

# City of Dayton, Ohio Source Water Protection Program Executive Summary



Source Water Protection Program

Executive Summary 2017

City of Dayton, Department of Water



## EXECUTIVE SUMMARY

### HISTORY

#### Program Implementation

Dayton, Ohio benefits from a plentiful groundwater supply known as the Great Miami Buried Valley Aquifer (GMBVA) which was designated a Sole Source Aquifer in May of 1988. The GMBVA serves as the sole source of drinking water for the entire Dayton region. The City of Dayton provides drinking water to 400,000 people from this underground treasure.

For more than 100 years, the City of Dayton's manufacturing economy flourished above this buried drinking water reservoir. The river corridors provided a logical route for railroad tracks and river transportation; the plentiful water supply met manufacturing needs. In 1926, Dayton's first land use plan perpetuated industrial growth along the rivers and above the aquifer. Ironically, as Dayton's population and need for water grew -- so did the threats to the safety of the drinking water supply.

In the 1980's, due to the recognition of groundwater sensitivity and vulnerability and the need to be proactive in the protection of public health, source water protection became a priority at federal, state, and local levels. The 1986 amendments to the federal Safe Drinking Water Act required states to develop and implement source water protection measures. Accordingly, the State of Ohio developed source water guidance for statewide implementation.

Also in the mid-1980s, citizen awareness of the conflict between established land uses and the continued provision of safe drinking water caused increasing levels of community concern. Questions were raised about the long-term viability of the sole source of the region's drinking water. In response to this concern, Dayton took the lead in a community-based process to develop, implement, and fund a Multi-Jurisdictional Source Water Protection Program (SWPP) to protect the water supply. Dayton turned to its civic and business leaders with their history of innovation, along with volunteers from the local Sierra Club, to set the framework for addressing the challenge through extensive scientific studies. These studies led to identifying the geographic area in need of protection and generated information on potential sources of contamination. This broad-based and diverse group of people, many with conflicting interests or from competing jurisdictions, cooperatively built the foundation of the Program.

The City implemented their SWPP on August 3, 1988 by adopting three ordinances that created a regulatory framework for the SWPP. The SWPP is fundamentally geared for risk management.

The delineated Multi-Jurisdictional Source Water Protection Area (SWPA) includes One-Year and Five-Year Time of Travel areas in Dayton, Harrison Township, Riverside, Vandalia, Huber Heights, and Wright-Patterson Air Force Base. From 1989 to 1990, the other four political jurisdictions passed ordinances that paralleled Dayton's. In 1990 Wright-Patterson Air Force Base entered into a Memorandum of Understanding with Dayton with provisions similar to the ordinances, the first-ever agreement between a Department of Defense facility and a local government for the protection of the local government's well fields.

In 1996, Dayton's SWPP became the first in the state to be endorsed by the Ohio Environmental Protection Agency (Ohio EPA). In 1998, the Ohio EPA designated Dayton's well fields as Groundwater Under the Influence of Surface Water.

On July 29, 2015, the Zoning Code and Water Ordinances were amended and approved by City Commission. The ordinances' objectives continued to protect and preserve the groundwater resources that supply Dayton's drinking

water by preventing increased risk and reducing existing risk. With the revisions, the SWPA is comprised of three districts; the Water Operations District (WO) the Water Protection District (WP), and the Water Resource Area (WR). The WO and WP districts comprise the inner protection area and are bounded within the one-year time of travel. The WR represents the outer protection area and is bounded by the five-year time of travel.

### **Program Goal**

The goal of the SWPP is to protect and preserve the groundwater resources that supply Dayton's drinking water. As Dayton provides quality drinking water to approximately 400,000 customers, we strive to maintain a regional cooperative effort by balancing economic development and source water protection, using a multi-faceted approach to risk: management, prevention, mitigation, and reduction.

### **Program Summary**

The prevention of increased risk and the reduction of existing risk to the public water supply is accomplished through: Unique zoning approaches and land use control; Forming partnerships with SWPA businesses; Inspections and site risk assessments; Emergency preparedness; Improved management of chemical handling and Best Management Practices; Business employee training; and Groundwater monitoring and remediation efforts.

