

Testing Your Private Well Water for Tritium

As a private well owner, you are responsible for regularly testing the water you use for cooking and drinking to make sure it is safe. The Minnesota Department of Health (MDH) recommends that you test your well water for regularly for several contaminants. **While MDH has not issued a recommendation for private well owners to test for tritium in response to the recent release at the Monticello plant, we want to make sure well owners have information about the issue and considerations.**

Learn more about general testing recommendations here: [Well Testing, Results, and Options \(www.health.state.mn.us/communities/environment/water/wells/waterquality/tips.html\)](http://www.health.state.mn.us/communities/environment/water/wells/waterquality/tips.html).

Information on tritium

Tritium is a hydrogen atom that emits a low-energy beta particle like an electron. Tritium occurs naturally in the atmosphere and was greatly increased in the environment through nuclear weapons testing in the 1950s and 60s. Tritium generated by those tests still exists in our environment.

Testing the levels of tritium in groundwater allows scientists to estimate the age of groundwater and is useful for determining how vulnerable a groundwater source may be to surface contamination. MDH periodically tests public water-supply wells for tritium to determine the age of the water. Published studies show that background levels of tritium in the groundwater in Minnesota are generally less than 30 picocuries per liter (pCi/L).

A curie is a common unit of radioactivity. A picocurie is 1 trillionth of a curie (12 orders of magnitude less than a curie). Picocuries are often the units used to describe environmental levels of radioactivity.

The latest data indicate that tritium from the Monticello leak is localized to the groundwater in a limited area beneath the plant. Groundwater monitoring data shows the tritium plume has not migrated off site and does not pose a risk to private wells.

If you would like to test for tritium

We have no evidence at this time to indicate impacts or risk to private wells in the vicinity of the plant. The plume has not migrated off the site.

However, if you want to test your own well's water, you can search [Nationally Accredited Laboratories \(https://lams.nelac-institute.org/Search\)](https://lams.nelac-institute.org/Search) to find laboratories that test for tritium and accept samples from private well owners. MDH recommends contacting a few laboratories to compare costs, ensure they take samples from private citizens, and for any sample collection and shipping information. The costs of water

Look up information on your well at [Minnesota Well Index \(www.health.state.mn.us/communities/environment/water/mwi/index.html\)](http://www.health.state.mn.us/communities/environment/water/mwi/index.html). If you are unable to find your well, contact MDH.

quality testing may vary and are the homeowner's responsibility.

Understanding test results

Most laboratories that test for tritium have reporting limits above the levels of tritium in groundwater from nuclear testing in the 1950s and 1960s. Reporting limits are typically at the range of 350 to 1000 pCi/L. A result below this reporting limit will be shown as less than the reporting limit (for example, <350 pCi/L).

The U.S. Environmental Protection Agency Safe Drinking Water Act limit for tritium in drinking water is 4 millirems per year which is based on a maximum contaminant level of 20,000 pCi/L. This limit provides minimal risk of health impacts for people who might drink and use the water daily for a lifetime.

Home water treatment for tritium

Tritium is very difficult to remove from water because it is an isotope of hydrogen almost identical to ordinary hydrogen in water. It is not feasible to remove small concentrations of tritium from water. Installing home water treatment devices is not a recommended protection measure against tritium as the devices will not be effective at removing it.

Contact for more information

For questions about drinking water, private wells and about tritium, contact MDH by sending inquiries to MNGP2023@state.mn.us. We will respond to your questions as soon as we are able. Information can be found on the MDH website: [Xcel Energy Monticello Power Plant Tritium Leak \(www.health.state.mn.us/communities/environment/air/tritiumleak.html\)](http://www.health.state.mn.us/communities/environment/air/tritiumleak.html)

For questions about site cleanup and permitting, contact MPCA. [Minnesota state agencies monitoring cleanup of tritium leak at Xcel Energy Monticello Plant | Minnesota Pollution Control Agency \(www.pca.state.mn.us\)](http://www.pca.state.mn.us).

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