Domestic Water Well Contamination: Practices and Policies in Kansas

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Public Health Law Center

Funding for this project has been provided by the Kansas Health Foundation.

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Long-Term Goal

Ensure safe water supplies for domestic well owners

Public Water

In Kansas, public water supplies are defined as a:

"system for delivery to the public of piped water for human consumption that has at least 10 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year."

(Kansas Statutes Annotated (K.S.A.) 65-162a
and Kansas Administrative Regulations (K.A.R.) 28-15a-2)

We are evaluating <u>non-public</u> water wells

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Non-Public Wells

- Non-public wells are not regulated in the same manner as public water supply.

- Regulations governing the water quality of private water wells are limited and incomplete.

Background

- Approximately 1 in 6 US households rely on private water supplies, such as wells, for drinking water.[1]
- There are approximately 69,000 water wells in Kansas used for drinking.[2]
- There are an estimated 400,000 Kansans relying on domestic water wells.[3]

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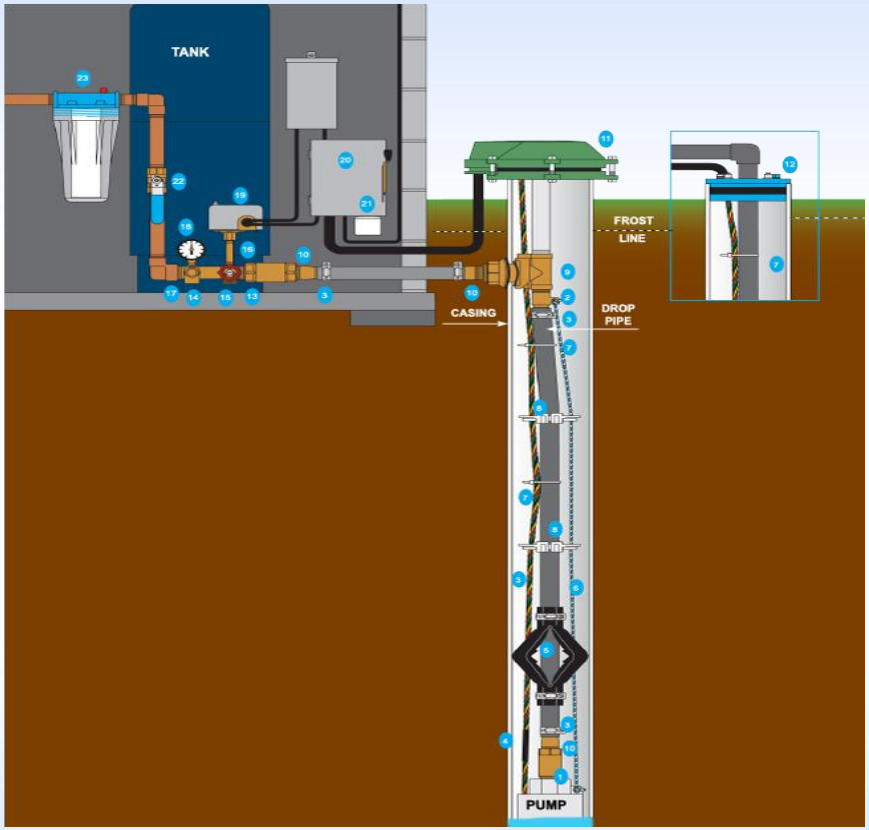
Nonpublic Drinking Water Wells



