Regional Cooperative Efforts for Source Water Protection

An Overview of the

Groundwater Consortium

Indiana Water Summit

August 22, 2024

Who is The Consortium?

The Consortium consists of seven large and small public and private groundwater suppliers and users in Southwest Ohio north of Cincinnati

MOLSON COORS beverage company

the Groundwater Consortium
Hamilton to New Baltimore Area

BC water & sewer
Butler County
OHIO
Board of Commissioners
Butler County, Ohio

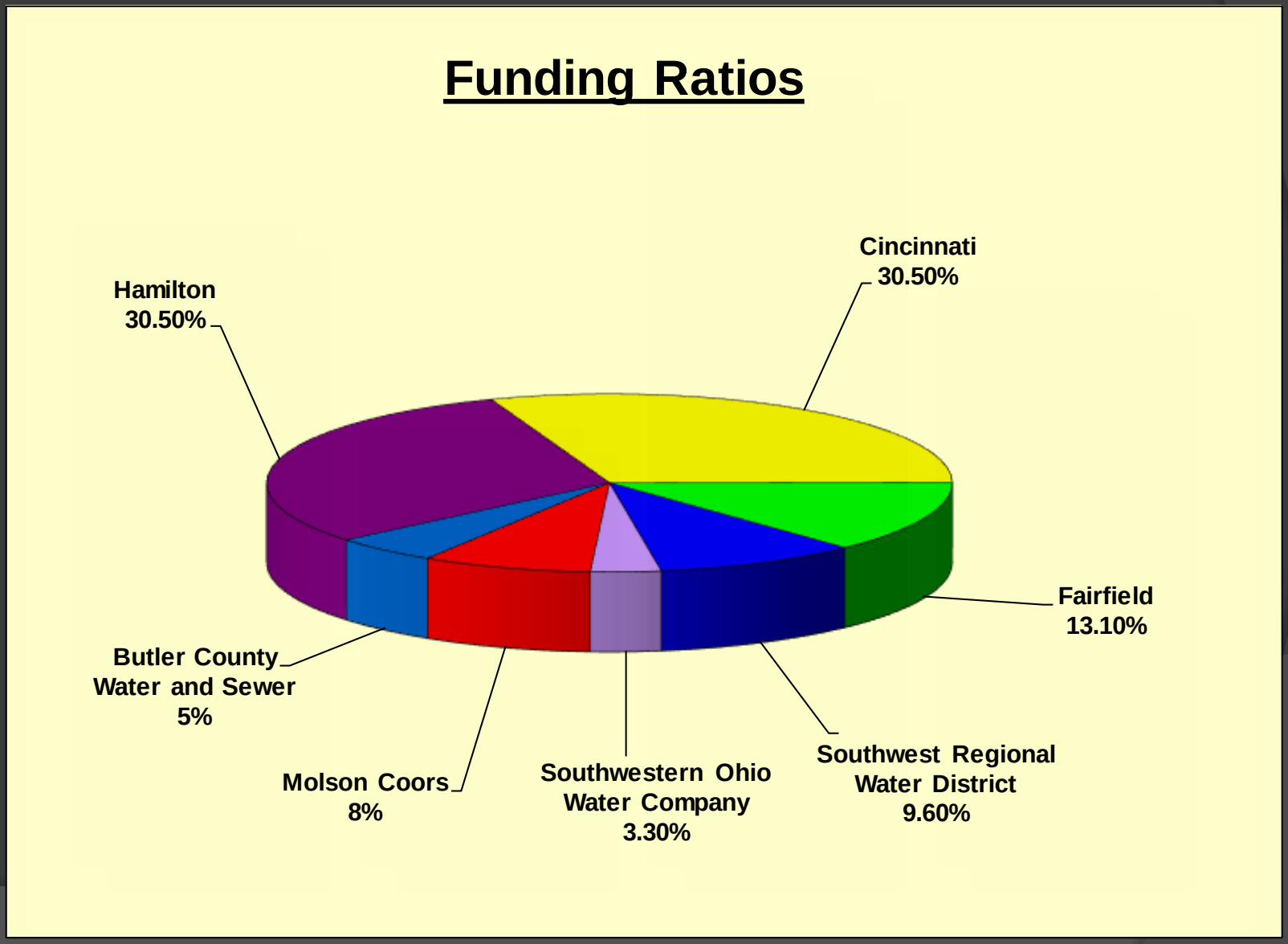
Brief Consortium History

- A very large water system planned to develop a well field in Fairfield, OH in the early 1960s.
- Lawsuit filed (surrounding communities worried they would “dry up” the aquifer).
- Consortium formed, in part, by order of a judge to open lines of communication among water suppliers.
- 1986 Safe Drinking Water Act WHP
- 1996 Safe Drinking Water Act SWP

The decision to participate in and fund the development of a joint SWP program was based on several key factors including:

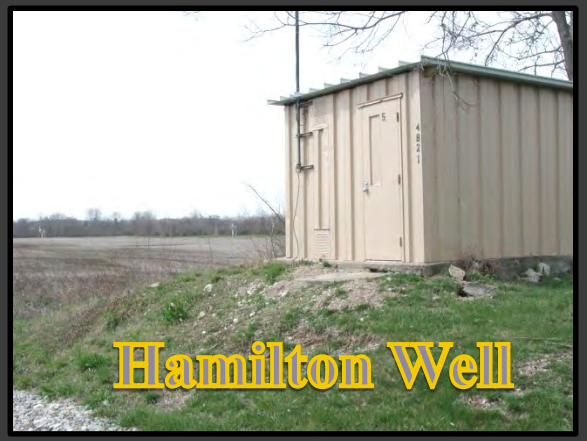
- Overall cost savings for all the members
- Hydro geologic complexity of the area and close proximity of the wellfields
- Knowing the boundaries of the Source Water Protection Areas
- The Lack of zoning control for two of the members

Consortium Funding Breakdown



Members pump on average 62 million gallons of groundwater per day

- Examples of individual water supply well….



- Drinking water protection areas cross several jurisdictional boundaries.
- There are over 315,000 water customers and several hundred companies that rely on the groundwater source in our region.

Components of the Consortium's Source Water Protection Program

- Delineating (identifying) the SWP areas
- Potential Pollution Source Inventory
- Management - Regulatory and Non Regulatory
- Groundwater Monitoring
- Contingency Planning
- Public Education
- Alternate Water Supply Planning

Why Source Water Protection

- SWP is one of the first critical barriers against drinking water contamination and other risks to drinking water supplies.
- Protecting source water from contamination can reduce treatment costs.

