Testimony for PA Senator James Malone's Policy Hearing 'Safeguarding Residential Wells' taking place Nov. 14, 2025 at 2:00 pm at Columbia Crossing River Trails Center, Columbia, PA.

Testimony will be presented by Jodi Sulpizio, Penn State Extension

Good morning. Thank you for the invitation to be part of today's discussion regarding private drinking water. My name is Jodi Sulpizio. I am a natural resources educator for Penn State Extension. I also coordinate the Master Watershed Steward Program in York County. Today, I am here representing Penn State Extension's water team. If you are not familiar with Penn State Extension, we are part of the College of Agricultural Sciences within the Pennsylvania State University, Pennsylvania's only land grant college. With a presence in each of our 67 counties, Penn State Extension empowers farmers, agribusinesses, youth, and communities with science-based education and innovative solutions to advance agriculture, enhance a healthy and safe food supply, and promote responsible natural resource stewardship across Pennsylvania and beyond.

I am here to provide education about private water supply protection, including proper well construction, wellhead protection, and private well safety.

More than one million homes in Pennsylvania are served by private water supplies which include wells, springs, and cisterns. More than a quarter of all adults in the state rely on a private water supply as their primary source of drinking water. There are 36,809 wells attributed to Lancaster County - the second highest number per county next to Chester County. Unfortunately, many individual water wells have never been properly tested, and their owners are generally uninformed about proper well management.

Pennsylvania is one of only two states that does not have mandatory statewide construction standards for private water wells. While some local regulations do exist in a few counties and municipalities, there are no statewide requirements. Private water systems are not regulated under the Safe Drinking Water Act because they serve fewer than 25 people or have fewer than 15 service connections. They commonly serve single residential units in communities that are located outside the public water system service areas. Because private water systems are not regulated, the owner or user is voluntarily responsible for protecting the water source to prevent pollution, testing water quality, and implementing treatment to improve water quality. Although they are not required to, private water system users are encouraged to ensure that their water quality meets national and state drinking water standards to protect their health (Kibuye, 2025).

Because there are no well construction standards in Pennsylvania, some important components of a properly constructed drinking water well are often not installed, likely in an effort to reduce the cost of the well to the well driller and the homeowner.

Proper construction features and wellhead area management can protect private water wells from surface water contamination. Anything that ends up on the ground's surface, such as animal waste, sediment, fertilizer, chemicals, has the potential to seep into wells with surface runoff after rain events. To help lessen the possibility that drinking water isn't contaminated by surface water runoff, Penn State recommends the following five well construction features to help protect the drinking water supply from surface contamination:

1. Well casing extending 12 inches above the ground surface. Making sure the casing is extended helps keep surface water from entering the well. If the well is lower than the ground or buried in a pit, a well driller may be able to help with extending the casing above the surface.
2. Ground sloping away from the wellhead. If the ground around the wellhead is sloped gently away from the wellhead and casing, surface water will be directed away from the well, reducing the possibility of contamination.
3. Well casing to bedrock. This is a well construction feature that can only be implemented when the well is drilled. Having the well casing extend to bedrock also helps to create a barrier between surface water runoff and the water supply. Casing can also be professionally inspected with down-well cameras to check for leaks or damage.
4. Grout seal. When a well is drilled, a grout seal—usually made of bentonite clay material—can be put in place around the casing. The grout material expands to fill the open space that remains outside the well casing within the larger drilled borehole. It creates a tight seal against the casing to reduce the chances of surface water entering the groundwater using that open space. Grout is usually not used on private wells in Pennsylvania unless it is required by local ordinances or requested by the homeowner.
5. Sanitary well cap. Newly constructed wells in Pennsylvania are not typically installed with sanitary caps and must often be requested by the well owner. This is a feature that can be installed on an existing well. Most wells have a standard well cap that leaves an air gap between the well casing and the cap. This gap allows for insects, vermin, and surface water to potentially enter a well. A sanitary well cap has a rubber gasket which creates a tight seal around the well casing and also a small screen that allows for necessary airflow. A well owner can purchase a sanitary cap from a well driller, hardware stores or online sources. It can be installed by a well professional or by a well owner with some electrical skills.

