
**Testing to Help Ensure Safe Drinking Water
Technical Guidance Document WMS 20-951**

This publication provides help for users in understanding the importance of regular water testing and the steps taken to maintain, evaluate and protect the water source.

Contamination of drinking water can be caused by improperly disposed chemicals, animal wastes, pesticides, wastes injected underground, and naturally occurring substances. Public water systems use water treatment and monitoring to protect consumers from such contaminants. Unlike public water users, private well owners are responsible for all quality and safety aspects of their water.

Ensuring Safe Drinking Water

About 151,000 people in Kansas get their drinking water from private wells (United States Geological Survey, 2016). Wells and springs are often contaminated because of poor location, inadequate construction, delayed or lack of maintenance, accidents, and little protection. The most common health-concern contaminants are coliform bacteria, especially *E.coli* or fecal coliform, and nitrates. Others include metals (lead and copper), salts (often sodium chloride), petrochemicals, and pesticides. Water tests taken before pollution begins, or in its early stages, are helpful in showing damage to the water supply. The Kansas Department of Health and Environment's (KDHE's) Environmental Interest Finder, found at maps.kdhe.state.ks.us/keif/, can provide guidance on nearby known contaminated sites and probable contaminants of concern.

See the latest copy of KDHE's publication, [Private Well Maintenance and Protection](#), for detailed private water well maintenance needs. Essential steps to be followed by the owner or well water user are:

Well location and construction:

- Consult a Kansas-licensed well contractor to verify proper separation between your well, home, waste systems, and chemical storage facilities.
- Periodically check the well cover or well cap to ensure it is intact.
- Ensure that the top of the well is at least one foot above the ground.
- Slope the ground away from your well for proper drainage.

Well maintenance, evaluation, and protection:

- Wells should be checked and tested annually for mechanical problems; cleanliness; and the presence of coliform bacteria, nitrates/nitrites, and any other contaminants of local concern.
- Store chemicals such as fertilizer, pesticide, oil, fuel, paint, or solvent far away from the well.
- Don't allow back-siphonage. When mixing pesticides, fertilizers, or other chemicals, don't put the hose inside the tank or container.
- Keep your well records such as the construction report, annual water well system maintenance reports, and water testing results in a safe place.

Necessary Testing

There is no single test for drinking water safety. Routine testing is the only reliable way to find pollutants and evaluate the safety of your water, and is necessary to determine the need for treatment. See the latest KDHE publication [Recommended Water Tests for Private Wells](#). KDHE recommends annual testing for bacteria (total coliform, and *E.coli* or fecal coliform) and nitrates. Other testing is required to ensure safe, contaminant-free water, especially when a well has location or construction deficiencies. For most other contaminants, a test every one to three years is adequate and forms a baseline for detecting changes that indicate possible contamination.

Qualified Labs

The only way to judge the quality of a laboratory's service is through independent evaluation. Kansas Department of Health and Environment (KDHE) certifies laboratories following National Environmental Laboratory Accreditation Management System 2009 TNI Standards (previously, 2003 NELAC standards). Well owners can find the nearest certified laboratory at kdheks.gov/envlab/KS_certified_laboratories.htm.

Water treatment dealers often provide tests for nuisance problems, and local environmental professionals may

offer sample kits or screening tests; however, using a laboratory certified by KDHE is recommended for testing. Multiple laboratories in Kansas and nationwide are accredited and certified for drinking water testing by KDHE. A Laboratory Accreditation Management System (LAMS) instruction manual to search for Kansas-certified laboratories can be found at kdheks.gov/envlab/download/LAMS_user_manual_for_KS_lab_search.pdf. For detailed information about specific chemical certification, contact KDHE, Laboratory Improvement Program Office at (785) 291-3162, or visit kdheks.gov/lipo/index.html. See Table 1 on the next page for KDHE accredited labs in Kansas and other states.

Selecting the Laboratory

As any certified laboratory should be capable of doing tests accurately and within standards, price is not a good gauge of quality. The average cost for tests ranges anywhere from \$20 for a simple bacteria test, to \$150 for a more comprehensive report. Many kits can be purchased online for under \$40 that test for bacteria, pesticides, lead, copper, iron, nitrate, and water hardness in water wells. Selecting a laboratory within overnight-shipping distance for the carrier is highly recommended. The trade association, American Council of Independent Laboratories, [acil.org](https://www.acil.org), can help in choosing a testing facility.

Collecting and Transporting the Sample

A well owner can also stop by the local county health department or cooperative extension office and pick up a kit to take his or her own samples. The kits are free, but the customer must send it off to a certified laboratory for testing. Contact the laboratory to get a sample container. Follow instructions to collect the sample, either those from the laboratory or by watching the video on how to take a water sample available at kdheks.gov/wellwateraware/water_well_testing.htm.

Before taking a sample, check whether there is a limit on time to deliver it to the laboratory — many tests require the sample be delivered within 24 hours of collection. Samples should always be taken from cold, unsoftened, and untreated water. Select a faucet that is regularly used. Remove the aerator and allow the water to run several minutes. For lead tests, sample the first flush after water has remained in the system overnight. After collecting, refrigerate but do not freeze the sample. Protect it from sunlight.

Interpreting a Laboratory Test Report

A water test report may look confusing. It often contains unfamiliar terms and abbreviations. One way

to understand your results is to ask the lab that did the testing. An alternative approach is to receive assistance by contacting the local health or public works department, or the K-State Research and Extension Office. See KDHE's publication, [Understanding Your Water Test Report](#), for more information on water test reports, Maximum Contaminant Levels (MCLs), and possible sources of contaminants and health risks.

