

Tritium Investigation Report 2012

The following information was presented on the Health Department website to inform the public about an investigation into radioactive contamination from the Vermont Yankee Nuclear Power Plant in 2012.

To view maps and diagrams related to this investigation, see our Investigation Graphics document.

OCTOBER:

October 3, 2012

Vermont Yankee sampled the Construction Office Building (COB) well on September 17. Tritium results, reported by Vermont Yankee's contract laboratory, were all less than the detection limit for all three samples. The detection limits reported were between 511-530 picocuries per liter for tritium.

The Health Department received split samples on September 26. These samples will be tested by the department for tritium, gamma-emitting and hard-to-detect (iron-55, nickel-63 and strontium-90) radionuclides. Results of the samples will be available on our website after the tests are complete.

JUNE:

June 14, 2012

Laboratory analysis of a water sample taken from the Connecticut River near Vermont Yankee on April 25, 2012 has confirmed the presence of tritium at low levels, about 1,000 picocuries per liter (pCi/L). The EPA limit for drinking water is 20,000 pCi/L. There is no threat to human health.

The water was taken at the point where groundwater moves from the bank of the river into the river near GZ-14. This is a groundwater monitoring well situated on Vermont Yankee property near the centerline of the plume of contaminated ground water on the west side of the river. Most samples from the Connecticut River do not have detectable levels of tritium.

This is the third time a sample from the river's edge near the centerline of the plume had detectable levels of tritium. This indicates that tritium may be detected at this location for some time to come as the plume continues its movement to the river.

Tritium levels in groundwater monitoring wells are decreasing. Highest levels detected in these wells are between 50,000 and 80,000 pCi/L at wells GZ-14S, 15 and 22D. These are wells that previously had tritium measurements as high as 500,000 to 900,000 pCi/L in 2011.

FEBRUARY:

February 7, 2012

Updated Feb. 10, 2012: replaced preliminary data comparison with final.
Lake Carmi - Connecticut River Fish Data Comparison

Vermont Department of Health -- Fish Results -- February 9, 2012					
Edible Portion Average Result (pCi/kg)					
Radionuclide	Lake Carmi	(number of positive results, number of tests)	2010-2011 Connecticut River	(number of positive results, number of tests)	2010-2011 Connecticut River Range
Potassium-40	2,630	(2,2)	3,080	(21, 21)	2,153 - 3,933
Cesium-137	52.8	(2,2)	18.5	(5, 21)	less than detection limit -25.2
Strontium-90	none detected	(0,2)	57.6	(1, 36)	less than detection limit - 58
Inedible Portion Average Result (pCi/kg)					
Radionuclide	Lake Carmi	(number of positive results, number of tests)	2010-2011 Connecticut River	(number of positive results, number of tests)	2010-2011 Connecticut River Range
Potassium-40	2,310	(2,2)	2,600	(21, 21)	2,126 - 3,218
Cesium-137	33.6	(2,2)	14.5	(2, 21)	less than detection limit - 15.2
Strontium-90	54.6	(2,2)	68.7	(20, 36)	less than detection limit - 255
<p>pCi/kg: picocuries per kilogram Results reported on wet weight Cesium-137 detection limit is 10 pCi/kg (approximate) Strontium-90 detection limit is 50 pCi/kg (approximate)</p>					
<i>Updated 02/09/2012</i>					

Results of fish collected from Lake Carmi in 2011 show the levels of radioactive materials, both naturally-occurring and human-made were similar to those in fish collected from the Connecticut River in 2010 and 2011. Low levels of cesium-137 and naturally-occurring potassium-40 were found in all the fish tested, in both edible and inedible (bone, guts) portions. Low levels of strontium-90 were found only in the inedible portion of the fish.

Lake Carmi was selected as a collection site because the Department of Fish and Wildlife was already sampling the lake at a time when we needed samples from water unaffected by nuclear power plants. The Lake Carmi fish provide a baseline measure of radioactive materials that are expected as a result of historical above-ground weapons testing and global nuclear incidents. The levels of radioactive materials are similar to what has been documented in the U.S. diet and do not pose a health risk. Laboratory test results and analyses related to the investigation, including the preliminary fish test results comparison, can be found on our Laboratory Testing Information page.

JANUARY:

January 11, 2012

2010 Surveillance Report Available Online

The Department of Health 2010 Vermont Yankee Surveillance Report details more than 3,200 separate



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measurements of more than 1,600 samples of air, water, milk, soil, vegetation, sediment and fish taken during the year at the Vermont Yankee site boundary (property line), on-site at Vermont Yankee, from the Connecticut River, and from the towns surrounding the station. The 2010 test results and analyses related to the Health Department's tritium investigation are included in this report, which can be downloaded from our Tritium website.