



Summary of Nonpublic Household Water Well Project Recommendations:

Improving and Protecting Water Well Quality

Thousands of Kansans rely on nonpublic water wells for their household, including providing water for drinking, cooking, bathing, household pets, and cleaning purposes. While approximately 70,000 nonpublic wells are registered in the state of Kansas to provide household water, the quality of the water is not guaranteed and may be contaminated from a range of environmental, industrial, and agricultural contaminants. Contamination of nonpublic water wells is far too common, and most well users are unaware that their water is not safe.

There are few protections at the state or local level to ensure that water from nonpublic water wells is safe. The recommendations (next page) seek to address this problem by providing concrete steps that, if taken, would provide increased protections for Kansans relying on nonpublic water wells for household use.

Project Background

The recommendations included here were compiled as part of the Nonpublic Household Water Well Project, a three-year project led by the University of Kansas School of Medicine-Wichita (KUSM-W) and funded by the Kansas Health Foundation. The purpose was to identify promising practices that could protect Kansans relying on nonpublic water wells for household purposes. The project team included public health and legal professionals with experience working on groundwater quality issues impacting nonpublic water wells in Kansas.

Research Process

The recommendations were identified through the following research and analysis processes:

- Review and analysis of Kansas state laws and county sanitary codes;
- Representative sampling and review of 24 Kansas city codes;
- Literature review to identify best practices in water quality management for nonpublic water wells;
- Dozens of key informant interviews to develop and evaluate proposed recommendations;
- A survey of more than 100 Kansas stakeholders to determine public health significance, feasibility of, and potential funding sources of proposed recommendations; and

- A survey of stakeholders to identify which organizations need to lead the implementation of each recommendation.

Key Partners and Organizations

The following organizations and partners contributed to the project by participating in key informant interviews, completing surveys, and/or providing feedback and technical assistance.

- Environmental Finance Center
- Groundwater Management Districts
- Kansas Association of Counties (KAC)
- Kansas Department of Health and Environment (KDHE)
- Kansas Environmental Health Association (KEHA)
- Kansas Farm Bureau
- Kansas Farmers' Union
- Kansas Geological Survey (KGS)
- Kansas Ground Water Association
- Kansas Legislature
- Kansas Public Health Association (KPHA)
- Kansas Rural Water Association
- Kansas State University (KSU)
- Kansas Water Office (KWO)
- Kansas Water Resources Initiative
- KDHE Certified Laboratories (Labs)
- League of Kansas Municipalities (KLM)
- Local Environmental Health Professionals (LEHP)
- Midwest Assistance Program
- Regional Advisory Committees
- United States Department of Agriculture-Rural Development
- Water Well Contractors and Drillers
- Water Well Owners and Users



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Nonpublic Household Water Well Project Recommendations

The following recommendations are organized according to the potential impact each recommendation could have on protecting public health, from greatest impact to least impact, as reported by survey respondents. The first recommendation was not ranked as the first priority; however, it is likely the first step that needs to happen chronologically.

#	Recommendations	Key Organizations/Lead Entities
1	Create a “Nonpublic Household Water Well” designation	KDA, KDHE, KWO, Legislature
2	Provide notice when specific groundwater contamination is found and when there is an event potentially impacting groundwater quality	KDHE, Legislature, LEHP
3	Establish triggering events to inspect wells and test water quality	KDHE, LEHP
4	Develop standardized water sampling and analysis protocol and form	KDHE, Labs, LEHP
5	Create a statewide group focused on advancing nonpublic water well quality	KDA, KDHE, KWO, Legislature
6	Revise the Kansas Dry Cleaner Environmental Response Act	KDHE, Legislature
7	Limit the use of some nonpublic household water wells	KDHE, KWO, Legislature, LEHP
8	Create funding mechanisms to offset costs of inspection, water quality testing, corrective action, and/or plugging of nonpublic water wells for those unable to pay	KDA, KDHE, KWO, Legislature
9	Establish a three-part process: permitting, inspection, and water quality testing	KDHE, KEHA, Labs, LEHP
10	Standardize environmental health professionals’ training	KDHE, KEHA, LEHP
11	Track and provide information about abandoned wells in property transactions	KDHE, LEHP
12	Create standards to determine when connecting to a public water supply must be required	KAC, KDHE, KWO, Legislature, LEHP
13	Establish frequency of inspection and water quality testing after initial triggering event	KDHE, LEHP
14	Establish licensing requirement for the installation of water well pumps	KDHE, LEHP, Water Well Contractor/Driller
15	Update key nonpublic water well resources	KDHE, KGS, KWO, LEHP
16	Develop remediation training and certification standards	KDHE, KEHA
17	Update county sanitary codes	KAC, KDHE, LEHP
18	Assess interest in water well maintenance subscription service	KDA, KDHE, KEHA, KWO, LEHP, Water Well Contractor/Driller

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Nonpublic Household Water Well Recommendation #9:

Establish a Three-Part Process: Permitting, Inspection, and Water Quality Testing

Proposed Action

1. After a nonpublic household water well is constructed or reconstructed, and a pump is installed, but before it is put into use by the owner, a local environmental health professional or other designated local official will inspect the well and pump to ensure it is sufficient and will then sample the well water and submit sample(s) to a drinking water KDHE-certified lab for analysis to ensure that the well water used for household purposes meets established water quality requirements.
2. Standard state and local guidelines for water quality sampling and analysis of water from nonpublic household water well will be amended to include:
 - Total coliform bacteria,
 - Nitrates,
 - Pesticides and/or VOCs, or other organic chemicals, and
 - Other contaminants, depending on local conditions (e.g., arsenic, uranium).
3. Recommended state and local water quality analysis guidelines will be amended to include:
 - Lead and other metals (e.g., arsenic, mercury, cadmium),
 - Nuisance contaminants: chloride, copper, iron, manganese, sulfates, total dissolved solids (TDS) and zinc,
 - pH, hardness, hydrogen sulfide, and salinity, and
 - Other contaminants, depending on local conditions.

