
DISASTER PREPAREDNESS: SEPTIC TANKS AND WATER WELLS

Leena Mitra | Texas Sea Grant Intern | August 2026



Homeowners' Handbook



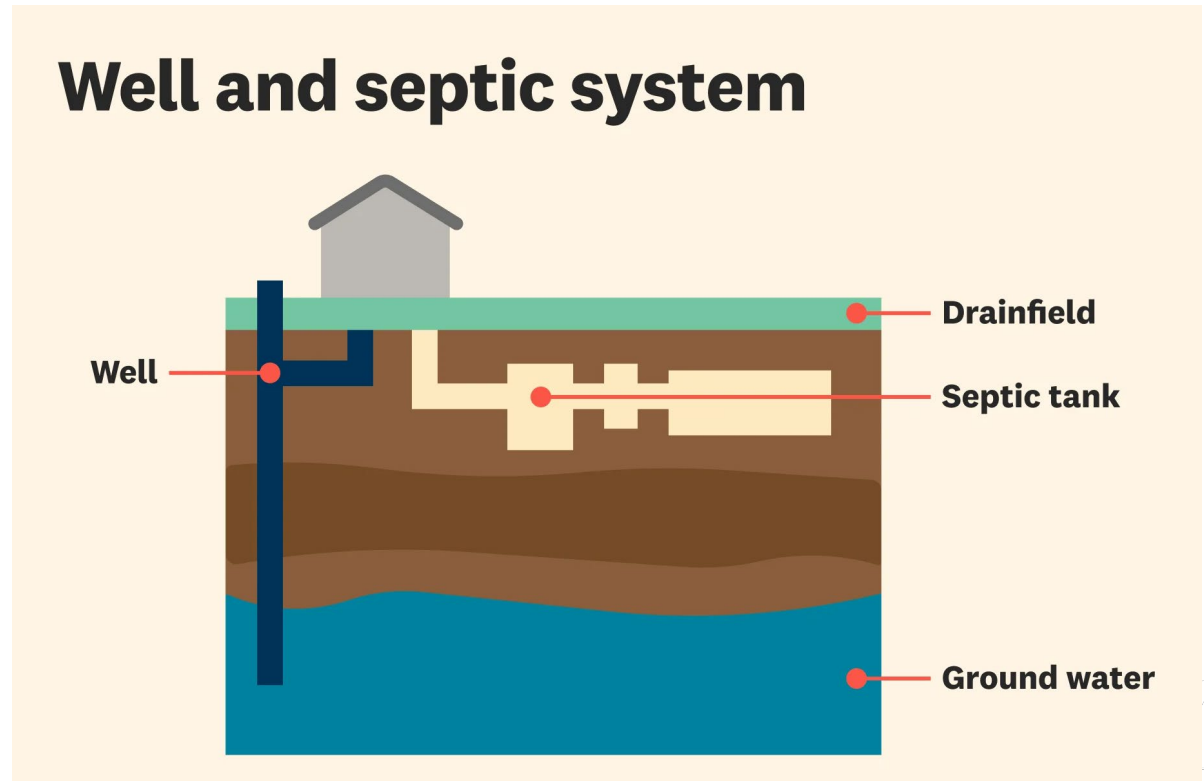
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AGENDA

- Introduction: Water Wells and Septic Systems
- Why Should You Care?
- Know the Risks
- Preparing Before a Disaster
- Safety Measures During a Disaster
- Recovery Actions After a Disaster
- Identifying Signs of Damage
- Water Testing and Well Disinfection
- Important Resources
- Key Takeaways



Well and Septic System Placements | Angi | July 8, 2026

Introduction: Water Wells and Septic Systems

Water Well:

- A private water source that pumps groundwater from an underground aquifer
- Provides drinking, cooking, cleaning, and household water



Introduction: Water Wells and Septic Systems

Septic Tanks:

