repair facilities)*	5 year TOT	Chemical and petroleum product storage, spills	Letter & Brochure	12/31/2013	Moderate
Car Washes*	5 year TOT	Runoff infiltrating into ground water	Letter & Brochure	12/31/2013	Moderate
Highways	1 and 5 year TOTs	Spills, accidents	Have ODOT erect road signs on state highways at five year TOT, also add signs on Green Valley Road, after discussion with Township	Fall 2013	Moderate
Railroad	1 and 5 year TOTs	Spills, accidents	Contact RR and send map of protection area; Request info on RR spill/accident response procedures.	12/31/2013	Moderate
BP Bulk Plant*	5 year TOT	Petroleum product storage, spills	Letter and Brochure	12/31/2013	Moderate
Existing Septic systems	5 year TOT	Failing septic systems can leak nitrates and other biological contaminants	Determine who is still on septic but should connect to City sanitary sewer system; Work with health department; Letters & Brochures	12/31/2013	Moderate
Agricultural areas	1 and 5 year TOTs	Nitrates, pesticides	Have SWCD and Regional Planning talk with farmers about protecting their drinking water supply and Mount Vernon's	12/31/2013	Moderate

Potential Contaminant Source	Location	Concerns	Strategies	Implementation Date	Priority
Ross Brothers Salvage*	5 year TOT	Spills	Letter & Brochure	12/31/2013	Moderate
Machine/Metalworking shops*	5 year TOT	Solvents	Letter & Brochure	12/31/2013	Moderate
Recycling Center	5 year TOT	Spills	Letter & Brochure	12/31/2013	Moderate
Rolls-Royce	5 year TOT	Spills	Currently regulated under RCRA; Letter & Brochure	12/31/2013	Moderate
Gas Stations*	5 year TOT	Leaking fuel, spills	Currently regulated under BUSTR; Letter & Brochure	12/31/2013	Low
Kokosing River	1 and 5 year TOT	Spills	Notification system for upriver spills on bridges and overpasses near the river; coordinate with Knox Co. EMA	12/31/2013	Low
Oil & Gas Wells	1 and 5 year TOT	Spills, fracking fluids	Notify ODNR of protection area and ask that they consider the protection area before approving new wells	12/31/2013	Low
Pipeline	1 and 5 year TOT	Petroleum leaks	Contact pipeline company; require pipeline company to notify Mount Vernon in the event of a leak or spill.	12/31/2013	Low

* These types of activities are listed in the SWAP city ordinance (currently draft) and new businesses of these types would be prohibited in the Inner Management Zone.

SECTION 3 – EDUCATION AND OUTREACH

The purpose of education and outreach efforts is to inform people who live and work in the City of Mount Vernon source water assessment and protection area about where their drinking water comes from and why it is important to protect this valuable resource. Education and outreach efforts will also inform the community how their activities can potentially impact ground water and what they can do to prevent contamination.

3.1 Target Audience An important step in establishing an education and outreach program is selecting the target audience. The goal in selecting the target audience is to reach a high percentage of the total population who live within or impact the drinking water source protection area. The target audience groups selected for the City of Mount Vernon’s education and outreach efforts are as follows:

Residential, commercial, and industrial water users inside Mount Vernon’s service area and within the drinking water source protection area:

This audience includes users of Mount Vernon’s water and therefore should be vested in keeping the source of drinking water safe. The education and outreach strategies that will be used for this audience include:

- Distribution of a drinking water source protection brochure once the Protection Plan is endorsed. A copy of the brochure is included in Appendix E.

Residential and farming community (including the township) outside of Mount Vernon’s service area but within the drinking water source protection area:

This audience may participate in activities that can impact the source of drinking water if not properly managed. Most likely, members of this audience also use businesses located in the City’s service area, including schools, churches, and restaurants, and should also have a vested interest in protecting Mount Vernon’s source of drinking water. The education and outreach strategies that will be used for this audience include:

- Providing information and updates on drinking water source protection at periodic breakfast meetings sponsored by the Farm Service Agency (FSA).
- Visiting local farmers to discuss one-on-one the benefits of protecting the City’s water supply, as well as their own.
- Sending a drinking water source protection brochure and letter to other residents and businesses within the drinking water source protection area.

Future customers identified as elementary and high school children for schools within the drinking water source protection area:

Children are the future of Mount Vernon. Education on drinking water source protection at an early age helps to reinforce this concept as adults. Specific activities for students include:

- Tours of the water and wastewater treatment plant, upon request.
- Schools (4th grade and up) will be contacted within the protection area to offer presentations on ground water flow and how the City's drinking water may become contaminated.
- Environmental education programs will include drinking water source protection at Kenyon College.