The foundation for establishment of the SWPP was provided through intensive scientific evaluations of the well field areas and an inventory of potential contamination sources. These studies, conducted by technical consulting firms hired by the City, established a firm basis for the subsequent development of the regulatory component of the SWPP.

As a result of extensive community and business participation in the legislative process, the SWPP includes an innovative zoning ordinance based on land use control zoning. By using a unique land use control strategy based on the types and quantities of chemicals/substance/materials handled by a business, the SWPP prevents an increase in risk from occurring in existing and future business activities.

The designated SWPA includes portions of four cities, a township, and a U.S. Air Force Base. Because each participating entity retains control over land uses within their respective jurisdictions, specific measures have been taken to provide adequate and consistent multi-jurisdictional implementation. The City of Dayton funds technical staff at the Public Health-Dayton & Montgomery County (PHDMC) to assist in SWPP efforts outside of Dayton's corporate limits.

Complementary to the land use zoning, a Source Water Protection Fund (Fund) was established. The Fund is available for financing: Emergency responses; Groundwater investigations and remediation; Risk reduction and pollution prevention projects undertaken by businesses in the SWPA; Risk management activities; Having a site risk assessment performed; and Education and outreach efforts to business, citizens, and community organizations.

## **SOURCE ASSESSMENT REPORT**

### **Description of the Well Fields**

The City of Dayton pumps groundwater from two well fields: The Mad River Well Field which is bordered by the terraces of the Mad River and the Miami Well Field, composed of the Miami South and Miami North (known as Rip Rap Island) well fields, and bordered by the Great Miami River. Groundwater is pumped from over 100 production wells to the two water treatment plants, each with a capacity of 96 million gallons per day. The wells extract groundwater from the upper, intermediate and lower zones of the Great Miami Buried Valley Aquifer (GMBVA), from 30 feet to 182 feet below the surface. Pumping yields of 500-1,000+ GPM can be developed from the GMBVA. The production wells can yield upwards of 3,000 GPM.



The well fields rely on artificial recharge of the groundwater to maintain the water table elevation. Surface water from the Miami and Mad Rivers is diverted into channels and retention basins where it percolates into the aquifer. As a result, the Ohio EPA has designated the City's well fields as Groundwater Under the Influence of Surface Water. Up-gradient areas are long-term recharge areas for the well fields. The Ohio EPA has designated the Mad and Miami Rivers as Public Water Supply (PWS) at and upstream from the surface water intakes at both well fields.

### **Description of Physical and Hydrogeological Setting**

The hydrogeologic setting of the Dayton area is of a buried valley aquifer formed in the thick and continuous glacial outwash deposits that filled the buried valley aquifer and its major tributaries. The GMBVA system is one of the most prolific types of aquifers in Ohio. These sand and gravel deposits are divided into three layers by clay-rich till separated by a discontinuous low-permeable aquitard. Both the Miami Well Field and the Mad River Well Field consist of a bedrock valley filled with glacial and glacial-fluvial sediments.

### **Description of the Aquifer**

The GMBVA in the Dayton area consists of upper, intermediate, and lower sand and gravel deposits separated by confining layers that are comprised of clay-rich glacial till. These confining layers are laterally discontinuous throughout the region allowing for semi-confined conditions. Depth to bedrock across the GMBVA is up to 250 feet. The GMBVA floor and walls consist of Late Ordovician interbedded shale and limestone. In upland areas, the fossiliferous Brassfield Formation of early Silurian age overlies the Ordovician bedrock.

The extent of the Great Miami portion of the aquifer ranges from north of the City of Troy southward to the confluence with the Ohio River. The Mad River portion extends from the northern Champaign County line to its confluence with the Great Miami at Dayton. Other portions of the buried aquifer are associated with the courses of the Stillwater River, Wolf Creek, Twin Creek and other smaller tributaries.

### **Susceptibility of the Aquifer to Contamination**

The Ohio EPA has designated the aquifer that supplies drinking water to the City of Dayton's well fields as having a high susceptibility to contamination. This rating is based on the number and types of potential contaminant sources within the well field area and the aquifer's sensitivity to contamination via:

1. Groundwater which is under the influence of surface water due to the artificial recharge system to maintain the water table elevation.
2. Underlying soils that are very sandy, allowing for a significant amount of precipitation to infiltrate into the aquifer instead of running off the ground surface.