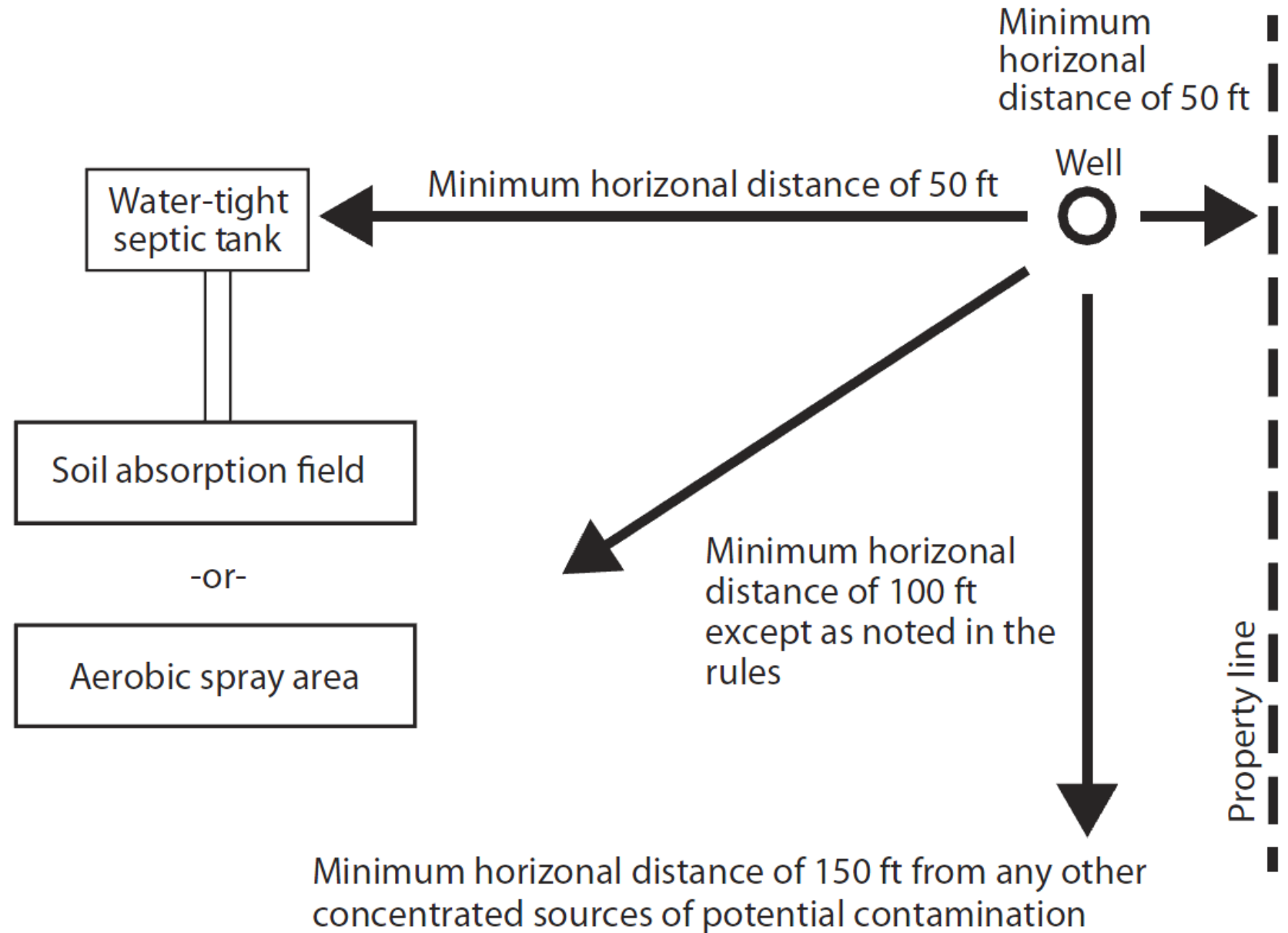
- An underground wastewater treatment system for homes not connected to a municipal sewer
- Treats wastewater from toilets, sinks, showers, and laundry