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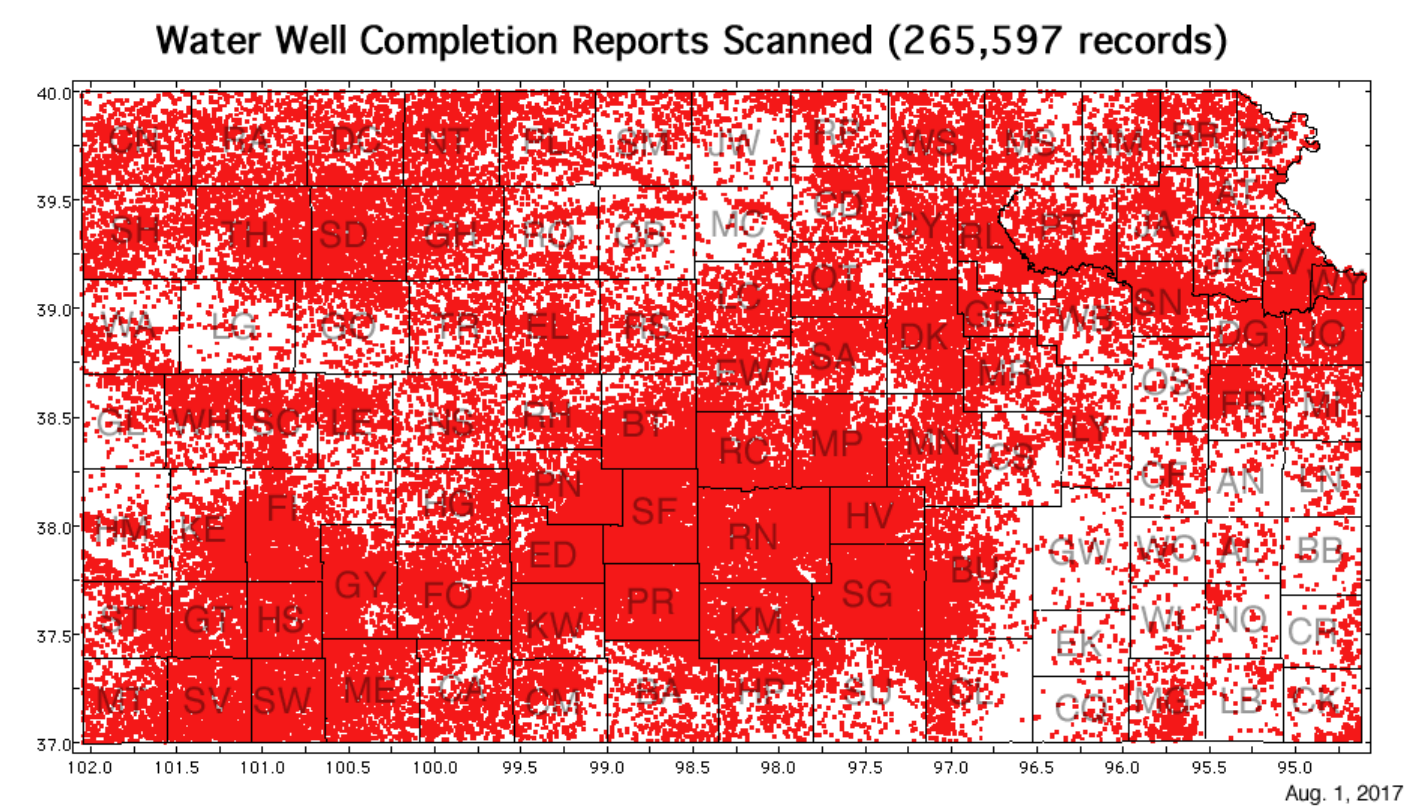
Kansas Water Well Database