Why Source Water Protection?

- ***Pollution prevention more cost-effective***
  - Estimated to be 40 times more costly to clean up contamination than prevent it

Chem-Dyne in Hamilton has had 40 years of clean up and they still have not removed all of the Contamination

Chem-Dyne was one of the largest Hazardous Waste Sites in Ohio History

In July 1980 there were over 30,000 drums. Most unlabeled and on an impervious surface.

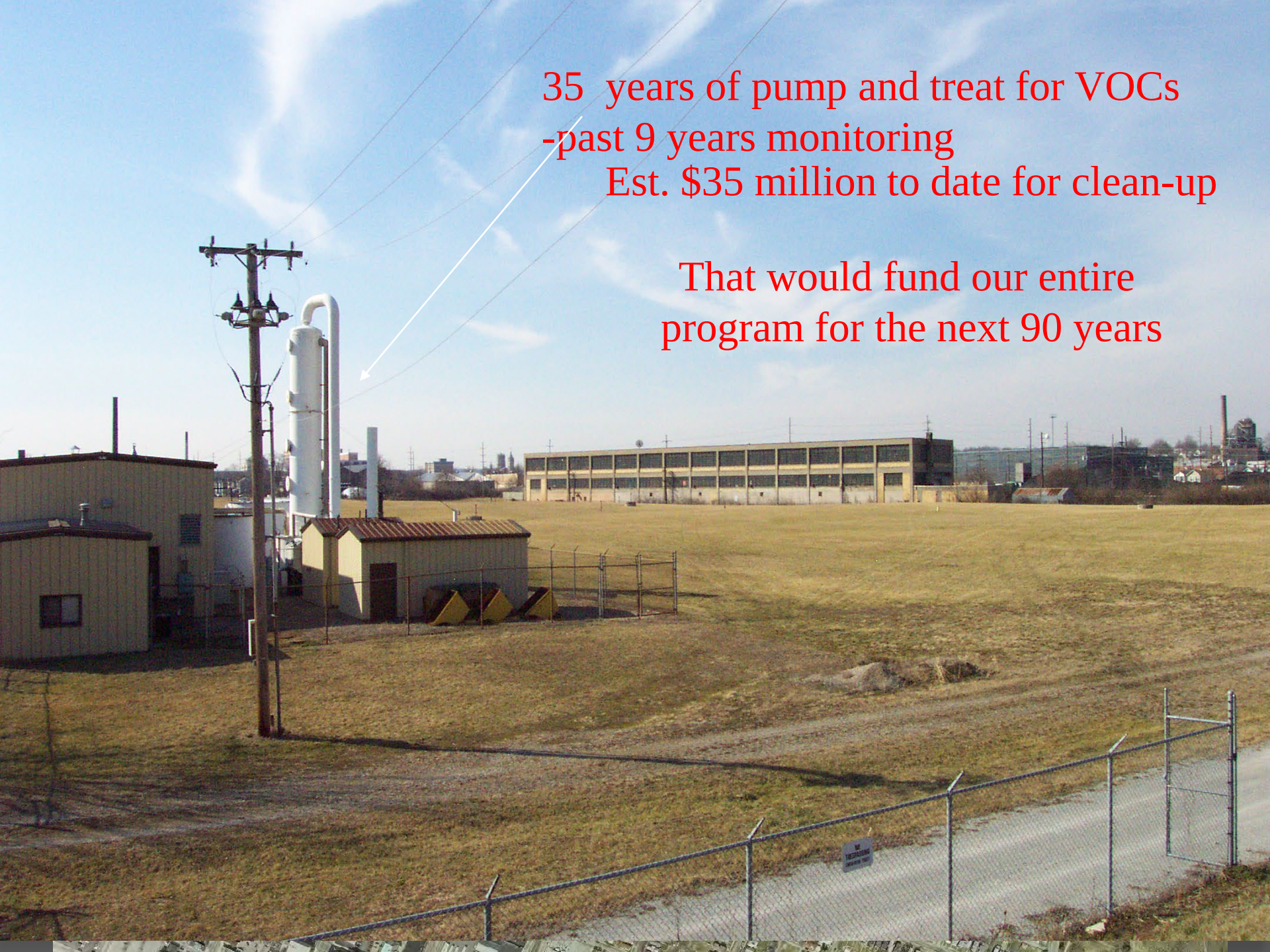
Over 300,000 gallons of hazardous waste on site

Photo Courtesy of Ohio EPA

Improperly labeled drums

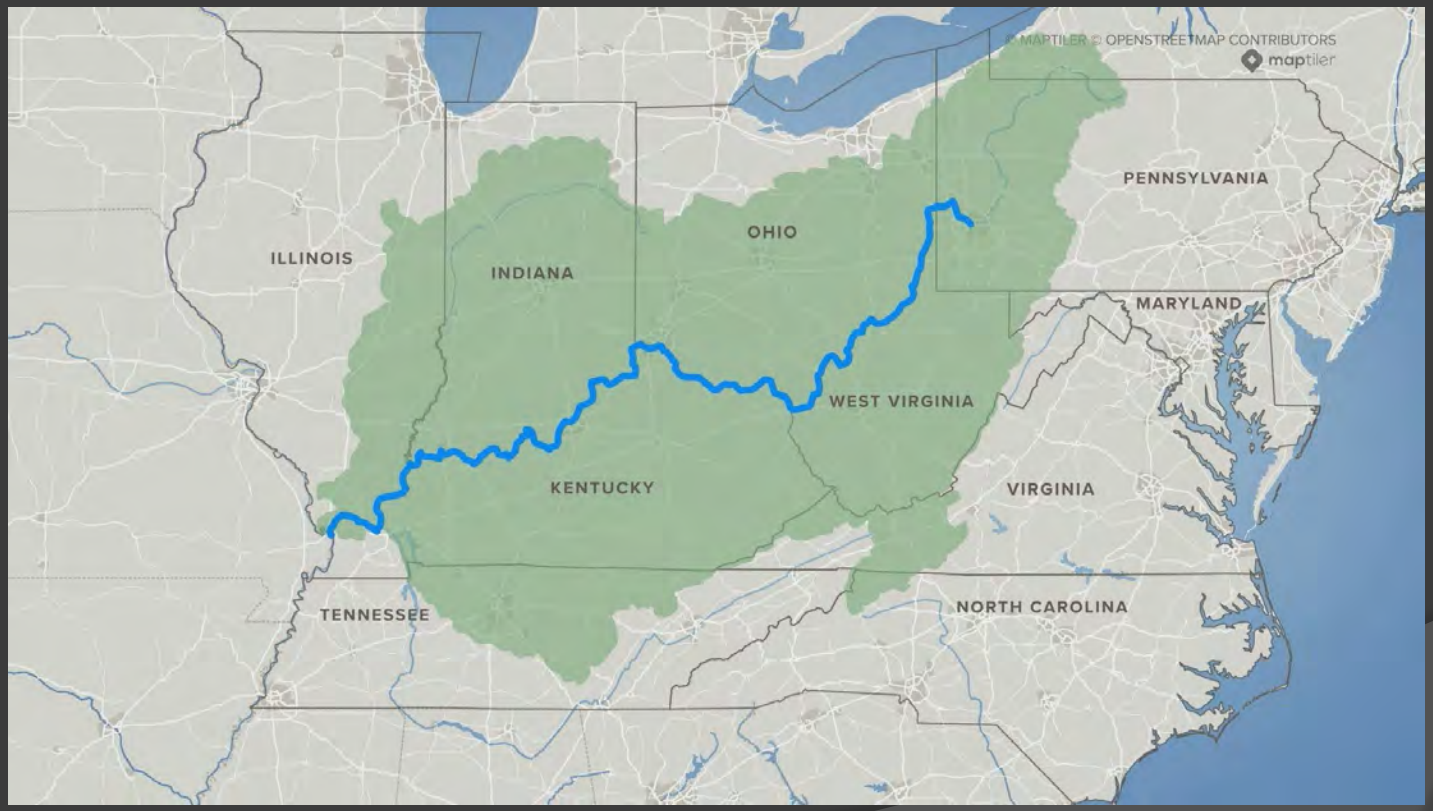
Stored outdoors on gravel lot
Many drums leaked VOCs,
Metals, man made solvents, etc