3.2 General Education and Outreach Activities The following are general education and outreach activities that the City of Mount Vernon will pursue:

- Signs on state highways at the five year TOT indicating that the driver is entering a drinking water source protection area, along with an emergency number to call in the event of a spill.
- Poster and brochures of the protection area at City Hall, the Post Office, and Visitor's Center, and anywhere else local residents and visitors would frequent.
- Newspaper articles announcing the Ohio EPA endorsement of the City's protection plan and what it means.
- Information on drinking water protection activities in the City's annual Consumer Confidence Report.
- Revision of the City's Web site to include the drinking water protection area and efforts being performed by the City to protect the source of drinking water.

3.3 Land Use Most of the land west of the Kokosing River in the drinking water source protection area is currently used for agricultural purposes. Mount Vernon will be performing the following activities to ensure that minimal pollution occurs from this area:

- Create a list of land owners and farm operators in the protection area.
- Provide maps to the farmers showing their location as it pertains to the protection area. Also provide the SWAP brochure.
- Soil and Water Conservation District personnel will discuss with farmers the concepts of source water protection.

Residential areas occupy small portions of both the one year and five year TOT zones. Public information and education programs are extremely important in these areas to minimize and control the impacts of household and lawn chemicals on groundwater.

- Knox County sponsors a hazardous household waste collection day every two years.
- A privately-run recycling center is available for residents.

As part of the public education program, the City of Mount Vernon will air on the Public Access cable channel the Ohio EPA video titled *Groundwater and the Ohio Wellhead Protection Program* and Public Service Announcements (PSA's) several times per year.

Table 3-1 summarizes these activities, and includes a time line for implementation and the person responsible for implementation.

Table 3-1. Education and Outreach Strategies

Strategy	Target Audience	When to Implement	Person Responsible for Implementation
Hang poster of SWAP area and make brochures available in public buildings	General public	Fall 2013	Cameron Keaton
FSA informational breakfasts	Farmers	Fall/Winter 2013	Rob Clendening
Visits with local farmers	Farmers	Fall/Winter 2013	Rob Clendening, Darrel Severns
Water/Wastewater plant tours	Students	Currently implementing by request	Judy Scott
Contact local schools to offer presentations	Students	Fall 2013	Rob Clendening
Include information on protection your drinking water supply in Environmental Ed classes at Kenyon College	Students	Fall 2013	Siobhan Fennessy
Highway signs	General public	Fall 2013	Judy Scott
Newspaper articles	General public	Fall 2013	Mayor
CCR report	Customers	June 2013	Judy Scott
Web site revision to add SWAP and protection plan	General public	Fall 2013	Dave Glass

SECTION 4 – CONTINGENCY PLAN

A well-formulated contingency plan enables the City of Mount Vernon to prepare for, respond to and recover from crisis conditions without wasting time on futile or unnecessary efforts or spending funds unnecessarily. The plan defines the duties, responsibilities and functions of all water system personnel with respect to each emergency condition. The City of Mount Vernon has developed procedures to address specific situations that can be expected to arise, and these are documented in Mount Vernon's water plant emergency contingency plan.

The following are issues that are specific to drinking water source protection. This information has been included in the water plant emergency contingency plan.

4.1 Drinking Water Shortage: Short-Term Loss of Source

If the City of Mount Vernon experiences a short-term loss of its drinking water source (such as through a short-lived emergency in the wellfield, collapse of a well, etc.), it will:

- Order water trucks to bring in water from the City of Mansfield or the City of Newark. See Part 4, page 1 and 2 of the City's Water Emergency Contingency Plan for more details.
- Obtain water through a connection with a nearby Public Water Supply, if available.

The City of Mount Vernon can provide water from existing storage for up to 36 hours, provided it is not necessary to flush out the entire distribution system.

4.2 Drinking Water Shortage: Long-Term Loss of Source

In the event of complete loss of the current wellfield, the City of Mount Vernon would most likely:

- Investigate establishing an intake on the Kokosing River.
- Move to secure another wellfield in the vicinity.
- Investigate tying in with another nearby system, such as Del-Co Water Company's Thomas E. Steward WTP wellfield on Lucerne Road south of Bryant Road. Current water treatment capacity of the Del-Co Steward Plant is 4 million gallons/day, and its average daily pumpage for its own customers is 2.5 million gallons/day.