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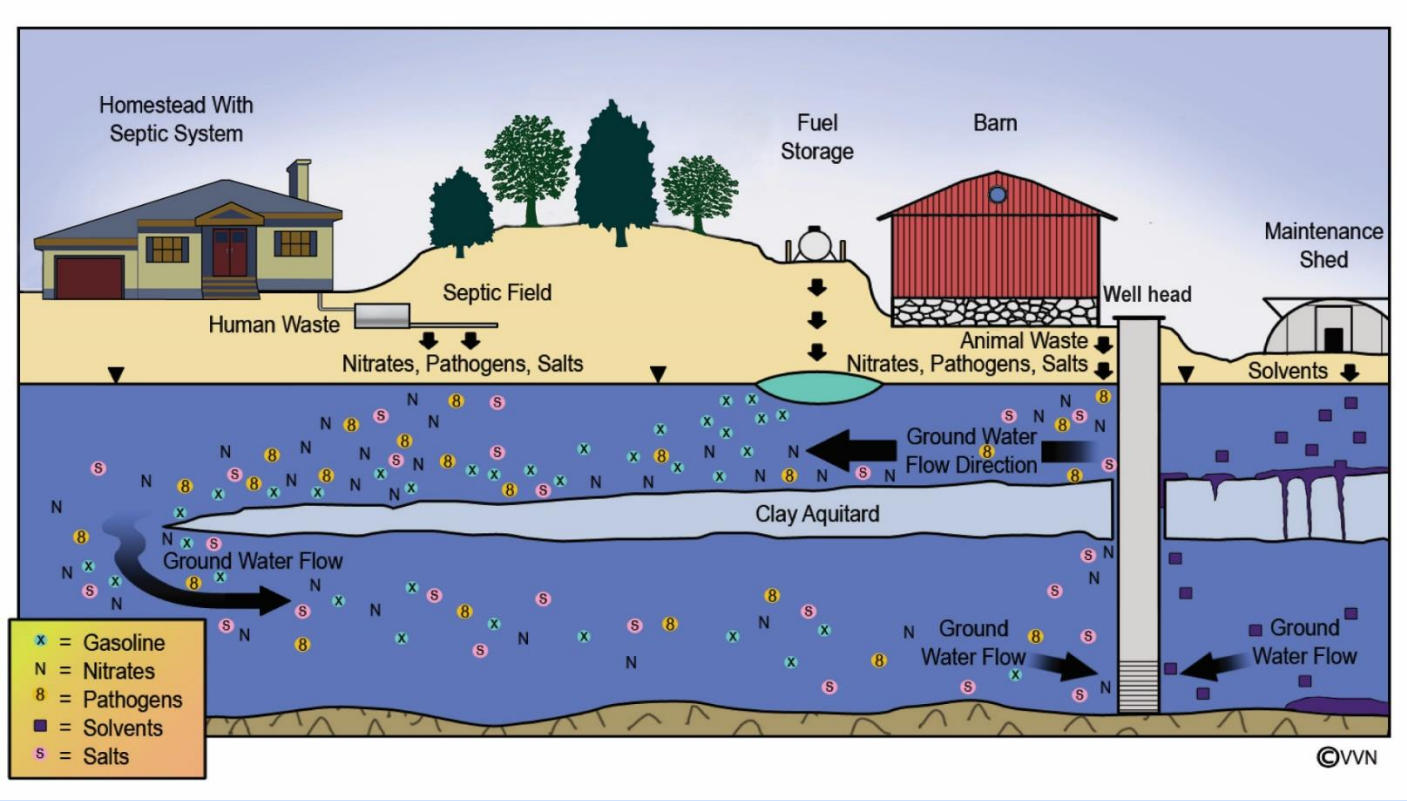
Water Well Potential Contamination Sources



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Contamination Threats

Water wells are subject to several types of contamination, through poor well construction or location, or from chemical compounds:[4-6]

- Malfunctioning wastewater treatment systems (e.g., sewer overflows)
- Local land use practices (e.g., pesticides, chemicals, animal feeding operations)
- Naturally-occurring chemicals and minerals (e.g., arsenic, radon)
- Industrial

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Several Contaminated Sites

- Gilbert Mosley
- North Industrial Corridor
- Four Seasons Dry Cleaners
- Haysville
- 57th & N. Broadway

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Methods

We seek to identify and enhance public health policies within Kansas that protect domestic nonpublic water well users.

Methods

Review of all Kansas county sanitary codes and 23 city codes

Promising Nonpublic Water Well Local Policies

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Nonpublic Water Well Categories

Nonpublic – Applies to all water wells that do not meet federal or state public water source definition

Semipublic - Used inconsistently as a sub-category of nonpublic water wells; usually based on the number of service connections (2 to 9)

Private - Used inconsistently to distinguish between semipublic and those with fewer service connections

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Nonpublic Water Well Definition

1

Nonpublic water wells used for household purposes - all private, semi-public, and other designations of water wells used for household purposes that are not regulated as a public water supply under Kansas state law.

Nonpublic water wells used for household purposes includes those wells used for cooking, bathing, drinking, and cleaning purpose. Household purposes does not include nonpublic water wells used exclusively for irrigation or watering livestock. This definition shall apply irrespective of the number of service connections or other distinctions.

This does not apply if the nonpublic water well has been properly plugged or is registered with KDHE as an inactive water well.

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Nonpublic Water Well Definition (*State and/or Local)*

1

The category of nonpublic water wells used for household purposes applies to the following policies addressing nonpublic water wells.

The following policies do not cover nonpublic water wells used exclusively for irrigation or watering of livestock.

2.1

Requirements for Property Owners When Constructing/Reconstructing Nonpublic Water Wells

No person shall drill, develop, or construct any nonpublic water well on any premise subjected to regulations of this sanitary code until they have obtained a permit approved by the designated [local environmental health agent or other designated local/state official].