### **Potential Contaminant Sources**

The potential contaminant source inventory identifies all activities in and around the protection area that pose a threat or have the potential to threaten the well fields. The program also focuses on activities with a history of releases that resulted in groundwater contamination. Special attention is given to businesses with inventories that include chemicals known to be pervasive in groundwater such as chlorinated solvents.

In 2015, the City, using knowledge gained over 25+ years, passed legislation:

1. Increasing the prohibited uses in the WO and WP Districts including the use and storage of chlorinated solvents and selected perfluoroalkyl and polyfluoroalkyl substances,
2. Establishing a Source Water Protection Risk Screening program that uses a risk matrix screening tool to identify high priority sites that pose a threat to the groundwater, and
3. Offering Site Risk Assessments to SWPA businesses to improve the handling of Regulated Substances.

There are nine types of potential contamination sources of concern identified in the SWPP:

1. **Businesses:** The businesses are addressed through zoning land-use controls, reports and inspections, and financial incentives for risk reduction projects. The sources are identified as:
  - Landfills / Ash Monofill
  - Gas / Fueling Stations
  - Automotive Repair Shops
  - Plating Services
  - Industrial Dry Cleaners
  - Petroleum Terminals and Pipelines
  - Pest Control Services / Garden Centers
  - Outside Storage (Manure, Salt, etc.)
  - Equipment Rental / Auto Sales
  - Commercial Stores (Hardware, Grocery, Automotive, Home Repair, Medical, Salons-Spas, Restaurants, Drug, etc.)
  - Self-Storage Units / Truck Trailer Parking
  - Manufacturing (Chemical, Adhesive, Paint, etc.)
  - Industry (Tool & Die, Machining, Recycling, etc.)
  - Water Reclamation Plants
  - Air Force Base
  - Sand and Gravel Mining
  - Food and Drink Manufacturing (Production, Bottling, Packaging, etc.)
  - Parks / Recreational Areas / Open Spaces
  - Low Impact Buildings (Offices, Schools, Hotels Churches, Meeting Halls, etc.)
  - Vacant Buildings
2. **Plumes:** Multiple groundwater contaminant plumes have been identified and are addressed through Ohio EPA actions and through existing and new groundwater monitoring. Using deed restrictions and conservation easements for the installation of Investigation Wells (IW) and Interim Remedial Measure Wells (IRM), the groundwater flow and water quality are routinely monitored.
3. **Surface Water Intakes** are located on the Mad and the Great Miami Rivers. The recharge water quality is monitored through sample analysis. Upstream dischargers are supplied with spill/discharge emergency notification information so the intakes can be closed to prevent any impact to the recharge system.



4. **Dry Wells and Storm Water runoff:** Dry wells and other sources of potential contamination via storm water runoff issues are identified during Source Water Protection inspections.
5. **Spills:** SWPP staff, local fire departments, the Regional Hazmat team, and the Ohio EPA are on call 24/7 responding to releases that have impacted or have the potential to impact groundwater, surface water and soil. Groundwater investigations and remedial measures are implemented as appropriate.

6. **Transportation:** Highway, Railcars, Terminals, and fuel lines are located in the SWPA.
7. **Direct conduits** to groundwater include: Underground storage tanks, dry wells, septic systems, retention/detention ponds, subsurface pipelines, abandoned wells, abandoned underground infrastructure, and underground injection wells.



8. **Contaminated Sites** that are under federal and state administrative orders, abandoned/vacant sites, Brownfield sites, and sites on the Superfund/National Priorities List are located in the SWPA.
9. **Upstream surface water sources** as determined through conjunctive delineation extending ten miles upstream from the surface water intakes and 1,000 feet upstream from tributaries.

## ADDRESSING THE POTENTIAL CONTAMINANT SOURCES

The Source Water Protection Area is comprised of three districts, the Water Operations District (WO) the Water Protection District (WP), and the Water Resource Area (WR). The WO and WP districts comprise the inner protection area and are bounded within the one-year time of travel. The WR represents the outer protection area and is bounded by the five-year time of travel. The goal of the SWPP is to balance a safe, abundant drinking water supply with continued economic development. The six innovative components of the program administered for source control are: 1. Having a Multi-Jurisdictional approach; 2. Financial assistance and incentives for business owners; 3. Zoning land use regulations; 4. Forming partnerships with the business community; 5. Emergency response; and 6. The programs and methods employed:

### Multi-Jurisdictional

Since the geographic boundaries of the WP (one-year time of travel) and the WR (five-year time of travel) protection areas extend beyond Dayton's borders into Harrison Township, Riverside, Vandalia, Huber Heights, and Wright-Patterson Air Force Base, the cooperation of neighboring communities is a key component of the SWPP as water knows no political boundaries. All of the jurisdictions within the designated protection area voluntarily adopted zoning land use control ordinances and are full participants in the SWPP.