Potential Funding

Funding to support this recommendation would most likely come from a combination of sources, including: nonpublic water well users; local water well permits; state funding; local and state taxes; and a percentage of fertilizer and pesticide sales.

Background Information

Developing standard requirements for nonpublic household water well inspections that include both a physical inspection of the well and an analysis of water quality would ensure that the well itself is properly constructed and maintained, and that the well water is safe for household purposes. Groundwater is the major source of drinking water for 70% of Kansas residents. In rural areas, 85% of the population relies on groundwater.

Poor water quality is not specific to nonpublic water wells. Even *public* water systems are dealing with contaminated water. For example, Quinter, Kansas experienced petroleum odors in their public water system wells. The source of the odors and ground water contamination was from gasoline leaks and spills into the groundwater from a nearby service station. This contamination issue ultimately required that the city construct a replacement well for the city's water supply.

Why This Action Is Needed

Groundwater is often contaminated. Many aspects of well construction or reconstruction are inspected. However, there is no requirement for nonpublic household water well owners or users to have the *water quality* tested after the construction or rehabilitation of a nonpublic water well.



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Nonpublic Household Water Well Recommendation #10:

Standardize Environmental Health Professionals' Training

Proposed Action

KDHE will work with the Kansas Environmental Health Association (KEHA), local environmental health representatives, KDHE certified labs, and other key stakeholders to develop standardized training and continuing education standards for environmental health professionals. This will ensure that anyone who is inspecting or sampling water from a nonpublic water well has met certain standardized training and continuing education requirements.

Training standards will include (but not be limited to): nonpublic water well construction, maintenance, sampling protocols, interpretation of analyses, potential health implications of analyses, remediation, and the provision of technical assistance.

Potential Funding

Funding to support this recommendation would most likely come from state funding and nonpublic water well users.

Background Information

Local environmental health professionals are often required to construct, manage, and maintain nonpublic water wells, and provide technical assistance to nonpublic water well owners.

This action is in line with the Kansas Water Vision action items that promote the development of water-related careers.

Why This Action Is Needed

There is currently no standardized training required for local environmental health professionals on construction, management, or maintenance of nonpublic water wells, or in the provision of technical assistance to nonpublic water well owners.



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Nonpublic Household Water Well Recommendation #16: Develop Remediation Training and Certification Standards

Proposed Action

KDHE and KEHA will develop training and certification requirements for water well contractors, environmental health professionals, and others interested in assisting nonpublic water well users in remediating identified contamination of water from their well.

Potential Funding

Funding to support this recommendation would most likely come from a combination of sources, including: state funding and fees, and nonpublic water well users.

Background Information

Kansas state law has established specific requirements for licensed water well contractors who construct or reconstruct water wells in the state.

Why This Action Is Needed

There are no similar state requirements for those remediating identified groundwater quality contamination. Creating requirements for anyone remediating identified groundwater contamination would ensure nonpublic household water well users that qualified individuals are available to assist them in correcting any identified groundwater quality issues.

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Nonpublic Household Water Well Recommendation #18:

Assess Interest in Water Well Maintenance Subscription Service

Proposed Action

1. Conduct an interest study to determine if a subscription service for nonpublic water well owners/users would be of interest. This type of service would ensure that nonpublic household water well users are able to access trained professionals to routinely offer installation, maintenance, testing, and remediation services, when needed.
2. Develop a list of regional and local contacts of individuals trained in nonpublic water well inspection, water quality sampling, and remediation of nonpublic water wells. This list will be provided to county health departments and made publicly available every year. This information will be maintained on a publicly-available website.

Potential Funding

Funding to support this recommendation would most likely come from a combination of sources, including: state funding, fees, and nonpublic water well users.

Background Information

Private (e.g., local business) or public (e.g., environmental health professional) entities are needed to provide the expertise to care for most aspects of well maintenance and potential risks/hazards near the well. Well owners/users need a clear resource to rely upon to ensure water quality.

Why This Action Is Needed

There are few visible nonpublic water well experts across many Kansas communities, and many nonpublic household well users do not have a clear resource/entity, private or public, to provide consistent well service and maintenance and ensure water quality standards are met. Interviews with key informants suggest that well owners often incorrectly apply filters, making the water less safe to consume. Moreover, key informants suggested that when well owners ask for help with their nonpublic water well in some communities, they are often referred to multiple agencies and the well owner can get frustrated with inconsistent messages and points of contact.

A subscription service for nonpublic wells could serve as a solid source of funding for local government or private entities, and it would allow for nonpublic well owners to feel confident that their nonpublic well will be safely managed throughout the period of the subscription service.

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