4.3 Funding for Water Emergencies

The City of Mount Vernon currently has a “Water Utility Reserve Fund” that may be utilized for water emergencies. The fund (2012) contains \$115,680.00, which is subject to change. The Administrator of Distribution and Collection would provide information regarding the circumstances of the emergency and may authorize funds up to \$25,000.00 with the approval of the Safety Service Director and the City Auditor. In the event of an emergency requiring funds of \$25,000.00 or more, the Mayor would make a declaration of the circumstances and call a special meeting of City Council in order to authorize the expenditure. Examples of emergencies under this SWAP plan may include, but are not limited to, contamination of the city’s source water supply, or remediation of conditions that could lead to such contamination. If additional monies are required, the City Auditor has been in contact with local financial institutions with authority to make loans in an emergency situation. City Council must approve and authorize the City Auditor to enact any such loans.

4.4 Future Planning

- A. Current average daily pumpage = 2.48 million gallons per day (2011)
- B. Current daily system design capacity) = 6.2 million gallons per day (2011)
- C. Wellfield capacity (the maximum amount the wells can pump, based on the capacity of the pumps) is 9.5 million gallons per day on a continuous basis. The wells can produce at a higher rate for short term emergencies.

The City of Mount Vernon currently is pumping about 40% (A/B) of its design capacity and 26% (A/C) of its wellfield capacity

Census figures indicate that Mount Vernon has maintained a somewhat steady population. The population increased from 15,256 in 2000 to 16,990 in 2010. The City also serves customers outside the City, including parts of some townships and the Village of Gambier. Future planning should include these areas. Currently no significant growth or decline of population is anticipated. Due to the depth of the aquifer, ground water levels in the vicinity have remained fairly steady even during major drought years. Also, at this time Mount Vernon is not aggressively developing and does not anticipate a sudden spike in industrial use of the water.

Based on this, the City of Mount Vernon does not anticipate the need to expand the wellfield or significantly increase pumpage within the next 5-10 years.

4.5 Emergency Response

The City of Mount Vernon Water Emergency Contingency Plan addresses accidental chemical spills and releases in the protection area. A copy of this information is shown below.

Accidental Chemical Spill or Release within the Protection Area

1. Determine the following information:
 - Who made the first observation? What is their phone number and location?
 - When did it happen?
 - What is it?
 - Where is it? Is it isolated to one area or is it wide spread?
 - Has the spill been reported to Ohio EPA?
 - Has the fire department or hazardous materials response team been notified?
 - Has the property owner been notified?
2. If no notifications have been made, immediately contact emergency personnel and agencies (i.e. fire dept., Ohio EPA, etc.) using the phone numbers found in Part 3 of the Contingency Plan. Notify them of the situation.
3. Contact the following work personnel, city officials, and contractors using the phone numbers found in Part 3 of the Contingency Plan. Notify them of the situation.
3. Contact the following work personnel, city officials, and contractors using the phone numbers found in Part 3 of the Contingency Plan.

Richard K. Mavis, Mayor
David C. Glass, Safety Service Director
Judy Scott, Administrator

4. If it is safe to do so visit the scene to make contact with on-scene emergency personnel and agencies. The Local Emergency Management Agency is generally the lead response agency.
5. Complete the following activities as soon as possible:
 - Perform a physical check on the system and its structural integrity (check wells for damage, etc.).
 - If it is determined that the spill resulted in the probable introduction of contaminants into the wells, proper precautions must be taken during sampling to prevent exposure to the contaminant and/or daughter products.
 - If repairs are needed, coordinate with the lead response agency and Ohio EPA to ensure the safety of the repair crew. Proper precautions must be taken to prevent exposure to the contaminant and/or daughter products.

- If the system needs to be temporarily shut down as a result of the spill, the procedures can be found in Part 2 of the contingency plan. Plans for short term loss of source can be found in Part 4 of the contingency plan.
 - If possible, locate private wells upstream from the city wells to sample and analyze for contaminants and determine the extent of the contamination. Notify owner if the results indicate contamination.
6. If the wells are secure, coordinate with the lead response agency and Ohio EPA on actions being taken to mitigate the spill. At a minimum, obtain the following information:
- Who is responsible for the cleanup? What is their phone number and other contact information?
 - What contractors or consultants have been sent by the responsible party?
 - What actions have they taken?
 - How long is clean-up expected to take? How long must water use be stopped or reduced? (If greater than one week, options for long-term loss of source may be initiated. See Part 4 of Contingency Plan)
7. If the contamination has entered the distribution system, the system should be sampled and analyzed to determine the extent and severity of the contamination.
- A “DO NOT USE WATER” advisory may need to be issued and a secondary source of water provided.
 - The system may need to be flushed to remove the contaminants.
 - Repeat sampling would be required to verify whether the flushing has been effective.
 - There may need to be precautions taken to collect the contaminated water for proper disposal and to keep it from entering the storm sewers or sanitary sewers. If there has been a system depressurization refer to Part 2 of the Contingency Plan for repressurization and sampling.
8. Follow-up with the on-scene responders and contractors to determine if additional, long-term actions (such as ground water treatment and/or additional raw water monitoring) are required or recommended. If so, determine:
- What kind of monitoring is needed, at what frequency.
 - What levels will trigger return to normal operations.
 - What kind of additional treatment may be needed.