### Funding

In 1988, the Source Water Protection Board (Board) was established to administer funding for the SWPP. The Source Water Protection Fund (Fund) derives from a surcharge to all water customers. The Fund provides financial incentives to SWPA businesses for risk management, risk reduction, and pollution prevention activities. The Fund also provides financing for SWPA staff, emergency response, groundwater investigations, groundwater monitoring, permanent removal/reduction in chemical inventory through the Risk Point Buy Down Program (this successful program has been responsible in permanently removing 28 million pounds of chemicals), the implementation of remedial measures, and training/education activities to businesses and citizens.

### Zoning Land Use Restrictions and Prohibited Uses

The 1988, SWPP legislation enacted a Zoning ordinance to enhance source water protection efforts including the creation of two zoning districts: The Water Operations District (WO) defined as the property under control of the

water supplier where the production wells are located; and the Water Protection District (WP) that includes all additional property within the one-year time of travel. The WO/WP regulations supplement the uses permitted in the Zoning ordinance and include chemical quantity and use restrictions. The Water Resource Area (WR), added in the 2015 amendments, is not enforced under the Zoning Code and does not include chemical quantity and use restrictions. The WR represents the outer protection area and is bounded by the five-year time of travel.

**Partnerships**

The SWPP is committed to partnering with businesses, community organizations, and residents to protect the drinking water for future generations. The business partnerships are based on a cooperative strategy that enhances the reduction of risk through best management practices and risk reduction strategies employed on site. The SWPP assists businesses with initiatives such as:

- Employee Lunch & Learns,
- Determining the type of information desired and how to provide,
- Addressing any concerns that present a risk to groundwater through use of the Fund, and
- Recognition for Source Water and Drinking Water protection efforts.

**Emergency Response**

The SWPP includes a strong emergency preparedness and response element.

- Addresses within the Source Water Protection Area are flagged in the **911** System so the operator will be prompted that the location of the spill is within an area of public water supply concern.
- Signs have been posted in key areas identifying the area as a groundwater sensitive area. The signs display **911** as the number to call when reporting chemical spills.
- A contingency fund is maintained for emergency responses.
- An environmental engineering firm is under contract to perform comprehensive field investigation and remediation capabilities within 48 hours of request.

**Programs**

The **WO** is defined as the property under control of the water supplier and is located in the City of Dayton. The **WP** includes all additional property within the one-year time of travel located in Dayton and the outlying jurisdictions. The **WR**, the five-year time of travel, also includes Dayton and the Multi-Jurisdictional partners. Below are the programs, methods, and restrictions used for tracking, reducing, and eliminating potential contaminant sources.

**WR, WP, WO**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Inspections</li> <li>• Training / Education</li> <li>• Financial incentives (Fund)</li> <li>• Site Risk Assessment</li> <li>• BMP Implementation</li> <li>• US and Ohio EPA Database</li> <li>• Investigation Well Network</li> </ul> | <ul style="list-style-type: none"> <li>• Emergency Response</li> <li>• Fire Department Staff Assistance</li> <li>• Consulting Assistance</li> <li>• Real-time Telemetry</li> <li>• Spill Prevention &amp; Response Plan Assistance</li> <li>• Conservation Easements with Use of Fund</li> <li>• Blue-Gold Certification</li> </ul> |
|--|---|

**WP, WO**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Land Use Restrictions</li> <li>• Risk Point Buy Downs</li> </ul> | <ul style="list-style-type: none"> <li>• Total Maximum Daily Inventory (TMDI)</li> <li>• Prohibited Uses</li> </ul> |
|---|---|

**WO**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• No Increase in TMDI Allowed</li> </ul> | <ul style="list-style-type: none"> <li>• Ground Leases with Environmental Requirements</li> </ul> |
|---|---|