Septic Tank | greenhavenrealty.com

**Construction
Recommendations:**
(from TWON)

- **50 ft** from septic tanks, cisterns, property boundaries, and non-potable wells
- **100 ft** from septic drain fields (leach fields)
- **150 ft** from:
 - Pet shelters
 - Livestock yards
 - Feed storage facilities
 - Pesticide storage
 - Fertilizer storage

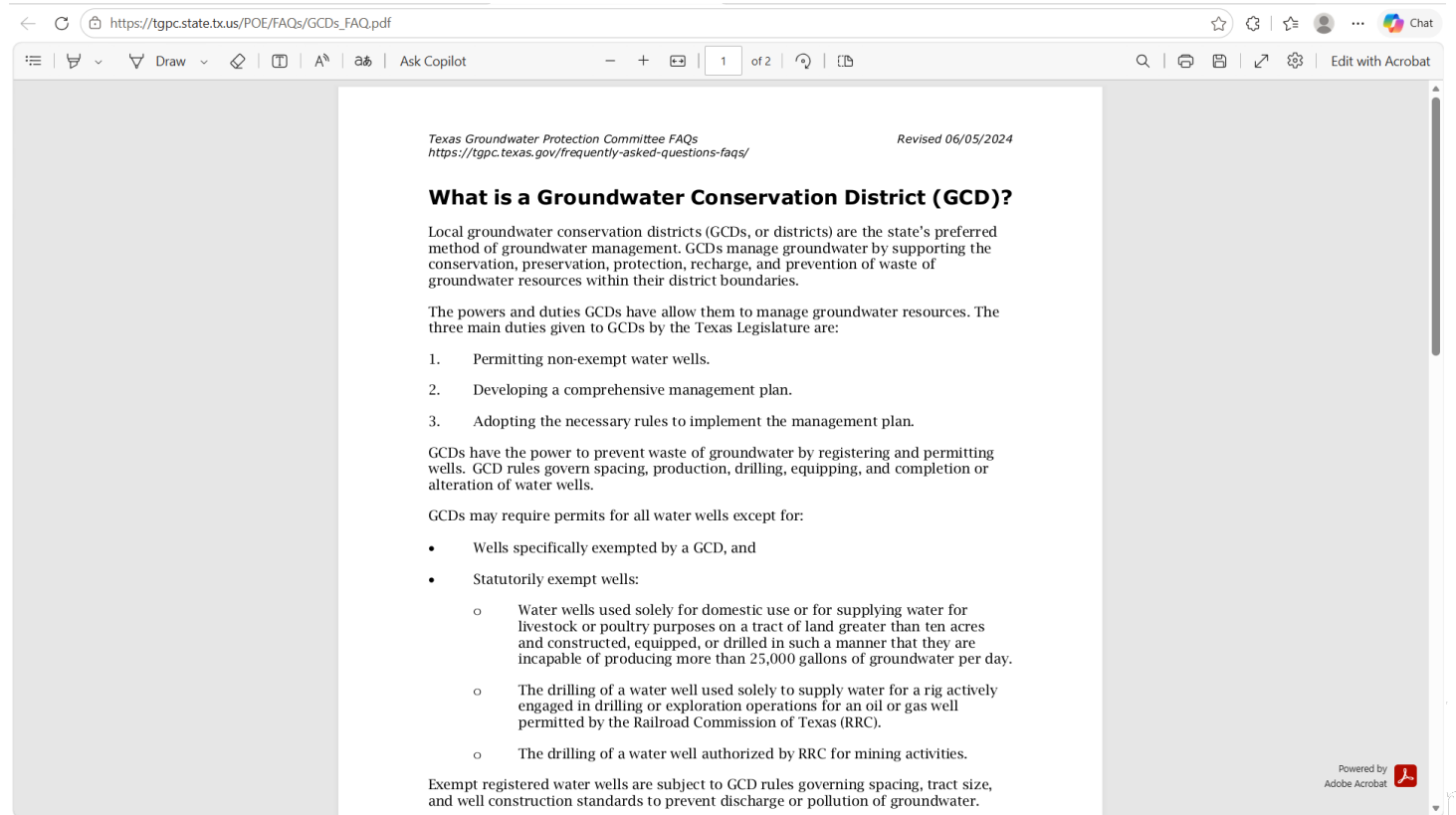


Introduction: Water Wells and Septic Systems

Groundwater Conservation

District:

In Texas, a Groundwater Conservation District (GCD) is a local entity created by the state to manage groundwater resources. GCDs are the state's preferred method for groundwater management, with powers to permit, regulate, and enforce rules for water well drilling and use.