Related Guidance documents

[Kansas Home*A*Syst—An Environmental Risk Management Guide for the Home](https://bookstore.ksre.ksu.edu/pubs/HOMEASST.pdf)

[Wellcare® Quick-Guide for Well Owners brochure](https://www.watersystemscouncil.org/wp-content/uploads/2019/04/Quick-Guide-Brochure-Fillable.pdf)

[EPA Manual for Private Wells](https://nepis.epa.gov/Exe/ZyPDF.cgi/2000U9HN.PD?Dockey=2000U9HN.PDF)

[KDHE Environmental Health Handbook, Chapter 1](https://www.kdheks.gov/nps/lepp/EHH_Ch_I_Private_Wells_052705.pdf)

[EPA Info-Graphic: Protect Your Private Well](https://www.epa.gov/privatewells/protect-your-private-well)

[Free Private Well Training](http://privatewellclass.org/)

[KDHE- Geology and Well Technology Unit](https://www.kdheks.gov/geo/index.html)

[Private well Info Sheets](https://www.watersystemscouncil.org/water-well-help/wellcare-info-sheets/)

[USGS- Ground Water and the Rural Homeowner](https://pubs.usgs.gov/gip/gw_ruralhomeowner/)

[National Drinking Water Clearinghouse \(NDWC\).](http://www.nesc.wvu.edu/subpages/wells.cfm)

Table1. KDHE accredited environmental laboratories in Kansas and other states for drinking water testing.

Name	Address	City	State	Zip code	Contact
<u>Accurate Laboratory - OKC</u>	12036 North Pennsylvania	Oklahoma City	Oklahoma	73120	405 751 3132
<u>Accurate Labs Inc. - Stillwater</u>	505 South Lowry	Stillwater	Oklahoma	74074	405 372 5300
<u>ALS Environmental - Fort Collins</u>	225 Commerce Drive	Fort Collins	Colorado	80524	970 490 1511
<u>Analytical Services INC</u>	130 Allen Brook Lane	Williston	Vermont	05495	802 878 5138
<u>Eurofins Eaton Analytical, LLC</u>	110 S. Hill Street	South Bend	Indiana	46617	574 233 4777
<u>Eurofins Eaton Analytical, LLC - Monrovia</u>	750 Royal Oaks Drive, Suite 100	Monrovia	California	91016	626 386 1100
<u>Eurofins Lancaster Laboratories Environmental LLC</u>	2425 New Holland Pike	Lancaster	Pennsylvania	17601	717 656 2300
<u>Eurofins TestAmerica St Louis</u>	13715 Rider Trail North	Earth City	Missouri	63045-1205	314 298 8566
<u>Hazen Research INC</u>	4601 Indiana Street	Golden	Colorado	80403	303 279 4501
<u>Keystone Laboratories, Inc. - Kansas City</u>	835 S Saint Paul St.	Kansas City	Kansas	66105	913 321 7856
<u>Meridian Analytical Laboratory - Wichita</u>	2626 South Rock Rd., Suite 124	Wichita	Kansas	67210	316 618 8787
<u>Microbac Laboratories, INC</u>	250 West 84th Drive	Merrillville	Indiana	46410	219 769 8378
<u>National Testing Laboratories LTD</u>	556 South Mansfield St.	Ypsilanti	Michigan	48197	440 449 2525
<u>Pace Analytical Energy Services, LLC</u>	220 William Pitt Way	Pittsburgh	Pennsylvania	15238	412 826 5245
<u>Pace Analytical Services LLC</u>	12065 Lebanon Rd.	Mt. Juliet	Tennessee	37122	615 758 5858
<u>Pace Analytical Services, Inc. - Frontenac</u>	808 West McKay	Frontenac	Kansas	66763	620 235 0003
<u>Pace Analytical Services, Inc. - Lenexa KS</u>	9608 Loiret Boulevard	Lenexa	Kansas	66219	913 599 5665
<u>Pace Analytical Services, Inc. - Salina</u>	525 N Eighth St.	Salina	Kansas	67041	785 827 1273
<u>Pace Analytical Services, LLC - Minneapolis MN</u>	1700 Elm Street SE	Minneapolis	Minnesota	55414	612 607 1700
<u>PDC Laboratories, Inc. Peoria</u>	2231 W. Altorfer Dr.	Peoria	Illinois	61615	800 752 6651
<u>SDK Laboratories, Inc.</u>	1000 Corey Road	Hutchinson	Kansas	67501	620 665 5661
<u>Servi-Tech Laboratories, Inc.</u>	1816 East Wyatt Earp	Dodge City	Kansas	67801	620 227 7509
<u>State Hygienic Laboratory at The Univ. of Iowa - Coralville</u>	2490 Crosspark Road	Coralville	Iowa	52241-4721	319 335 4500
<u>Teklab, Incorporated</u>	83920 Pintail, Suite A	Collinsville	Illinois	62711	618 920 2534
<u>TestAmerica Chicago</u>	2417 Bond Street	University Park	Illinois	60484-3101	708 534 5200
<u>TestAmerica Denver</u>	4955 Yarrow Street	Arvada	Colorado	80002-4517	303 736 0100
<u>Test America INC. - Buffalo</u>	10 Hazelwood Drive	Amherst	New York	14228-2223	716 691 2600