Photos Courtesy of Ohio EPA


35 years of pump and treat for VOCs
-past 9 years monitoring
Est. $35 million to date for clean-up
That would fund our entire
program for the next 90 years

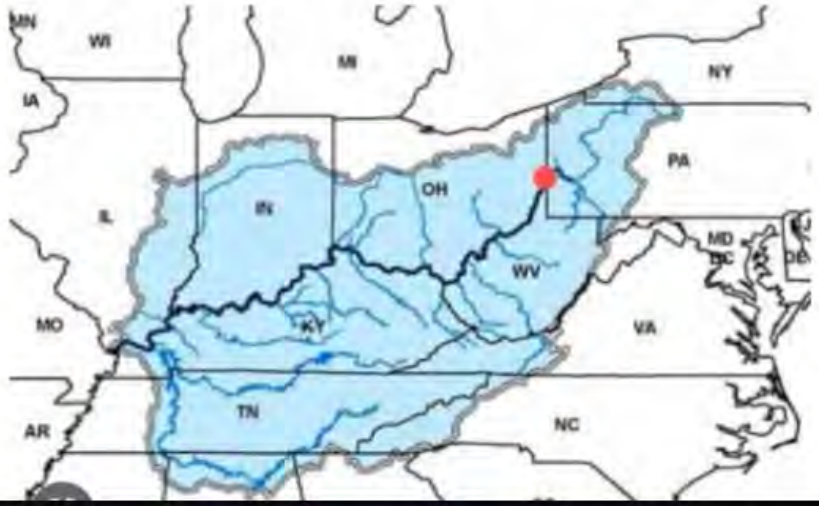
East Palestine Ohio Train Derailment

Misleading information by people on social media such as Twitter, Facebook, Snapchat, Instagram and Tik Tok



Inaccurate Social Media posts...

East Palestine sits almost at the very beginning of the Ohio river basin aquifer that flows Southwest through all these states we can't begin to know just how bad it really is yet



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Search

Posts Reels

Jeff Butterfield
Feb 13 ·

Valdez oil spill was 3,000 sq miles.
Horizon oil spill was 92,500 sq miles.

This shows a 200 mile radius which is 126,000 sq miles.

Governor Mike DeWine you have go... See more

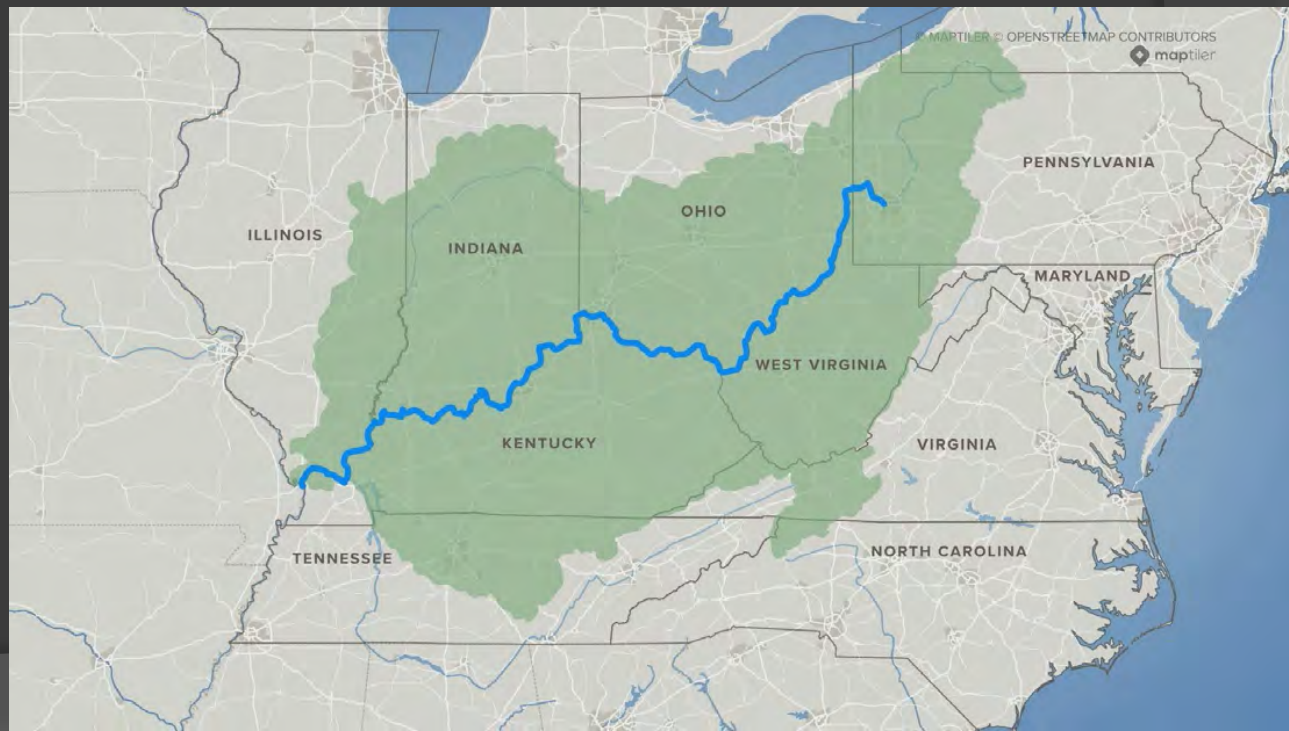
East Palestine is the beginning of the Ohio River aquafiers, it is a 200 Mi radius that will be affected by this disaster