Screenshot of Texas Groundwater Protection Committee FAQs

Why Should You Care?

- Septic systems discharge treated wastewater into the soil
- Groundwater moves beneath the surface
- Wells draw groundwater back up for household use
- Flooding can increase the risk of contamination



Know The Risks

- Contaminated floodwater
- Sewage & chemical exposure
- Bacteria, viruses, and parasites
- Well and groundwater contamination
- Unsafe drinking water
- Risk of illness



Know The Risks

- Saturated soils
- Wastewater backups
- Septic system failure
- Electrical shock hazards
- Avoid contact with floodwater
- **Follow CDC guidance and act early**



Preparing Before a Disaster

- Photograph your well, septic system, and property for insurance documentation
- Locate and save copies of well logs and septic system records
- Seal septic tank inspection ports and manhole covers securely



Septic Systems

Preparing Before a Disaster

- Turn off the well pump at the circuit breaker before flooding
- Protect electrical connections from floodwater whenever possible
- Do not pump the septic tank more than halfway empty, as it may float or shift

Store water: at least a gallon per person per several days



Septic Systems

Safety Measures During a Disaster

- Limit water usage by reducing laundry, dishwashing, and bathing.
- Flush toilets only when necessary.
- Use a temporary toilet if one is available.



Did your private well flood?
Contact your health department for advice
on disinfecting and testing your water.



Safety Measures During a Disaster

Portable Toilets:

Common Types:

- Portable chemical toilets
- Elevated or raised toilets for flood-prone areas
- Container-based sanitation units
- Emergency toilet systems used at shelters and relief sites



Safety Measures During a Disaster

Portable Toilets:

Purpose:

- Provide immediate access to sanitation
- Protect public health
- Support emergency response and recovery operations



Safety Measures During a Disaster

- Avoid contact with floodwater, as it may contain sewage.
- Keep children and pets away from floodwater.
- Do not open well caps during flooding.
- Do not drink well water after flooding until it has been tested and confirmed safe.



Did your private well flood?
Contact your health department for advice
on disinfecting and testing your water.



Recovery Actions After a Disaster

- Avoid contact with damaged septic system components
- Do not operate well or septic electrical equipment until it is dry and inspected
- Document all damage with photographs
- Contact your insurance provider to report damage
- Have your well water tested before resuming normal use



Damaged Private Well

Identifying Signs of Damage

- Sewage backups, unpleasant odors, still water
- bright green or unusually fast-growing vegetation
- Slow-draining sinks, tubs, or toilets
- Changes in water taste, odor, color, pressure, water quality test results
- Electrical hazards around pumps or control boxes



Water Testing and Disinfection

What should you test well water for?

- E. coli
- total coliform bacteria
- Nitrates
- Nitrites
- Arsenic
- Other contaminants

Water Testing and Disinfection

When should you test your water?

- Test annually for bacteria
- Every few years for general chemistry
- Anytime water quality changes.

Follow recommendations from your local health department or water testing laboratory.

CDC RECOMMENDATION: After flooding, test water 24–48 hours after floodwaters recede and retest 30–90 days later.

Water Testing and Disinfection

Emergency well disinfection:

- unscented household bleach
- rubber gloves
- eye protection
- old clothes
- funnel

Before disinfecting, inspect the well for damage—if wiring is

exposed or damaged, contact a professional

After disinfection, test the water for bacteria 7–10 days later

before regular use

Emergency Disinfection of Wells that have been Flooded

Before Disinfection: Check the condition of your well. Make sure there is no exposed or damaged wiring. If you notice any damage, call a professional before the disinfection process.

Materials Needed:

- One gallon of non-scented household liquid bleach;
- rubber gloves;
- eye protection;
- old clothes; and
- a funnel.



