

How Do You Prevent Pesticide Contamination of Private Water Wells?

Pesticides have been detected in groundwater in both urban and rural areas throughout the state where low levels of atrazine, diazinon, 2,4-D, and metolachlor are the most common pesticides found. In some areas greater concentrations have been detected, triggering further investigation. Monitoring for pesticides in groundwater can identify potential problem areas and allows state and federal agencies to efficiently focus limited resources. Statewide cooperative monitoring efforts for pesticides is ongoing, with most pesticide detections resulting in very low concentrations. However, only a limited number of pesticides are monitored due in part to budget limitations.

Several issues concerning pesticides and groundwater became apparent because of these monitoring programs.

- Most sites where agricultural pesticides were detected in groundwater result from mixing and loading of pesticides in facilities located near water wells.
- Several of the investigated wells were old, corroding water wells that had been abandoned or improperly plugged or were located near such wells.
- Several detection sites were also associated with seasonal surface water features such as playa lakes and intermittent creeks.

Along with the Texas A&M AgriLife Extension Service (AgriLife Extension), TCEQ provides education and outreach to agriculture producers and water well owners in the state. The legal system of the United States considers the product label a legal document. Improper use or misapplication of a pesticide can be punishable by fine or pesticide license revocation. In addition, some of the problems with pesticide application could be improved with better adherence to produce labeling County AgriLife Extension Agents, the Texas Department of Agriculture, or your pesticide distribution/sales representative have additional information on the proper use of pesticides.

Well owners should check water wells on their property to ensure safe use of pesticides near the well. Avoiding or minimizing potential groundwater contamination can be prevented when well owners and pesticide applicators are aware of problems and ways in which pesticides can migrate into groundwater.

How Can I Protect My Private Water Well?

The most common ways to avoid contaminating a water well or groundwater include the following practices:

- Follow best management practices and the pesticide's label instructions when locating a domestic water well near crop land or gardens.
- Locate pesticide storage, mixing, loading, and cleanup areas using the pesticide's label instructions and best management practices guidance on the

recommended distance from a water well. Build a secondary containment structure to prevent spills from draining into the well and wellhead area. All faucets used for this purpose should have a backflow preventer.

- Avoid creating conduits that allow surface water to enter groundwater (i.e., do not locate trenches, burn pits, excavations, tailwater ponds, or septic systems near a water well).
- Read and understand the pesticide label for proper use. If you have questions, contact your county AgriLife Extension Agent or pesticide distribution/sales representative for clarification.
- Make sure that your water well is in good condition by checking and testing it regularly. Refer to the list of references below for information regarding well protection and the proper maintenance of water wells.
- Create a pesticide management program that includes the following information:
 - The location of your water well(s) and any nearby underground conduit locations, surface drainage, or ponding areas.
 - Your water well's age, depth, diameter, screened interval, water table depth, pump information, etc.
 - The location of any other nearby wells, especially any abandoned water wells, petroleum production wells, exploration wells, or disposal wells.
 - Typical signs of wellhead or casing deterioration.
 - Previous land use and the location of potential sources of contamination, both on your property and on adjacent properties.
 - The location of crop or garden areas and other pesticide application areas.
 - The soil type, underlying aquifer(s), and local topography (i.e., the lay of the land that would indicate the source and direction of runoff).
 - Non-pesticide alternatives, such as hand weeding and beneficial insects.
 - Contact information (names, phone numbers, and websites) related to pesticides, water wells, water quality, and the closest groundwater conservation district (for information regarding your aquifer characteristics and limitations).

Proper pesticide use, best management practices, and knowledge of local water dynamics can help protect your drinking water and your family's health, as well as safeguard the state's groundwater resources. Your state and local agencies are working hard to protect the state's water resources for the present and the future. With the help of informed, caring citizens, together we can protect, conserve, and ensure clean water for generations to come.

Resources and Useful Links

- Texas State Management Plan for Prevention of Pesticide Contamination of Groundwater (TCEQ SFR-070/01), https://wayback.archive-it.org/414/20210904135754/https://www.tceq.texas.gov/assets/public/comm_exec/pubs/sfr/070_01.pdf
- Texas Department of Agriculture Pesticide Program, <https://texasagriculture.gov/Regulatory-Programs/Pesticides>
- TCEQ Pesticides and Groundwater, <https://www.tceq.texas.gov/groundwater/groundwater-planning-assessment/pesticides.html>
- Tex*A*Syst website, <https://blackland.tamu.edu/decision-aids/texstarastarsyst/>
 - Tex*A*Syst publications, especially B-6025, *Tex*A*Syst: Reducing the Risk of Ground Water Contamination by Improving Pesticide Storage and Handling*, <https://blackland.tamu.edu/decision-aids/texstarastarsyst/reducing-contamination-by-improving-pesticide-storage-and-handling/> and,
 - Tex*A*Syst publications, B-6024, *Tex*A*Syst: Reducing the Risk of Ground Water Contamination by Improving Wellhead Management and Conditions*, <https://blackland.tamu.edu/decision-aids/texstarastarsyst/reducing-contamination-by-improving-wellhead-management-and-conditions/>
- U.S. Environmental Protection Agency (EPA) Introduction to Integrated Pest Management, <https://www.epa.gov/ipm/introduction-integrated-pest-management>
- U.S. EPA Drinking Water and Pesticides, <https://www.epa.gov/safepestcontrol/drinking-water-and-pesticides>

Other Frequently Asked Questions (FAQs)

To find additional FAQs visit the Texas Groundwater Protection Committee's FAQ webpage at <https://tgpc.texas.gov/frequently-asked-questions-faqs>.