> What happened in East Palestine OH should be NATIONAL NEWS. Vinyl Chloride in our water system. Those MFs

The vinyl chloride blast happened Near the Ohio River. Which runs Southwest and supplies water to this entire area

Ohio River Drainage Basin

This, in fact, is the region of land whose surface water drains into the Ohio River, not the region who gets its water from the Ohio River



The importance of public education and outreach…

- The presentation to Hamilton City Council was broadcast live on local TV
- A local citizen saw my presentation and decided to call me about a crude oil pipeline that became exposed due to river bank erosion.
- I met with the property owner and took a few pictures…

Property owner called the company – they said they would keep an eye on it…

They then contacted Ohio EPA the USEPA, and ODNR but didn't get anywhere.

They contacted us after seeing our presentation on protecting groundwater in the region.

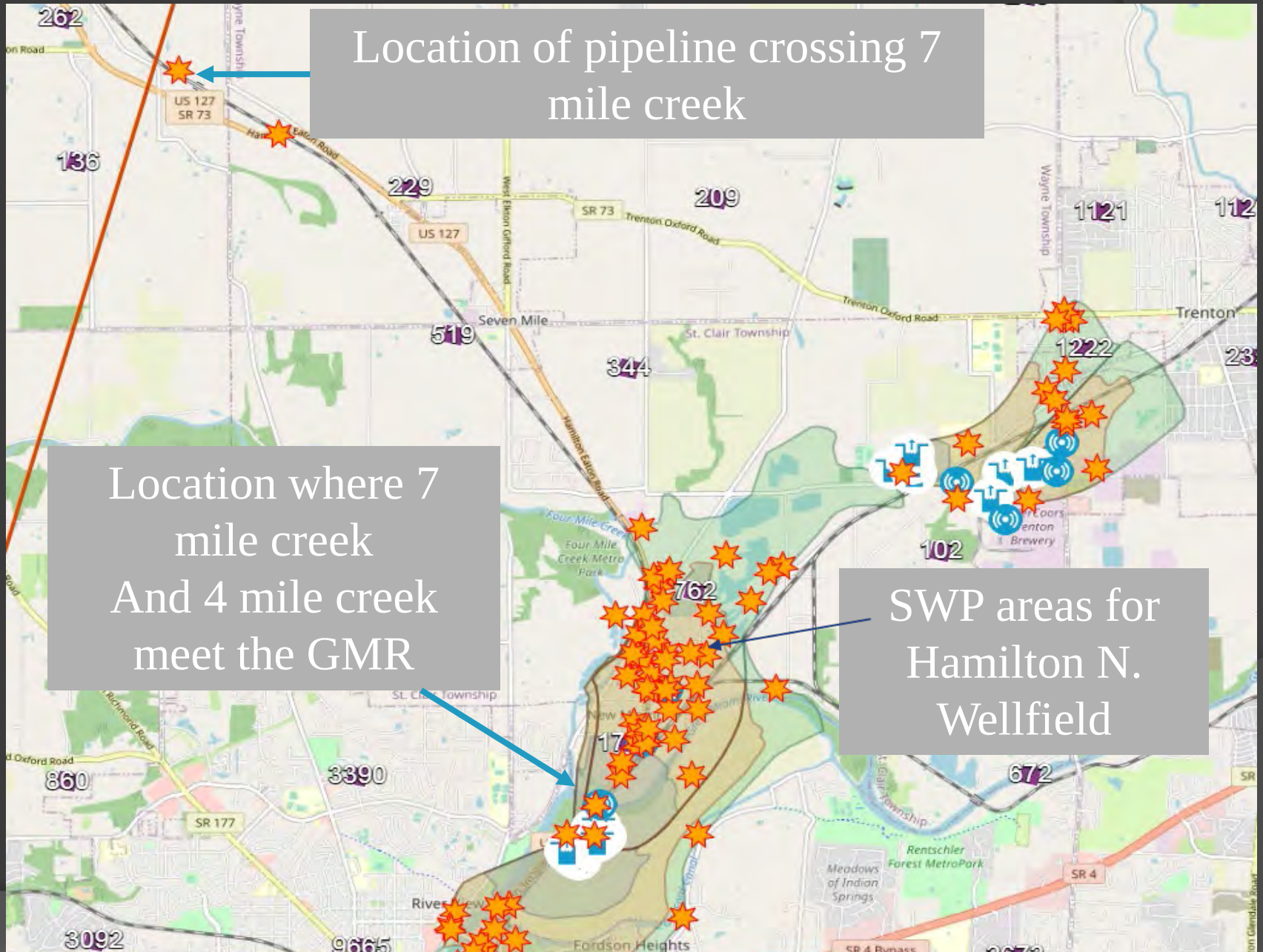
After further erosion of the creek, a tree fell on the pipe.

Pipeline incidents over the years...

- There have been a few incidents with this main in the past including a 20,000 gallon spill in 2015 near our area. Vibration from the pipeline, against a rock caused the pipe to crack/break.
- 130,000 gallon spill in Memphis, TN - several years ago from a lawnmower blade striking the pipeline.