Step 1

If your water is muddy or cloudy, run the water from an outside spigot with a hose attached until the water becomes clear and free of sediments.

Step 2



Determine what type of well you have and how to pour the bleach into the well. Some wells have a sanitary seal with either an air vent or a plug that can be removed (a). If it is a bored or dug well, the entire cover can be lifted off to provide a space for pouring the bleach into the well (b).



Step 3

Take the gallon of bleach and funnel (if needed) and carefully pour the bleach down into the well casing.



Step 4

After the bleach has been added, run water from an outside hose into the well casing until you smell chlorine coming from the hose. Then turn off the outside hose.



Step 5

Turn on all cold water faucets, inside and outside of house, until the chlorine odor is detected in each faucet, then shut them all off. If you have a water treatment system, switch it to bypass before turning on the indoor faucets.



Step 6

Wait 6 to 24 hours before turning the faucets back on. It is important not to drink, cook, bathe or wash with this water during the time period --- it contains high amounts of chlorine.

Step 7

Once the waiting period is up, turn on an outside spigot with hose attached and run the water into a safe area where it will not disturb plants, lakes, streams or septic tanks. Run the water until there is no longer a chlorine odor. Turn the water off.



Step 8

The system should now be disinfected, and you can now use the water.

Step 9

Have your water tested for bacteria 7 to 10 days after disinfection.