Permit requirements shall include specifications regarding reporting well construction, reconstruction, or plugging activities.

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Permit Requirements for Construction or Reconstruction of Nonpublic Water Wells

2.2

Site Inspection. *Before issuing a permit to drill a nonpublic water well, and prior to authorizing the drilling of a well, the [local environmental health agent or other designated local/state official] shall inspect the proposed site for the well to ensure that it can be safely drilled, that the location of the proposed well meets required state or local minimum separation distances, and that it does not interfere with already existing city utilities or easements.*

2.3

Well Inspection. *After the household well is completed, but before it is put into use by the owner, a 2-part inspection is to be conducted by the [local environmental health agent or other designated local/state official] to ensure that: 1) the well meets physical structural requirements and 2) the well water used for household purposes meets established water quality requirements. Household purposes includes drinking, cooking, bathing, cleaning.*

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Nonpublic Water Well Required 2 Part Inspection

2.4

A nonpublic water well used for household purposes shall pass the following 2-part inspection prior to activation of the well for household use:

1) <u>Physical inspection of well</u>

Shall include, at a minimum, an inspection to assess the:

- *Materials used during the process of drilling the well to ensure construction materials are used properly;*
- *Proximity of the well to potential sources of contamination (state minimum separation distance requirements); and*
- *Physical integrity of the well structure to identify any structural deficiencies, including cracks, having an approved sanitary seal, soil erosion around well, standing water, sanitary well field, height of the well head, and other concerns with the physical structure of the well.*

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Nonpublic Water Well Required
2 Part Inspection

2.4

2) <u>Water quality sampling and analysis</u>

Water samples shall be obtained as directed by the KDHE Form (policy 4).

Water analysis shall include at a minimum:

- *Total coliform bacteria*
- *Nitrates*
- *Pesticides, VOCs and other organic chemicals*
- *Lead and other metals (e.g., arsenic, mercury, cadmium)*

Water analysis may include:

- *Nuisance contaminants: chloride, copper, iron, manganese, sulfates, total dissolved solids (TDS) and zinc*
- *pH, hardness, hydrogen sulfide, and salinity*
- *Other contaminants, depending on local conditions*

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Triggering Events for Nonpublic Well Inspection and Water Sample/Analysis

The following events shall trigger a 2-part inspection:

- *Well construction or reconstruction*
- *When the physical integrity of the well is compromised (e.g. such as by a falling tree, vehicle collision, flood)*
- *Putting an inactive well back into active status*
- *Any property transaction (transfer of ownership, leasing or rental, or refinancing) unless a physical well inspection and water sample/analysis has been conducted within the previous 12 months and meets state/local standards, and no other intervening triggering event requiring a nonpublic water well inspection and water sample/analysis has occurred.*
- *Environmental encroachment from nearby source of contamination*
- *Flooding of wellhead*
- *Occurrence of a waterborne disease outbreak*
- *Other waterborne emergency*

Notice of Water Quality Analysis Results

6.1

Local Government Department/Agency Required Notice Regarding Risks to Groundwater Quality

[Local environmental health agent or other designated state official] is required to give notice to nonpublic well owners and potentially affected individuals when the following events occur:

- *contaminated water quality results from either nonpublic or public water well*
- *waterborne illness outbreak*
- *potential contamination risk (e.g. hazardous materials near water source, release of hazardous materials impacting groundwater)*
- *other emergency situation posing a threat to public health as determined by the [government department/agency].*

Notice of Water Quality Analysis Results

6.2

Notice Requirements

The notice must contain: the date of the sample tested or date of the contamination, the location of the spill/contamination site, the nonpublic or public well tested, the water sample test results, contact information for technical assistance, and steps for remediation.

The [local environmental health agent or other designated local/state official] is responsible for collecting and maintaining this information.

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Notice of Water Quality Analysis Results

6.3

Notice Must be Given in Writing

The notice of water sampling and results must be given in writing to all affected and potentially affected nonpublic and public water well users.

Notice of Water Quality Analysis Results

6.4

Timing of Notice

Notice of contamination must be provided to the nonpublic well owner and any potentially impacted water well users within 7 days of testing results.

Notice of contamination must be given to all nonpublic and public well owners within 1 sq. mile of the contamination sampling site within 7 days of receipt of sampling results. The (responsible agency) must receive notice of contamination immediately after sampling results, not to exceed 7 days.