The Consortium Met with the Pipeline Company

- We sent the pipeline company a letter informing them about the sensitive drinking water area
- They agreed to meet and flew in from Texas
- We consider this a big step in opening lines of communication with this company


Location of pipeline crossing 7 mile creek
Location where 7 mile creek And 4 mile creek meet the GMR
SWP areas for Hamilton N. Wellfield
US 127 SR 73
SR 73
US 127
Trenton Oxford Road
West Elkton Gifford Road
Hamilton Eaton Road
Seven Mile
St. Clair Township
Wayne Township
Trenton
Four Mile Creek
Four Mile Creek Metro Park
Rentschler Forest MetroPark
Meadows of Indian Springs
Fordson Heights
SR 177
SR 4
SR 4 Bypass
262
136
229
209
1121
519
344
1222
102
762
17
860
3390
672
3092
9665

Meeting with Mid Valley Pipeline Company…

- They let us know that the regs do not require them to cover the pipe after its exposed, just to monitor it.
- They were NOT aware the pipe crossed through several sensitive drinking water protection areas until we sent our letter
- Based on our letter they agreed to cover the pipe, and prioritize this project since they considered it to be in a “High Consequence” area.
- We asked them if they heard about the E. Palestine incident
- We let them know about the rapid communication and misleading information from the social media “WATER EXPERTS" regarding the E. Palestine incident.
- I was able to get them to imagine the consequences of a release from this pipeline in our area with 7 utilities downstream of this area that would be impacted within 1 hour

They plan to us a submar Mat to protect the pipe and prevent further river bank erosion

A submar mat is a precast concrete mat used in lieu of sand and cement bags for pipeline crossings.

Submar mats are used for:

- Pipeline protection
- Scour and erosion protection
- Pipeline stabilization
- And many other application

Mid Valley Crude Oil Pipeline Facts

- It's a 20" crude oil main
- Installed in 1949 so over 74 years old
- 10,000 barrels per hour flow through main
- Shut-off valves are approximately 16 miles apart
- Longview Texas to that state above Ohio

Next steps for this pipeline project

- They will start work on covering the pipeline on August 26 (next week)
- They plan to have their Table Top exercise on August 28 (next week)
- They expect the work to take about 2 weeks

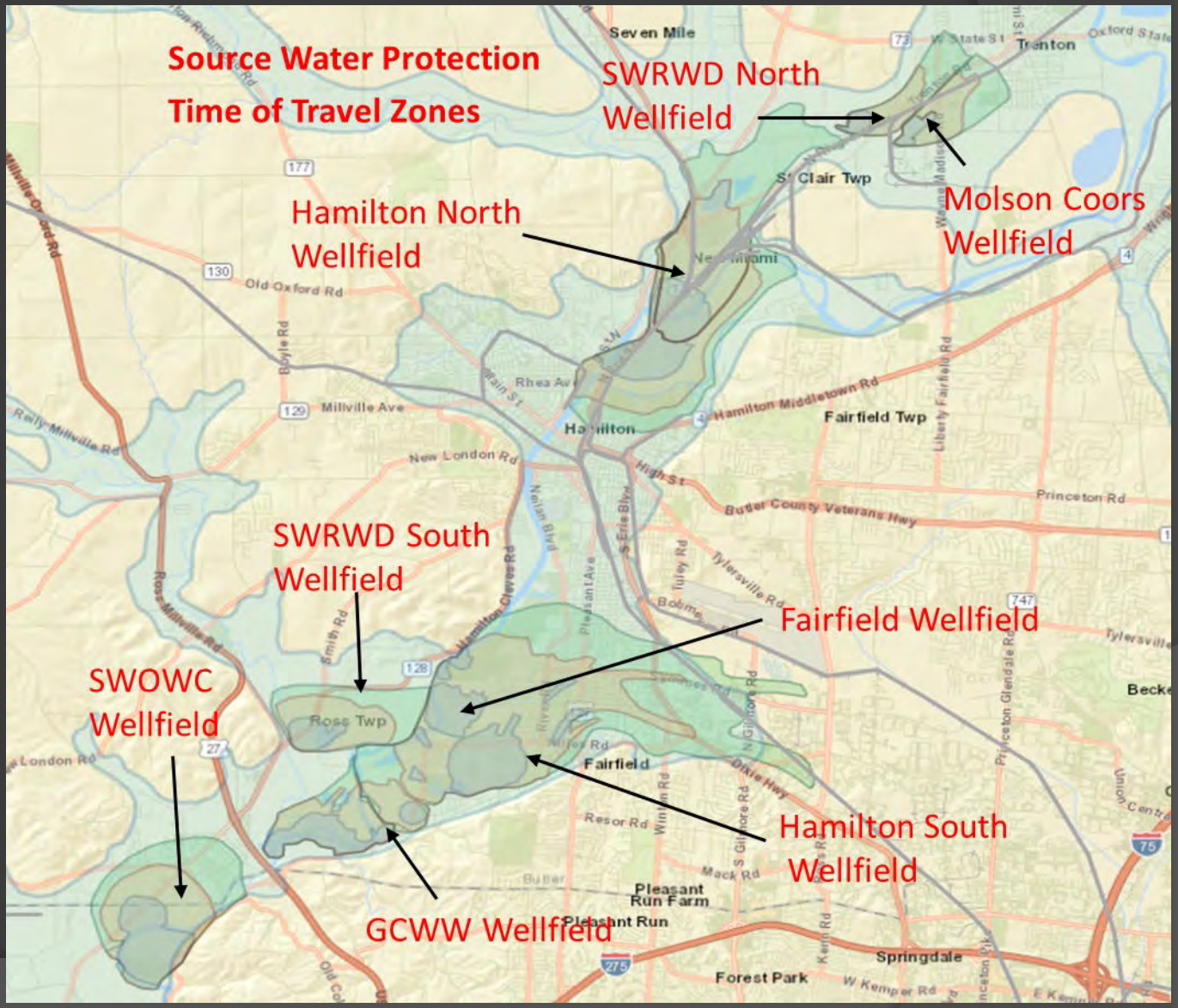
- ***Contamination issues continued…***

  Several southwest Ohio communities are dealing with impacts of expensive groundwater clean-ups.