Screenshot of EPA Disinfection Document

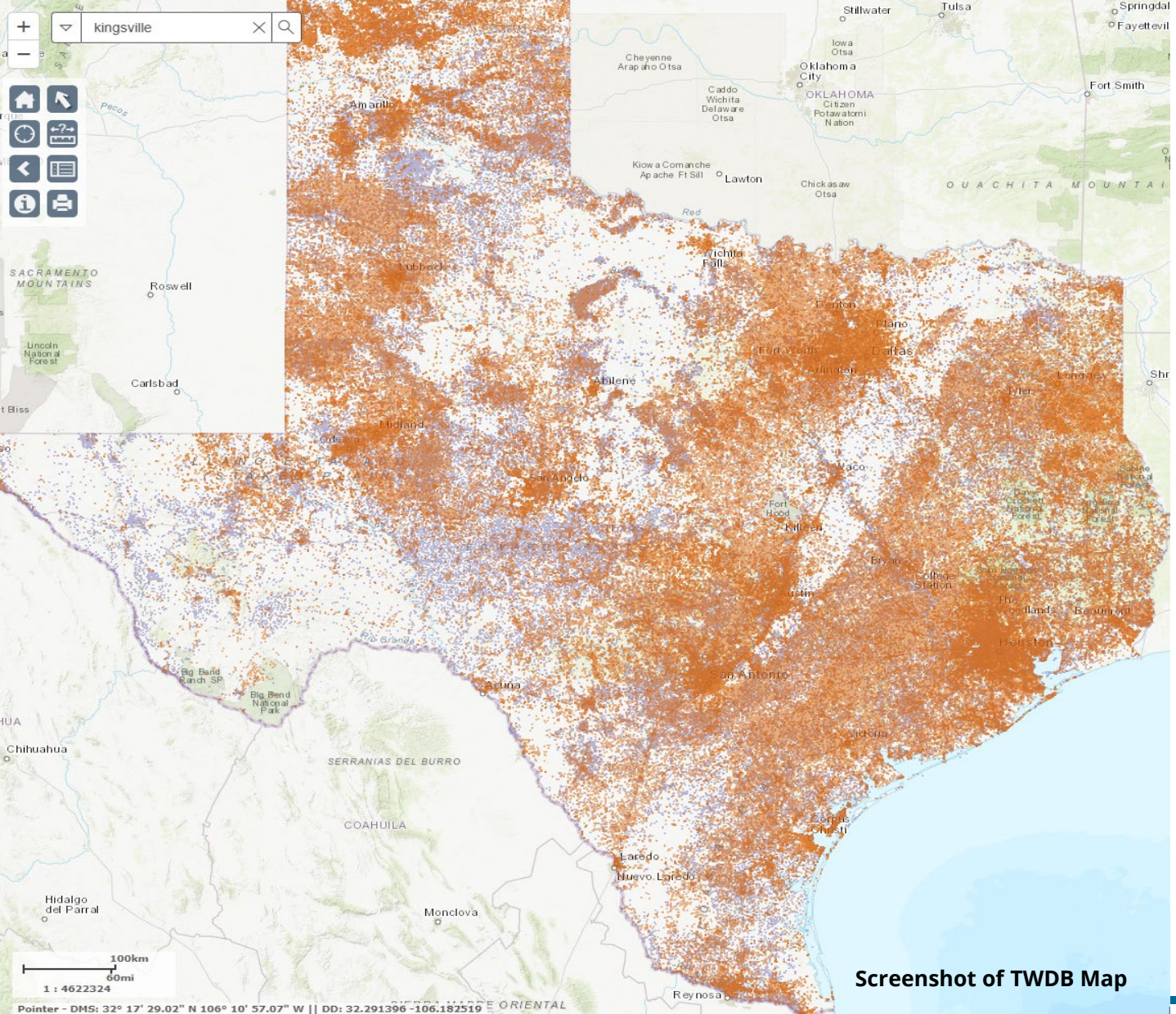
Important Records and Contacts

Well logs:

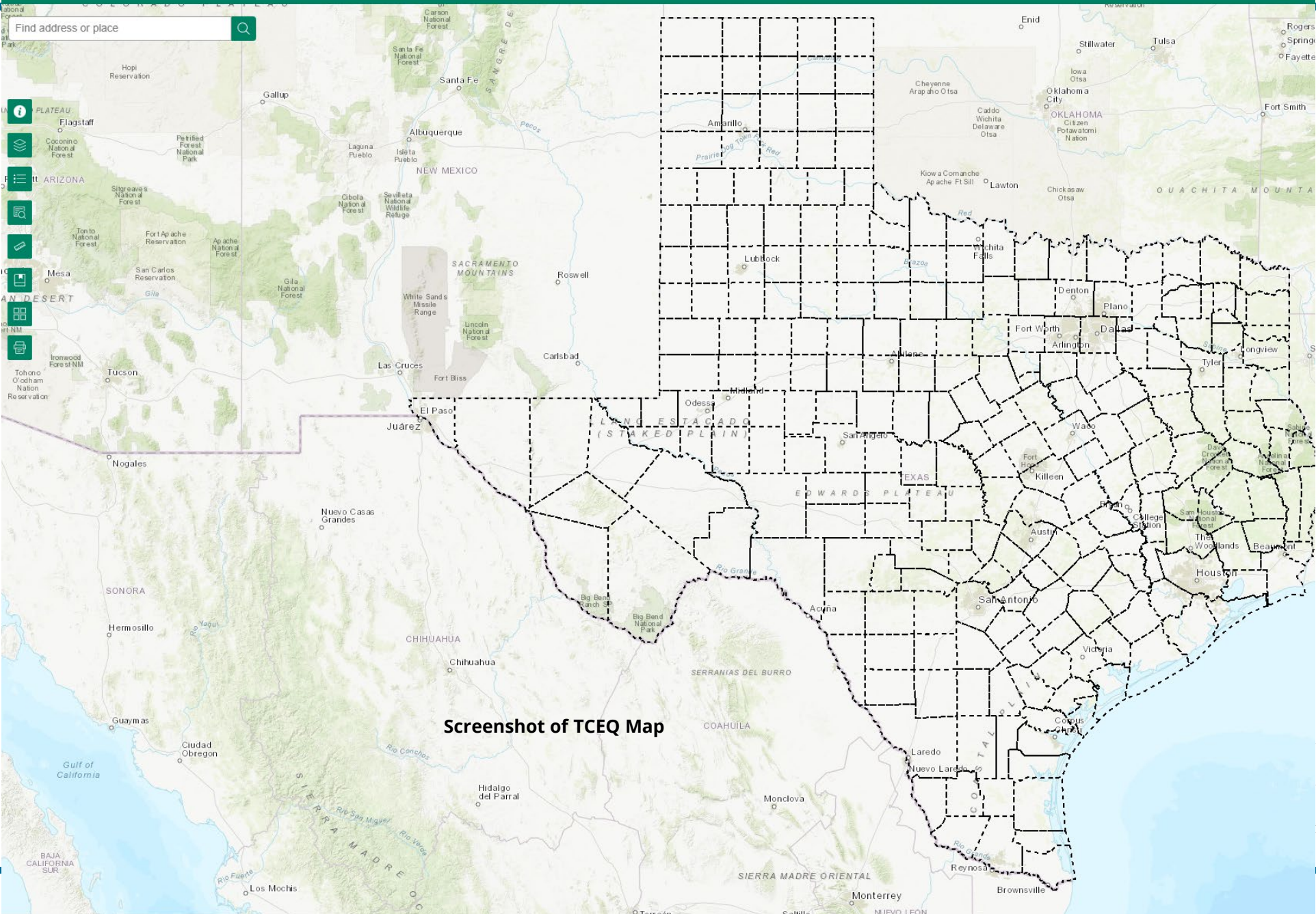
- Texas Water Development Board (wells completed in 2000 and later)
- Texas Commission on Environmental Quality Water Well Report Viewer (before 2000)