## REDUCING THE RISK OF GROUNDWATER CONTAMINATION THROUGH PROTECTIVE STRATEGIES

### Education: Public and Business

Having an educated, aware, supportive, and involved consumer base is essential for the success of the SWPP. Both the Storm Water Management and Source Water Protection Programs activities include:

- **PROGRESS News:** PROGRESS News is a quarterly newsletter for the businesses, realtors, attorneys, elected officials, and the residential community in the SWPA.
- **Lunch & Learns:** Lunch & Learns for businesses in the SWPA are provided. These presentations or demonstrations include topics identified by businesses such as the use of the Emergency Response Guidebook, spill response, spill kit use, chemical storage, and proper labelling.
- **Risk Assessor & Contractor:** A contractor with technical expertise, working in conjunction with the Risk Assessor, is available to assist businesses in pollution prevention efforts with a Site Risk Assessment.
- **Guide for Starting a Business in the Well Field Protection Area:** The Guide contains information pertaining to the reporting of Regulated Substances.
- **Recognition:** The Groundwater Guardian Community Awards, Groundwater Foundation Green Site Designations, Blue-Gold Certifications, Dayton Regional Green Certifications, and any other awards or designations are presented to SWPP participants and businesses.



- **Multi-Jurisdictional meetings:** SWPP Jurisdictions and staff meet on a quarterly basis to review issues that may have an impact on the SWPP.
- **Children's Water Festival:** In 1997, the first Children's Water Festival was held. Each year approximately 1,600 4<sup>th</sup> grade students attend the one-day hands-on educational event.
- **Tours:** The Divisions of Water Supply & Treatment (WS&T) and Water Reclamation provide tours of the plants and in-house laboratories.
- **Public Outreach:** Presentations and booths are utilized for disseminating information to Neighborhood Associations, higher educational institutions, public group meetings, the City Commission, schools, and at other events.
- **Videos** pertaining to SWPP are shown on City of Dayton Television Network (CDTN) and the Department of Water website.
- **Presentations:** Presentations are given at the Water Management Association of Ohio Conference, Groundwater Guardian Conference, AWWA Conference, OTCO Training sessions, and other similar functions. Annual updates are presented to the Ohio EPA, EAB, and WS&T.
- **Signage:** Signs are posted in areas of high visibility to both traffic and public use in the SWPA. The signs indicate that the area is a groundwater sensitive area and any environmental emergencies should be reported by calling 911.
- **Consumer Confidence Reports:** WS&T provides annual Consumer Confidence Reports. (Available on line)



- **Environmental Advisory Board (EAB):** The EAB is a group of citizens with scientific and environmental expertise that advise the Dayton City Commission on local environmental issues. Quarterly updates are presented to the EAB.
- **Representing the City at Community Organizations** by serving on various state and local boards and committees.
- **Department of Water Employees:** “To have passionate, knowledgeable, and professional employees committed to delivering exceptional service” is a goal of the Department of Water. To this end, employees receive tours of plants and presentations on the various aspects of the Department. Source Water Protection and the well fields are a component of this training.
- **Emergency Response Exercise:** The Department of Water holds an annual exercise to maintain a competent work force to ensure continued service to water customers. As Dayton supplies water to the region, other City departments, outside agencies, and local organizations are also involved in the exercise.

### **Source Control Strategies**

Three ordinances were passed that established specific requirements/actions to be used to reduce the risk of groundwater contamination from specific potential contaminant sources.

The City of Dayton Source Water Protection Program sections are located in Chapter 150 of the Revised Code of General Ordinances (R.C.G.O.), Zoning Regulations. The cornerstone of the effort to prevent new risk to the public water supply is land use control zoning. The Zoning Code defines the Total Maximum Daily Inventory (TMDI) as the maximum amount of regulated substances that a business will have on site at any one time and the Facility Hazard Potential Rating (FHPR) as the toxicity rating between one and nine, with nine being the most toxic. These limits establish the quantity of Regulated Substances for any existing or future use of the site. It also defines Source Prohibitions (prohibited uses) for the SWPA. Any existing prohibited uses are grandfathered, but expansion is prohibited. The Multi-Jurisdictions have adopted zoning ordinances to mirror these protection efforts.