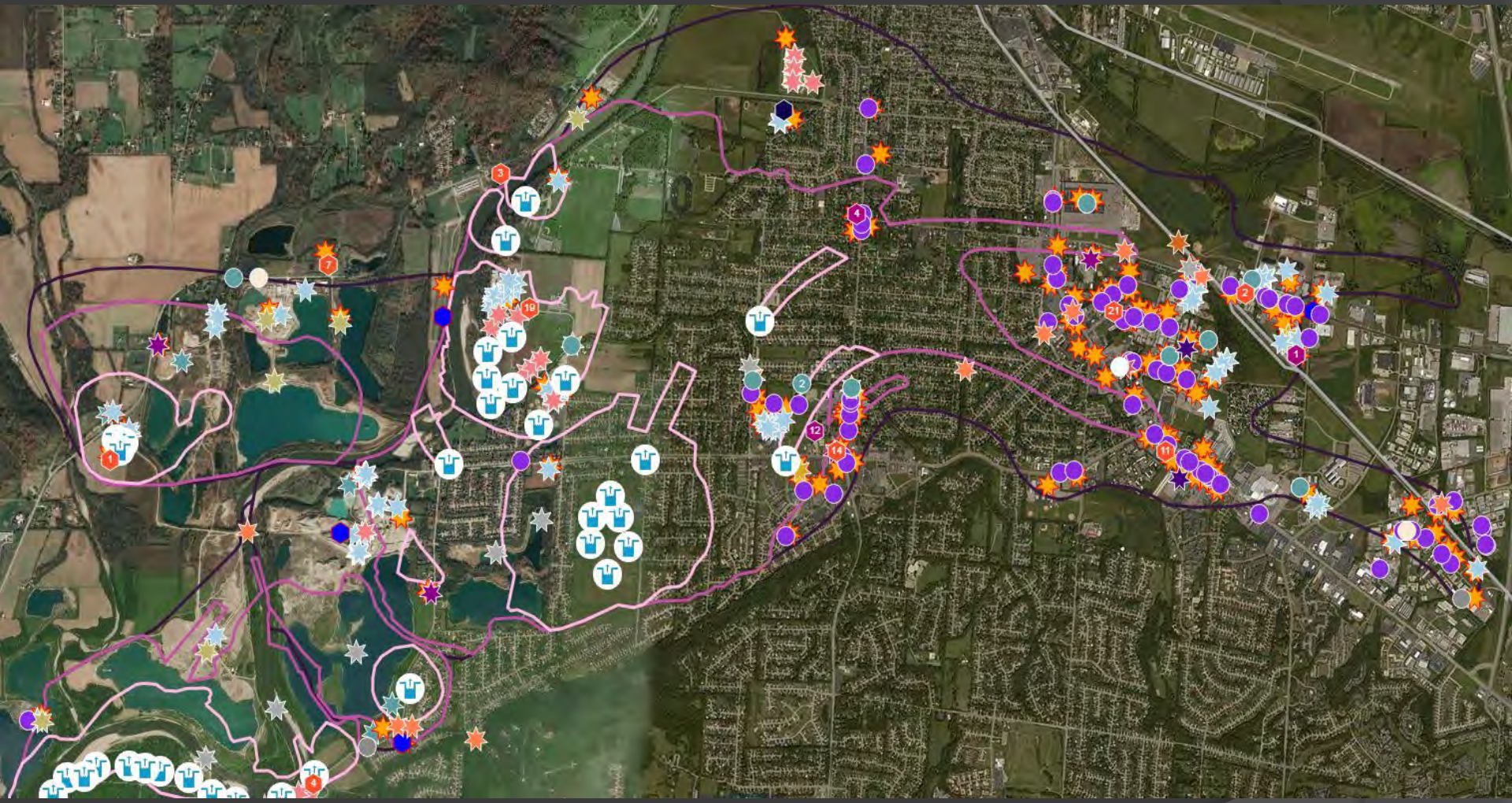
- ***Sole source of water***
  - The Great Miami Buried Valley Aquifer is the only source of drinking water for most of the residents and businesses in our area.
  - Mandate from the Ohio EPA if any water utility wants to install a new well they must have a program in place to protect the Source Water for their existing wells and any future wells.

Wellfield Time of Travel Zones

- Provides footprint of areas contributing to water supply in next 1, 5 and 10 years.
- Contribution zones are called **time-of-travel (TOT) zones**.



Potential Pollution Source Inventory



- There are 400 businesses in the Consortium Potential Contaminant Source Database
- Actual risk depends on location, manner of storage, quantity of material, geology
- The inventory is updated every two years

PPSI (cont.)

- Examples of potential pollution sources in our region:
  - landfills/illegal dump sites/salvage yards
  - chemical/petroleum storage in above and underground storage tanks, drums, etc.
  - pesticide/fertilizer use at golf courses, city parks and recreational areas, residential properties, and agricultural fields
  - Over application of road salt on parking lots, driveways
  - gasoline stations, leaking USTs, auto repair shops
  - abandoned gravel pits and operating gravel pits


700 gallons of Pesticides
OVERSIZE LOAD

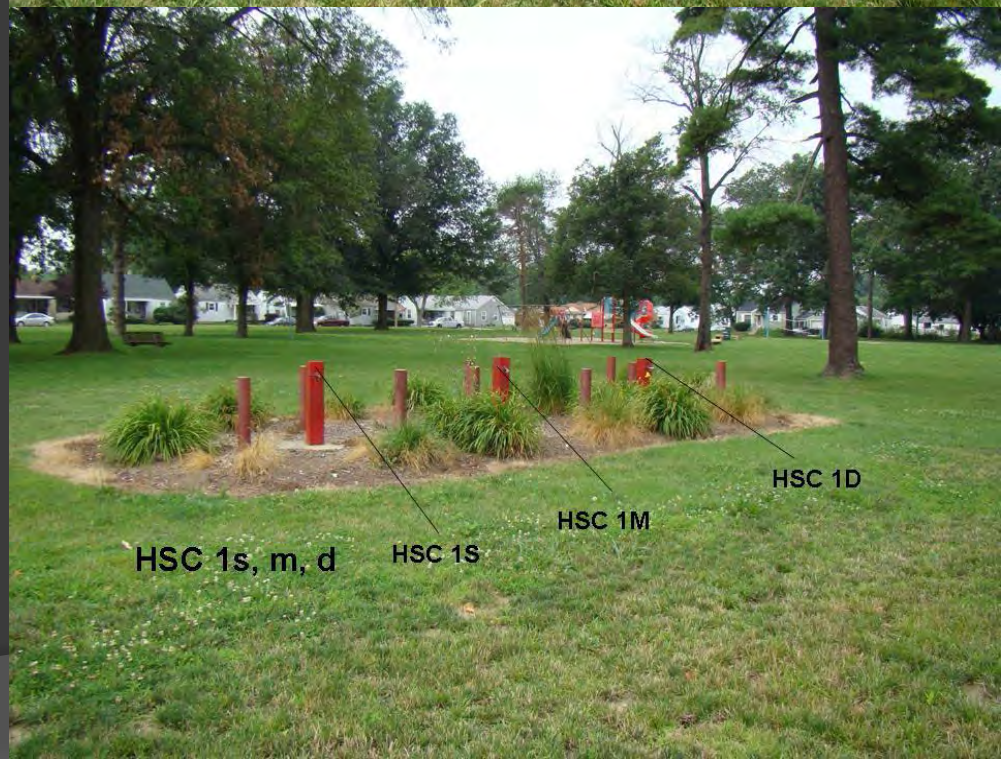
Illegal open dumping almost always creates an opportunity for others to take hazardous waste to the area where nobody is watching

