

PROTECTING THE SOURCE

Source Water Protection and Assistance Program

SOURCE WATER PROTECTION ASSISTANCE PROGRAM SEEKS TO ADDRESS THREATS TO GROUNDWATER

Source water is a raw, untreated supply of water – surface or ground – used for current or potential future drinking water. Public drinking water is used every day for a variety of purposes such as drinking, cooking, and basic hygiene, in addition to recreational, agricultural, and industrial activities.

Source water protection is an important, common sense, and cost-effective strategy for keeping water treatment and operation costs down, while also ensuring the protection of public health and providing additional benefits such as improved wildlife habitat and recreational opportunities. The goal is to proactively safeguard, maintain, and/or improve the quality and quantity of drinking water sources and their contributing areas. To that end, the Kentucky Division of Water's Source Water Protection and Assessment Program (SWPAP) was established to provide funding to communities that want to implement source water protection strategies. In 2024, SWPAP piloted a new initiative to help communities wanting to eliminate threats to their groundwater by properly abandoning derelict wells.

Groundwater is an important but vulnerable source of fresh water for drinking, household use, industry, and farming.

It is also the only source of water for many rural areas including private wells and many public utilities. Kentucky's groundwater supply can be polluted by activities both above and below ground. Potential sources of contamination include leaky underground storage tanks, chemical spills, fertilizers, pesticides, acid mine drainage, septic tanks, and leaky landfills. Old and unused wells become conduits for contaminants spilled above ground to reach the groundwater supply, which is why 401 KAR 6:310 Section 11 specifies that all wells must be properly abandoned (plugged) by a licensed driller within thirty days of the well being taken out of service. For smaller communities or utilities with many wells to abandon, the cost can be significant.

Working with Kentucky Rural Water, the Division of Water identified three sites to prioritize for well abandonment assistance.

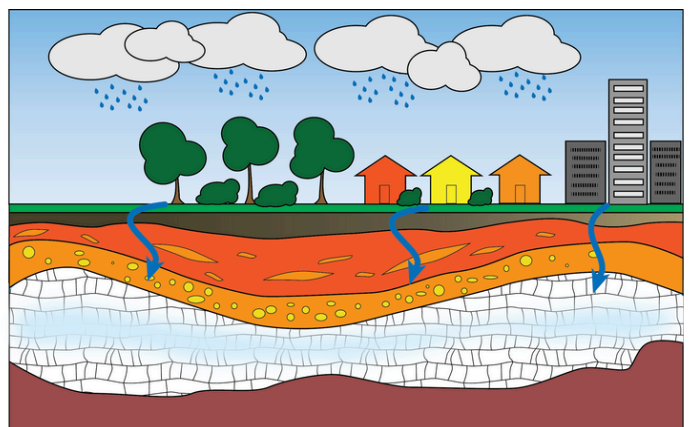


Figure 1. Groundwater is water found underground, in the cracks and spaces in soil, sand, and rock.



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SOUTH SHORE WATER WORKS

In 2019 South Shore Water Works was identified as having high concentrations of per- and poly-fluoroalkyl substances, or PFAS, detected in the city's drinking water which was sourced from the Ohio River Alluvium via water wells. This discovery warranted changing to a new water source (Portsmouth, OH), due to the health concerns associated with exposure to PFAS. As a result, 11 wells were taken out of service and needed to be properly abandoned. The removal of these wells eliminates a potential route of contamination to the aquifer and fulfills the City of South Shore's regulatory requirements.



Figure 2. Well pumps removed from the abandoned wells at South Shore Water Works.

WARSAW WATER WORKS

Warsaw Water Works had two inactive wells that were constructed in the 1930s that were located in the Fire House of the City of Warsaw and had not been in use since 2012. This inactive wellfield used to serve as the city's wellfield but had to be abandoned due to high nitrates. Properly abandoning these wells significantly decreased the potential for contamination to enter the aquifer. Additionally, one inactive monitoring well located in their active wellfield was abandoned. The location of the site made it a high priority due to the potential pollution of the system's main wells.



Figure 3. Warsaw- Gallatin Fire House, location of one well abandonment.



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HARDIN COUNTY WATER DISTRICT #2

Hardin County Water District #2, White Mills Hardin County Water District #2 is a high risk karst spring community water system that had an old unused well within their wellhead protection area and on the water treatment plant grounds that had been identified as a potential direct conduit to the karst spring. The old well was original to the property when purchased by the district and was determined to pose a direct threat to the spring and human safety due to it being a large opening on water district property. Its proximity to the system's main water source and the karst landscape made abandonment of this well high priority.

Across the state of Kentucky there are hundreds of derelict wells that need to be properly abandoned, representing a significant threat to the Commonwealth's groundwater supply.

Going forward the DOW hopes to utilize SWPAP funding to help address this issue, especially in rural and disadvantaged communities, so that Kentucky's critical aquifers are protected and to alleviate some of the financial burden on these areas.



Figure 4. Hardin County #2, White Mills. Sealing the well shaft.



Figure 5. Warsaw Water Works, abandonment.

Figure 6. Drilling rig (left).