SECTION 5 - GROUND WATER MONITORING

Ground water monitoring is just one of many strategies that a community may use to protect its public water supply. Unlike the other types of protective strategies, ground water monitoring does not help prevent contamination, but it may provide information that leads to preventative strategies. The three primary functions of ground water monitoring are:

1. **Early warning:** Properly sited and appropriately sampled ground water monitoring wells can provide early warning of contaminant plumes from specific sources, so corrective actions can be taken before the public water supply is affected.
2. **Tracking ground water quality trends:** Where non-point sources pose a threat, monitoring may warn of generally rising levels of contaminants, so that corrective actions and more effective prevention measures can be implemented.
3. **Evaluating the effectiveness of selected protective practices:** Ground water monitoring may enable evaluation of the effectiveness of specific protective strategies.

The need for ground water monitoring depends upon the susceptibility of the aquifer being used; the presence of contaminant plumes and point sources; and the protective strategies selected to protect the aquifer.

The aquifer supplying the City of Mount Vernon has been designated by Ohio EPA as having a high susceptibility because of the presence of numerous potential pollution sources in the inner management zone (see Appendix A); however, there are no known contaminant plumes emanating from any of the identified point sources in the water supply aquifer. Also, enacting the City's source water protection ordinance and implementing the comprehensive strategies presented in this Plan will effectively protect the aquifer. Based on these factors, the Mount Vernon drinking water source protection committee decided that no additional ground water monitoring is needed at this time. The committee will re-examine the need for ground water monitoring if there is an immediate threat to the wellfield from a major spill or release or if significant changes in land use occur in the protection area.

Although a ground water monitoring program will not be implemented by the City of Mount Vernon, the City may require owners/operators of the potential sources of contamination to conduct ground water monitoring at their expense. In addition, there are monitoring activities in place that provide valuable information on the quality of Mount Vernon's water beyond the drinking water sampling required by law. The former ANC property (see Section 2) is located northeast of the wellfield, within the inner management zone. An environmental site investigation, including soil and ground water sampling, was undertaken to characterize the degree and extent of impact any releases

of hazardous substances or petroleum products may have had on soils and ground water at the site. The ANC investigation reports indicate that the aquifer has not been impacted by the site. The drinking water source protection committee may consider using any monitoring wells remaining on the site for ground water quality monitoring in the future. Additional information about the site is included in Appendix C.

Additional monitoring of ground water is also being conducted regularly by Ohio EPA. Since the early 1990's the Ohio EPA has conducted sampling of untreated water at the wellhead of Mount Vernon Well OR01 (East Ranney Well) as part of the Ambient Ground Water Quality Characterization Program. Raw water is analyzed for a suite of inorganic parameters every six months. Samples are also analyzed for volatile organic compounds once every eighteen months. Historical semi-volatile organic compounds and pesticide data are also available. A summary of historical data for the well is included in Appendix F. Ambient sampling results are also available for review on the Ohio EPA website (www.epa.ohio.gov/ddagw/gwqcp_ambient.aspx).

A proposed ground water monitoring plan written by CDM is included in Section 5 of the January, 1997 *Mount Vernon, Ohio Draft Protection Plan* (see Appendix G). CDM's proposed monitoring plan is a comprehensive program that includes: proposed monitoring well locations and rationale to monitor the groundwater entering the well field; proposed monitoring well design; groundwater sampling and analysis plan; quality assurance and quality control procedures; and, periodic evaluation of the groundwater monitoring plan. The plan addresses all of the elements of ground water monitoring required by Ohio EPA. The drinking water source protection committee may use the CDM ground water monitoring plan as a guide if the committee decides to implement ground water monitoring. Additional information to assist the committee in developing a ground water monitoring program can be found in Ohio EPA's guidance documents, *Ground Water Monitoring Guidance for Wellhead Protection* and *Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring*. Copies of the documents are available on the Ohio EPA Division of Drinking and Ground Waters (DDAGW) website (<http://www.epa.ohio.gov/ddagw>)