Management Planning

- As part of the management plan to minimize the possible contamination from potential pollution sources, we use three primary approaches:
  - **Assist communities that have adopted SWP ordinances with technical expertise.**
  - **Registrations/Inventories of facilities that request it**
  - **We assist businesses with getting into compliance with local ordinances**

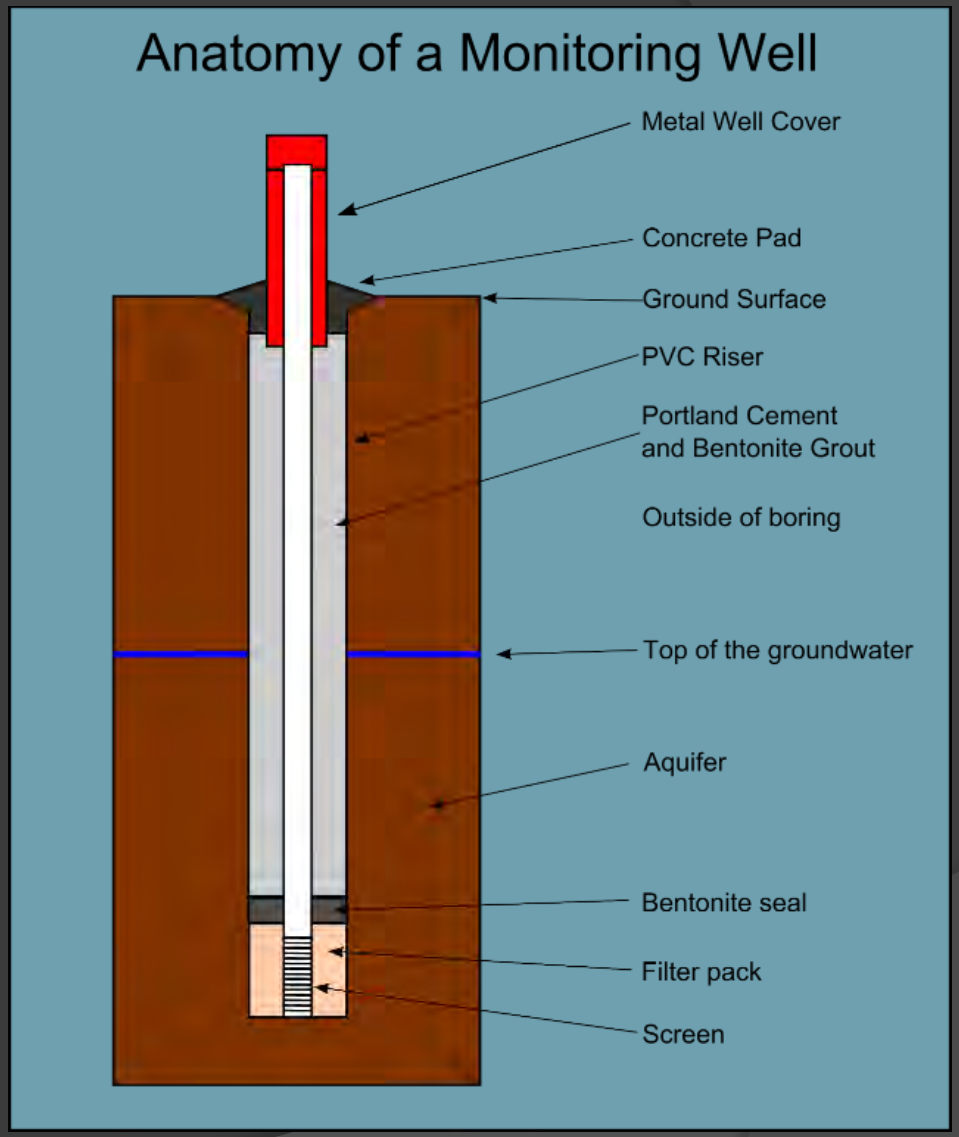
One of the most important components of our work includes a comprehensive monitoring program.

The program is designed to provide early warning of contamination and water level information.

