

Informational Briefing Paper
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Tritium, Vermont Yankee & Energy Policy

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The issue of tritium at Vermont Yankee came back in the news recently. On October 8, Entergy, owner of the plant, disclosed that a small amount of tritium, less than 1/19th the amount that is permitted in drinking water, was found at one of 25 operating monitoring wells on the plant site.

The discovery of a tritium leak this past winter at Vermont Yankee led to major and understandable concerns about the possible impact on the environment, health concerns, and the company's forthrightness. However, at no time did the U.S. Nuclear Regulatory Commission or the Vermont Department of Health find that there was harm or a threat to health or safety.

Tritium is a radioactive form of hydrogen that is both produced naturally and as a byproduct of electricity generation at nuclear power plants. Tritium is also produced commercially and used in common devices as wrist watches and movie exit signs.

Discovery & Response

After Entergy received test results on January 6 of high levels of tritium at a well it had installed as part of a voluntary monitoring program, it notified the Vermont Department of Public Service, the Vermont Department of Health, U.S. Nuclear Regulatory Commission and numerous other officials. It would be hard to over-estimate the political and regulatory scrutiny that Entergy came under afterwards.

A major assessment and remediation plan was launched in January, with crews working around the clock, seven days a week. 20 new testing wells were installed from late January to mid-March. After patiently and systematically eliminating other potential sources, the investigation team identified the Advanced Offgas (AOG) pipe tunnel as the most likely source of the leak. The leak was isolated and effectively stopped by February 15.

Low levels of radionuclides were identified in the soil near the pipe tunnel. The contamination was found in an area four-to-six feet near and below the leak point, encompassing approximately 150 cubic feet. The soil has been excavated and removed.

Entergy also has undertaken a plan to extract approximately 300,000 gallons of groundwater from the site, none of which is used as drinking water. The water is being shipped to a federal-license waste facility in Tennessee for disposal. None of this collected groundwater will be released into the Connecticut River.

In addition, investigations were launched by Entergy and outside parties regarding earlier communications from Entergy that there were no underground pipes carrying radioactive substances. As a result, seven employees were disciplined and new practices and procedures put in place to ensure that similar problems do not re-occur in the future.

Preventing Recurrence

On March 25, Entergy announced it was undertaking a series of action to improve prevention and monitoring strategies at the plant.

The 25 monitoring wells, and seven others that will be added soon, are being used to track the direction and volume of the groundwater under the site and to measure the tritium content. Approximately 267,000 of a planned 300,000 gallons of water have been removed. Vermont Yankee is assessing the flowrates and tritium content of the water being extracted to determine whether additional mitigation will be needed.

Drinking water wells on Vermont Yankee and at a number of locations away from the plant continue to be monitored. No tritium has been detected in any drinking water well.

Ongoing Evaluation and Perspective

We agree that ensuring safety should always be the paramount concern at any nuclear power plant. Plant activities and equipment are observed or examined regularly by the U.S. Nuclear Regulatory Commission. In addition, as part of the license renewal process, Vermont Yankee has faced over 10,000 hours of additional scientific and engineering scrutiny and been found safe.

Vermont Yankee also operated continuously for 532 days before shutting down for a planned refueling this April. This record of online performance shows that the plant has been operated in a very safe and reliable manner.

While some opponents of the plant will certainly try to use the current situation and a single test result from October 8 to push their perennial agenda to close Vermont Yankee, based on careful and rigorous scrutiny there is no reason to believe the tritium poses a health or safety risk. In fact, it never has.

By contrast, closing Vermont Yankee would result in environmental harm via higher amounts of carbon dioxide and other toxic emissions, especially in the near-term, as Vermont would need to rely on more fossil fuels from the New England grid to replace Vermont Yankee's power. Dr. Howard Axelrod, an independent energy expert retained by the Vermont Energy Partnership, calculated Vermonters' would generate two million tons of additional carbon dioxide annually if the plant were to close.

There would also be serious economic problems as a result of nearly 1,300 lost jobs from the plant's closing, as well as higher energy prices and a black eye to the state's business reputation.

As Vermonters' continue to assess the role that Vermont Yankee can play in the state's energy future, all indications are that the plant is safe, operated reliably, and improving its practices. These factors merit deliberate, sober consideration by all Vermonters.

About the Author: Brad Ferland is President of the Vermont Energy Partnership (www.vtep.org), a diverse group of more than 90 business, labor, and community leaders committed to finding clean, affordable and reliable electricity solutions. Its mission is to educate policy makers, the media, businesses, and the general public about why electricity is imperative for prosperity, and about the optimal solutions to preserve and expand our electricity network. Entergy, owner of Vermont Yankee, is a member of the Vermont Energy Partnership.