The City of Dayton Source Water Protection Program, Chapter 53, located in the R.C.G.O., Water Department Regulations mirrors the zoning ordinance. It also establishes additional requirements (Source Restrictions) such as: inspections by staff, chemical reporting of inventory, emergency notification, fines, cessation of use, conservation easements, and a risk screening ranking.

The establishment of the Source Water Protection Board to administer the Source Water Protection Fund (Fund) is a key element in achieving success with the risk reduction/preventive activities. Starting in 1988, a fee is collected as a Source Water Protection charge, assessed to each City of Dayton water customer, to finance protection methods. In addition to risk reduction/preventive activities, the Fund also supports and finances other programs such as: emergency response, groundwater investigations/monitoring/remediation, educational activities, SWPP staff (Fire Prevention, Economic Development, Risk Assessor), consultants, Multi-Jurisdictional staff contracts, and Public Health-Dayton & Montgomery County Environmental Specialists.

### **Contingency Plan**

The Contingency Plan addresses both the Emergency Response Plan (ERP) and Water Supply Planning to ensure an adequate supply of water for future population needs.

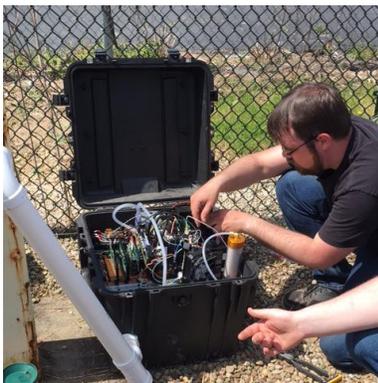
Dayton’s ERP provides staff with the specific information and the directions necessary to respond to an emergency that could affect the quality and/or quantity of drinking water. While the protection and safety of staff and the public is of immediate concern, the repair and return of the system to normal operations is a critical objective. The City’s Emergency Response Plan may be reviewed upon request. The ERP provides the procedures to be followed for: Spill Response, Emergency Response, Drinking Water Shortage, Alternative Sources, Coordinating with Local Emergency Responders, and Chain of Command.

For long-range quantity planning to ensure an adequate supply of water for future population needs, Dayton is developing a third well field, known as the Miami North Well Field. This well field was included in the delineation model and therefore is protected by the program. For very long-range contingency planning, Dayton has also purchased suitable land along the Mad River northeast of its Mad River Well Field.

### **Groundwater Monitoring**

The SWPP uses three important groundwater monitoring strategies to track and prevent the introduction of adverse impacts to water quality into the production wells:

- 1) First is to monitor the quality of groundwater within and surrounding the well field areas. Monitoring the quality of groundwater within the capture area of the production wells (WO) can provide “early warning” of impending water quality problems. This allows the City an opportunity to assess appropriate response actions. The Monitoring Wells (MW) that comprise the early warning system are routinely sampled. Many MWs are located down gradient from known or potential sources of contamination. In addition, some MWs are located to fill gaps in coverage so the City can detect and respond to an event. This monitoring program is managed by the Department of Water, Divisions of Water Supply & Treatment (WS&T) and Environmental Management (DEM).
- 2) Second is to investigate groundwater plumes within the one year (WP) and five year (WR) time-of-travel areas. DEM manages the investigation of known and potential groundwater contamination in the three districts that comprise the SWPA: the Water Operations District (WO), the Water Protection District (WP), and the Water Resource Area (WR) using a monitoring Well (MW) network that identifies potential risks and possible sources of contamination through plume delineation, sampling, and data management to provide for contaminant tracking.
- 3) Third is to prevent plumes from affecting the WO. By employing interim remedial measures through groundwater extraction and treatment via interceptor wells and air stripping systems, Dem, in conjunction with WS&T, manages the Interim Remedial Measure Well (IRM) network. The IRM network is designed to induce hydraulic control of existing VOC-contaminated groundwater and treat the groundwater through extraction and treatment via the interceptor wells and air stripping systems.



In addition to the three groundwater monitoring systems, the SWPP:

- Is actively pursuing the development and implementation of automated groundwater micro GC samplers for real-time groundwater quality data monitoring and installing telemetry equipment for real-time water level data collection,
- Reviews groundwater monitoring data from remediation sites that are under federal and state administrative orders, Brownfield sites, and sites on the Superfund/National Priorities List,
- Periodically creates potentiometric maps to show the directional flow of groundwater relative to the water supply wells, and
- Offers Site Risk Assessments to SWPA business to improve upon the handling of Regulated Substances.