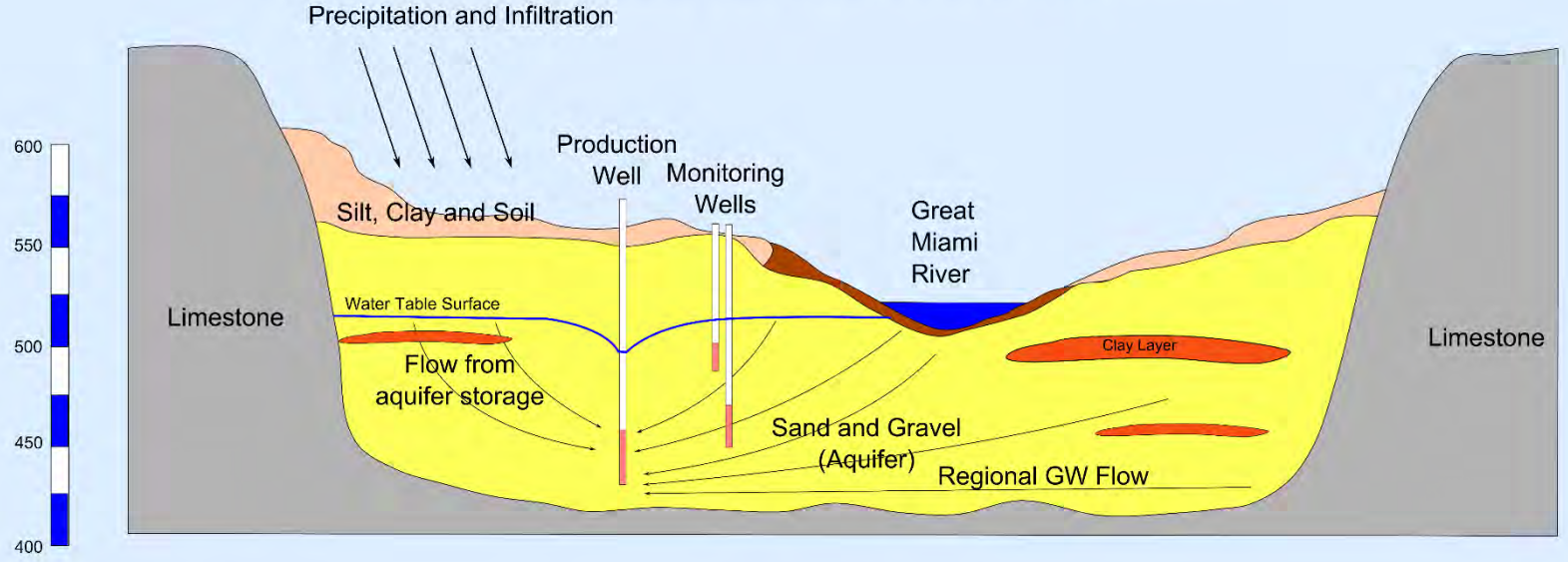


Monitoring Wells

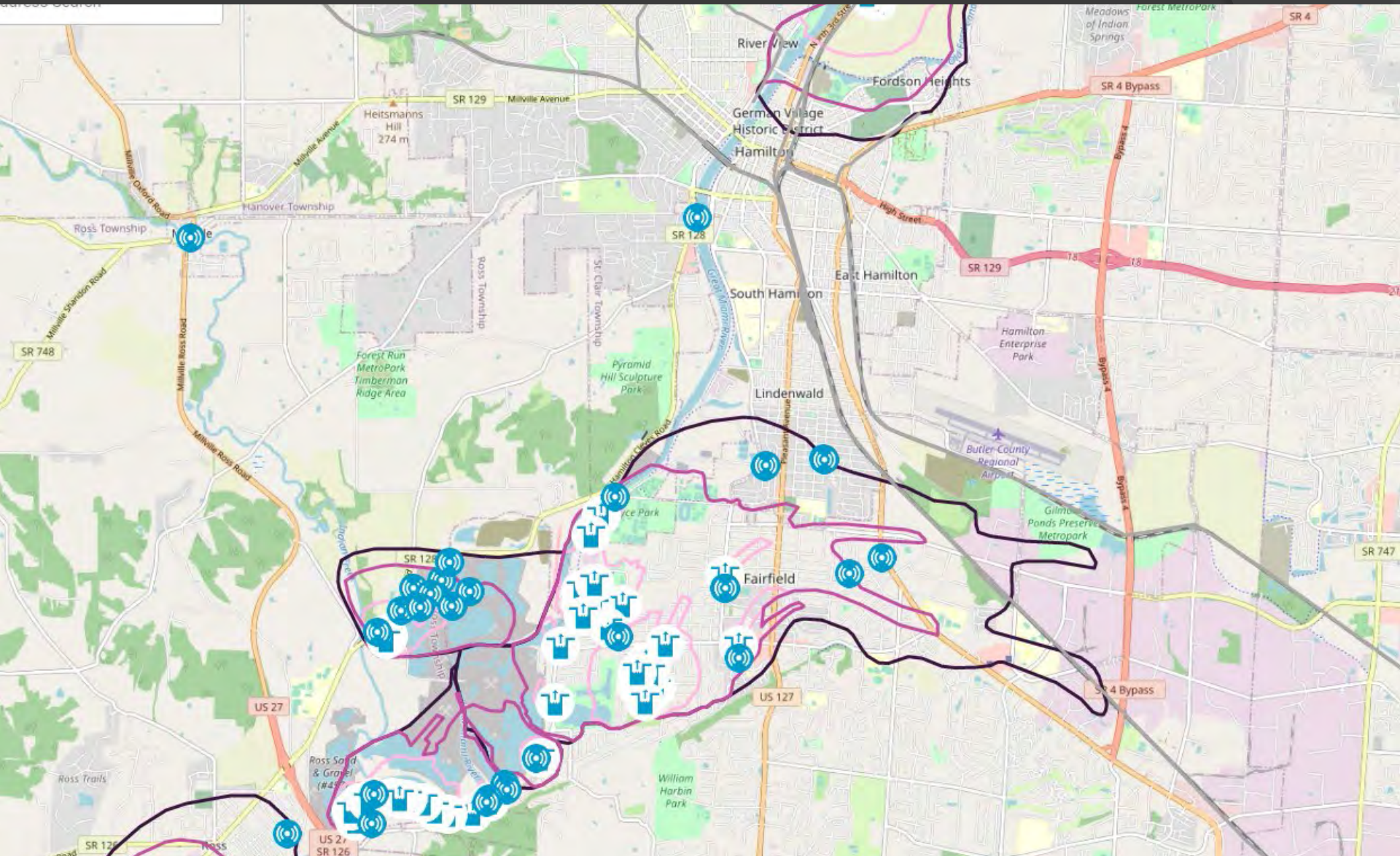
- Typically smaller than production wells
- Useful for collecting groundwater samples and measuring the depth to water
- Consortium wells predominantly the “Stick-Up” variety
- These represent a “conduit” into the aquifer.



Generalized Cross Section of the Southern portion of the Great Miami River Buried Valley Aquifer



Early warning monitoring well network in the Hamilton and Fairfield area



Groundwater Monitoring

- Currently 43 Consortium monitoring wells
- We test for hundreds of different kinds of contaminants that potentially could be in the aquifer
- We evaluate surface water quality on the GMR at six locations quarterly.
- We coordinate efforts with other State and Federal agencies to improve water level data in our area.
- We have access to several hundred wells throughout the region to monitor water quality in an emergency.

Protecting Groundwater Quality

- Monitor long-term chemical trends.
- Identify and eliminate potential sources of contamination.
- Frequent and consistent sampling.
- Monthly water levels and quarterly sampling.
- Try to catch changes as early as possible.

Public Education

- Some of our public education outreach in the past few years included:
  - Planned and implemented the 23rd annual Children's Water Festival
  - Helped plan and implement the 17th Annual Clean Sweep of the Great Miami
  - Used our portable "drinking" water tower
  - Planned and implemented 14th Annual Race for Global Water
  - We give several classroom presentations to many different schools and universities in the region
  - Our goal is to raise awareness about preventing groundwater contamination

23rd Annual Children's Water Festival

Over 1,200 kids and 200+ adults

Thanks to Miami University Hamilton Campus
For letting us “borrow” the Campus

For More Information

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Check out our web site!

www.gwconsortium.org

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