Less than 20% of wells in Pennsylvania have all five of these features but research by Penn State showed that even having a few in place can significantly reduce surface water impacts on private water supplies. The two most important features missing from most private wells may be a sanitary well cap and a grout seal. These components are required by most states because they help protect groundwater by sealing the well from potential surface contamination, in particular coliform bacteria and E. coli bacteria (Swistock & Sharpe, 2009).

**Wellhead area management**

With a private water system, it is good practice to establish a wellhead protection area of at least 100 feet around a well and limit any potentially polluting activities in this area. This area around the well is where activities on the surface are most likely to impact the groundwater supply. This includes spraying pesticides, dumping waste chemicals, using fertilizers, allowing for animal waste, or any activities that could compact the ground.

**Well water testing**

Homeowners using wells, springs, or cisterns as their water supply should consider having their water tested routinely, every 13-14 months for bacteria and every three years for most other contaminants. Testing drinking water should be performed by a certified water testing laboratory. The Pennsylvania Department of Environmental Protection (DEP) has a current listing of accredited drinking water testing laboratories. Water testing on private water supplies is also available through the Penn State Agricultural Analytical Laboratory. Drinking water test kits are available at participating county extension offices or directly from the Agricultural Analytical Services lab.

Homeowners using water from a well or spring should consider having it tested for the following reasons:

1. Unlike public water systems, private water supply testing is the voluntary responsibility of the homeowner. There are no government agencies or programs that routinely test private water systems for homeowners.
2. Penn State studies have found that about 50 percent of private water systems fail to meet at least one of the drinking water standards that public supplies are held to.
3. Many pollutants found in private water systems have no obvious smells or visual indicators and can only be detected through laboratory testing.
4. Water testing is generally economical and convenient, with many testing laboratories located throughout the state.
5. Water testing provides vital information to document the quality of drinking water. Data from previous tests, completed through third-party testing, may be necessary to prove in court that a nearby land use has damaged a drinking water supply.
6. The only way homeowners can be certain that their drinking water isn't contaminated is to have the water tested routinely.

Penn State Extension's water team participates in well water testing research and disseminates findings to the community. In 2024, nearly 200 private wells, springs, and cisterns were tested as part of educational webinars and workshops, helping private water supply owners identify and solve health-related drinking water problems. This project tested 197 private water supplies in Pennsylvania, including Lancaster County. There were

164 health-based standard failures and an additional 139 secondary or aesthetic failures identified in these water samples (Rhea, 2024). Funding for this program was made available from the Pennsylvania Department of Health's cooperative agreement with the Centers for Disease Control and Prevention Environmental Health Capacity building initiative.

**Resources available**

Penn State Extension has resources available to help private well users to properly manage their water supply including water testing, problem solving, and water conservation. These resources include online articles, courses, videos, publications, and workshops that can be found at our website at extension.psu.edu.

In addition, we have two volunteer programs that aid Penn State Extension in educating Pennsylvania residents about protecting private water supplies – the Master Well Owner Network and the Master Watershed Stewards.

The Master Well Owner Network trains volunteers throughout Pennsylvania to help educate rural homeowners on the proper management of private water wells. These volunteers become part of a statewide network of Master Well Owners.

The Penn State Master Watershed Steward program was established to educate and empower volunteers to protect environmental resources. Master Watershed Stewards work with the community to improve the health of our streams, rivers and other natural resources. We currently have the Master Watershed Steward Program in 42 Pennsylvania counties, including Lancaster. Lancaster currently has 53 volunteers in the program.

Penn State Extension will continue to carry out research and offer educational programs and water testing to residents who utilize private water supplies in Pennsylvania. To be notified of when drinking water-related programs are offered, sign up on our website to receive emails and select "Drinking and Residential Water" as one of your areas of interest.