## MEASURING PROGRAM EFFECTIVENESS

The Multi-Jurisdictional Source Water Protection Program (SWPP) is an example of local government at its finest. Business leaders, citizens, and community organizations throughout the region combined their talents to create an effective and innovative program. The SWPP has, is, and will continue to provide quality drinking water to all customers by protecting and preserving the Great Miami Buried Valley Aquifer.

**Technology:** The SWPP actively pursues the use of innovative and precise technology in assuring water quality is maintained on a real-time basis. The development and implementation of automated groundwater micro GC samplers for real-time groundwater quality data monitoring is in process and telemetry equipment for real-time water level data collection is being installed. Production wells are periodically taken out of service for pump repair, pump replacement, and well cleaning by WS&T. A SCADA system is used to monitor production wells, well field flows, packed tower aeration systems, recharge systems, continuous water quality analyzers, the Lime Reclamation Facility, clear wells, pumping stations, and water storage facilities in the distribution system. Several production wells in both well fields are “emergency ready” and equipped to be quickly powered-up by a large generator in the event of a crisis.



**Activities:** The SWPP rigorously supports the personal, financial, and scientific approaches in efforts to reduce current and prevent new risks to the aquifer. Having an Emergency Response component to the program has allowed staff to offer assistance to businesses and agencies. The Program has also assisted businesses in seeking funding for costs associated with clean-ups and has recovered costs associated with clean-ups from the responsible party. Businesses have been encouraged to reduce their chemical inventory through the Risk Point Buy Down Program. As a result, over 28-million pounds of chemical inventory have been permanently removed. The removal of USTs and dry wells has been funded by the Fund. Plume remediation and groundwater monitoring continue to be proactive risk reduction and risk prevention groundwater protection efforts. The Risk Screening and Site Risk Assessments are new programs being implemented to assist in prioritizing risk reduction projects.

**Prominence:** The SWPP acknowledges that having a public presence is an important element in establishing and maintaining support. The SWPP staff provides the expertise to give presentations to community organizations, educational institutions, and at conferences. Lunch & Learns are provided to SWPA businesses on topics of interest. The annual Consumer Confidence Report shows that all Ohio EPA Water Quality Standards are met. A national presence is sustained by our recognition as a Groundwater Guardian Community since 1995. To publically honor the Program supporters, they are recognized at the Children’s Water Festival Recognition Luncheon.

**Partnerships:** The SWPP continues to champion a Multi-Jurisdictional collaborative approach in our protective efforts. Maintaining current and forming new partnerships with the business community, Chamber of Commerce, officials (Ohio EPA, EAB, Public Health-Dayton & Montgomery County, Miami Conservancy District), community organizations, and educational institutions have proven to be vital components for the Program’s success.

Source Water Protection Is an environmental challenge which historically deferred to federal and state government programs. Dayton has successfully addressed this challenge with ownership and commitment.

CITY OF DAYTON  
**water**  
one source  
Regional • Reliable • Renewable

For further information contact the City of Dayton, Division of Environmental Management at (937) 333-3725 or contact the jurisdiction's corresponding department/office listed below:

**City of Dayton, Office of Economic Development**

Senior Development Specialist  
(937) 333-3634  
daytonohio.gov

**City of Riverside**

Director, Planning & Economic Development  
(937) 233-1801  
riverside.oh.us

**City of Dayton, Department of Water**

Environmental Scientist  
(937) 333-3725  
daytonwater.org

**City of Vandalia**

City Planner  
(937) 415-2301  
vandaliaohio.org

**Harrison Township**

Zoning Manager  
(937) 890-5611  
Harrisontownship.org

**Public Health – Dayton & Montgomery County**

Sanitarian Supervisor  
(937) 225-4443  
phdmc.org

**City of Huber Heights**

City Engineer  
(937) 237-5816  
hhoh.org

**CityWide Development Corporation**

V.P., Housing and Economic Development Services  
(937) 222-0457  
citywidedev.com

**Wright-Patterson Air Force Base**