Update Resources

Update Environmental Health Handbook (2002) and the Kansas State Recommended Water Tests for Private Wells (1999) to include current information and recommendations for nonpublic water well construction and maintenance; water quality sampling and testing; remediation of contamination; and emerging groundwater quality issues with changes and draw down of groundwater aquifers. This will occur at least every 10 years thereafter.

Develop fund to update the Environmental Health Handbook and to develop updated regional variations of the Recommended Water Tests for Private Wells.

Next Steps

1. Continue to interview key informants across Kansas
2. Survey stakeholders across Kansas
3. Share results
4. Develop policy resource guide

Your input and feedback would be greatly appreciated!

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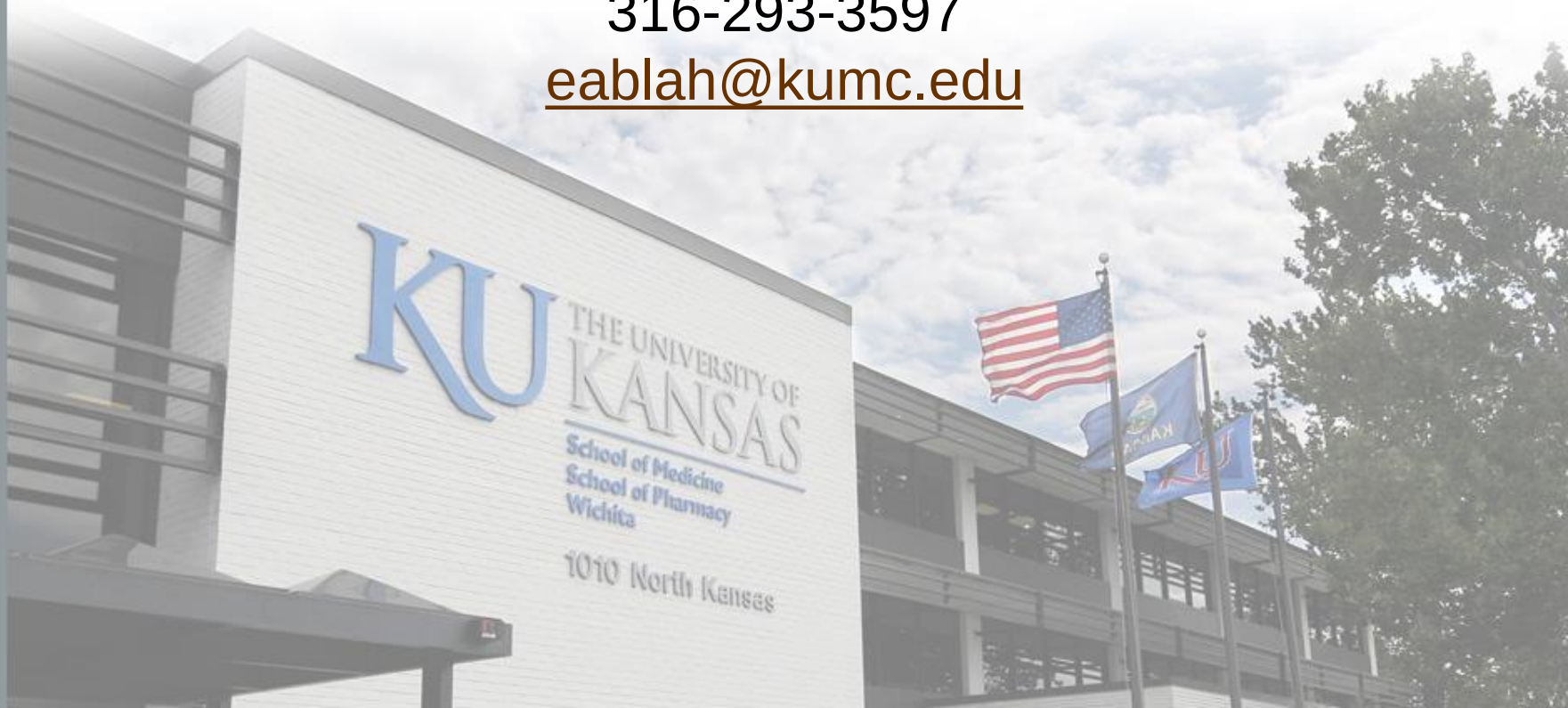
Questions?

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