Thank you for your time and willingness to learn more about protecting private drinking water supplies. I have educational materials to distribute today and will take time to answer questions.

**Sources:**

Information in this testimony is sourced from Penn State Extension educators Dr. Faith Kibuye, Andy Yencha, Danielle Rhea, Susan Boser, Jennifer Fetter, Bryan Swistock (retired), Dr. William Sharpe (retired), and me – Jodi Sulpizio.

Kibuye, F. 2025. Understanding Drinking Water Standards. Penn State Extension. https://extension.psu.edu/understanding-drinking-water-standards.

Rhea, D. 2024. Private Water Supply Education and Water Testing. Penn State Extension. https://extension.psu.edu/private-water-supply-education-and-water-testing-in-2024.

Swistock, B. 2024. Testing Your Drinking Water. Penn State Extension. https://extension.psu.edu/testing-your-drinking-water.

Swistock, B., Clemens, S., & Sharpe, W. 2009. Drinking Water Quality in Rural Pennsylvania and the Effect of Management Practices. The Center for Rural Pennsylvania.

**Notes for myself if I get questions:**

From PA Geologic Survey (PA DCNR):
36,809 wells attributed to Lancaster County.
2,134 are abandoned, destroyed, or unused (includes all uses, include some formerly withdrawal/ private supplies)
20,527 are withdrawal wells:

- 254 Commercial water supply
- 18,431 Domestic water supply
- 89 Institutional water supply
- 547 Public water supply
- Remainder of withdrawal wells that are likely non-drinking water use include air conditioning, agricultural, aquacultural, industrial, mining, power, geothermal, recreation supplies, etc.

There's some doubling up with categories between "well" and "water" use, but the remainder (14,148 wells) of non-withdrawal, "active" wells (i.e., not reported abandoned) in Lancaster County include geothermal, heat reservoir, injection, monitoring/observation/test, waste disposal, etc.

We have 88 Springs in our database attributed to Lancaster County, and they have a much simpler breakdown:

Drinking

- 1 Commercial
- 34 Domestic
- 15 Public Supply

Agricultural

- 1 Irrigation
- 6 Stock

Other

- 2 Dewater
- 1 Industrial
- 1 Other
- 2 Recreation
- 1 Unknown
- 16 Unused

PFAS (Penn State Extension info)

Rules now limit some PFAS compounds in public drinking water, but households with private wells or springs are responsible for monitoring and, if needed, treatment of their water supply. Because PFAS are emerging contaminants, there are only a few laboratories in the state that are accredited by the DEP to test for them, but this number may grow in the coming years. Many laboratories provide sampling kits containing bottles and detailed method-specific instructions for collecting, handling, and shipping samples. Because PFAS testing requires especially complex testing instruments and lengthy methods, testing for PFAS can cost around $250 to $500 per sample, depending on the type of sample (e.g., soil, water, tissue) being tested.

https://extension.psu.edu/pfas-drinking-water-standards-testing-and-treatment by Kibuye, Yencha, Swistock (2024)

Article: 'Forever chemicals' detected in 65% of sampled private wells in Pennsylvania by Jeff Mulhollem, University Park (2025)

"In Pennsylvania, 3.5 million people are served by private well systems, according to Penn State Extension. To better understand potential contamination of the groundwater feeding these systems, a team of researchers from Penn State conducted a novel three-year citizen science study of per- and poly-fluoroalkyl substances (PFAS) — often referred to as forever chemicals — in 167 private wells across Pennsylvania.

Their study, available online and scheduled for publication in the July issue of the Journal of Environmental Management, revealed that 18%, or 30 out of 167, of private wells sampled exceeded maximum contaminant levels for drinking water set by the U.S. Environmental Protection Agency. Overall, they reported, 65%, or 108 out of 167, of the private wells tested had detectable PFAS concentrations, with each of the 20 tested compounds detected at least once. Several of the compounds were detected in nearly half of the wells."

https://www.psu.edu/news/research/story/forever-chemicals-detected-65-sampled-private-wells-pennsylvania