2) WELL LOCATION				
County <u>Real</u>	Physical Address <u>Hwy 336</u> City <u>Leakey</u> State <u>Tex</u> Zip <u>78873</u>			
Lat. <u>29 45 080N</u> Long. <u>99 45 852 W</u> Grid # <u>69-10-9</u>				
3) Type of Work ☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening				
4) Proposed Use (check) ☐ Monitor ☐ Environmental Soil Boring ☒ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell ☐ Rig Supply If Public Supply well, were plans submitted? ☐ Yes ☐ No				
5) N				
6) Drilling Date Started <u>2/9/04</u> Completed <u>2/13/04</u>				
7) Drilling Method (check) ☐ Driven ☒ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other				
Diameter of Hole Dia. (in.) From (ft) To (ft) <u>10 5/8</u> <u>0</u> <u>32</u> <u>3 3/8</u> <u>32</u> <u>627</u>				
8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☒ Gravel Pack ☐ Other If Gravel Pack used, the interval from <u>627</u> ft. to <u>580</u> ft.				
Casing, Blank Pipe, and Well Screen Data				
Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft) From To	Cage Casing Screen
<u>4 1/2</u>	<u>N</u>	<u>Plastic</u>	<u>41</u>	<u>627</u>
9) Cementing Data Cementing from <u>380</u> ft. to <u>6</u> ft. # of sacks used <u>Photocopy</u> ft. to <u>0</u> ft. # of sacks used <u>Scant</u> Method Used <u>Hydr. Pipe</u> Cementing By <u>W.S.S. Pipe</u> Distance to septic system field or other concentrated contamination <u>250</u> ft. Method of verification of above distance <u>Revised</u>				
10) Surface Completion ☐ Specified Surface Slab Installed ☒ Specified Surface Sleeve Installed ☐ Pileus Adapter Used ☐ Approved Alternative Procedure Used				
11) Water Level Static level <u>312</u> ft. below Date <u>2/13/04</u> Artesian Flow _____ gpm. Date _____				
12) Packers Type <u>none</u> Depth _____				
13) Plugged ☐ Well plugged within 48 hours Casing left in well: Cement/Bentonite placed in well: From (ft) To (ft) From (ft) To (ft) Sacks used				
14) Type Pump ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____ Depth to pump bowls, cylinder, jet etc. _____ ft.				
15) Water Test Type test ☐ Pump ☐ Bailer ☒ Jetted ☒ Estimated Yield: <u>60</u> gpm with _____ ft. drawdown after _____ hrs.				
16) Water Quality Did you knowingly penetrate a strata which contain undesirable constituents? ☐ YES ☒ NO If yes, did you submit a REPORT OF UNDESIRABLE WATER Type of water: <u>Fresh</u> Depth of Strata: <u>585-607</u> Was a chemical analysis made ☐ Yes ☒ No				
Company or individual's Name (type or print) <u>Utopia Sales & Service</u> Lic. No. <u>301244</u>				
Address <u>Box 246</u> City <u>Utopia</u> State <u>Tex</u> Zip <u>78874</u>				
Signature <u>Bob Caspar</u> Date <u>2/14/04</u> Signature _____ Date _____				
Licensed Driller/Pump Installer _____ Apprentice _____				

Screenshot of Well Logs



Screenshot of TWDB Map



Screenshot of TCEQ Map

Important Records and Contacts

Well Driller

Information:

Check for license!



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Inquire by Location (City)	
Choose One (Optional) ▾ Type the first letter to scroll down.	
Inquire by County	
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Important Records and Contacts

Local Contacts:

- County Extension Agent
- Water testing laboratory
- Local health department
- Local emergency management office

Important Records, Contacts, and Resources

Water Testing Assistance:

- County Health Departments and River Authorities
- NELAC-certified labs on TCEQ website



The screenshot shows the TNI LAMS (National Environmental Laboratory Accreditation Management System) website. The browser address bar displays <https://lams.nelac-institute.org>. The website header includes navigation links: home | contact | TNI website | and an AB Login button. The main content area is titled "WELCOME TO THE NELAC INSTITUTE'S NATIONAL ENVIRONMENTAL LABORATORY ACCREDITATION MANAGEMENT SYSTEM". It provides information about the system's purpose and a search function. A sidebar on the left contains navigation links for PROGRAMS (Accreditation Bodies), TNI CODES (Analytes, Methods, Matrices, Technologies), and TNI WEBSITE LINKS (Home Page, Request Method Code, Request Analyte Code). A "CURRENT STATISTICS" box shows: Accreditation Bodies: 18, Laboratories: 1456, Fields of Accreditation: 824224, Methods: 5303, and Analytes: 3644. A "NEW TO LAMS?" section includes links to the LAMS User Manual and a LAMS Practical Users Guide webcast. A disclaimer at the bottom states that the information is accurate to the best of the knowledge of the appropriate Accreditation Body.

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To begin, click the Search button below. On the next page, you will be able to choose from a
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NEW TO LAMS?

Read the **LAMS User Manual** ([click to download as PDF](#))

Watch the **LAMS Practical Users Guide webcast**. TNI Database Administrator Dan Hickman
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Screenshot of Locating the Labs via TCEQ

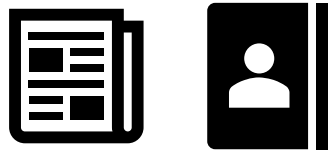
Important Resources

- Texas Well Owner Network (TWON)
- Texas A&M AgriLife Extension Onsite Wastewater Treatment Systems
- Septic System Maintenance & Inspection Pocket Guide
- EPA SepticSmart Program
- CDC: Guidelines for septic and onsite wastewater systems
- EPA: What to do with your private well after a flood

Key Takeaways

- **Know the Risk:** Flooding can contaminate wells and damage septic systems.
- **Prepare Ahead:** Document systems, protect equipment, and shut off well pumps before flooding.
- **Stay Safe During Floods:** Limit water use and avoid contact with floodwater.
- **Recover Safely:** Test well water before use and inspect systems before restarting.
- **Follow Local Requirements:** Comply with Groundwater Conservation District (GCD) regulations.

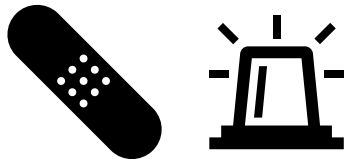
Key Takeaways



STAY INFORMED



STAY CONNECTED



STAY PREPARED



STAY SAFE

Acknowledgements

- Texas A&M AgriLife Extension Service
- Texas Water Resources Institute (TWRI)
- Texas Well Owner Network (TWON)
- Bringing Baffin Back™ initiative at Harte Research Institute for Gulf of Mexico Studies at Texas A&M University-Corpus Christi

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