



Tritium – What’s Safe?

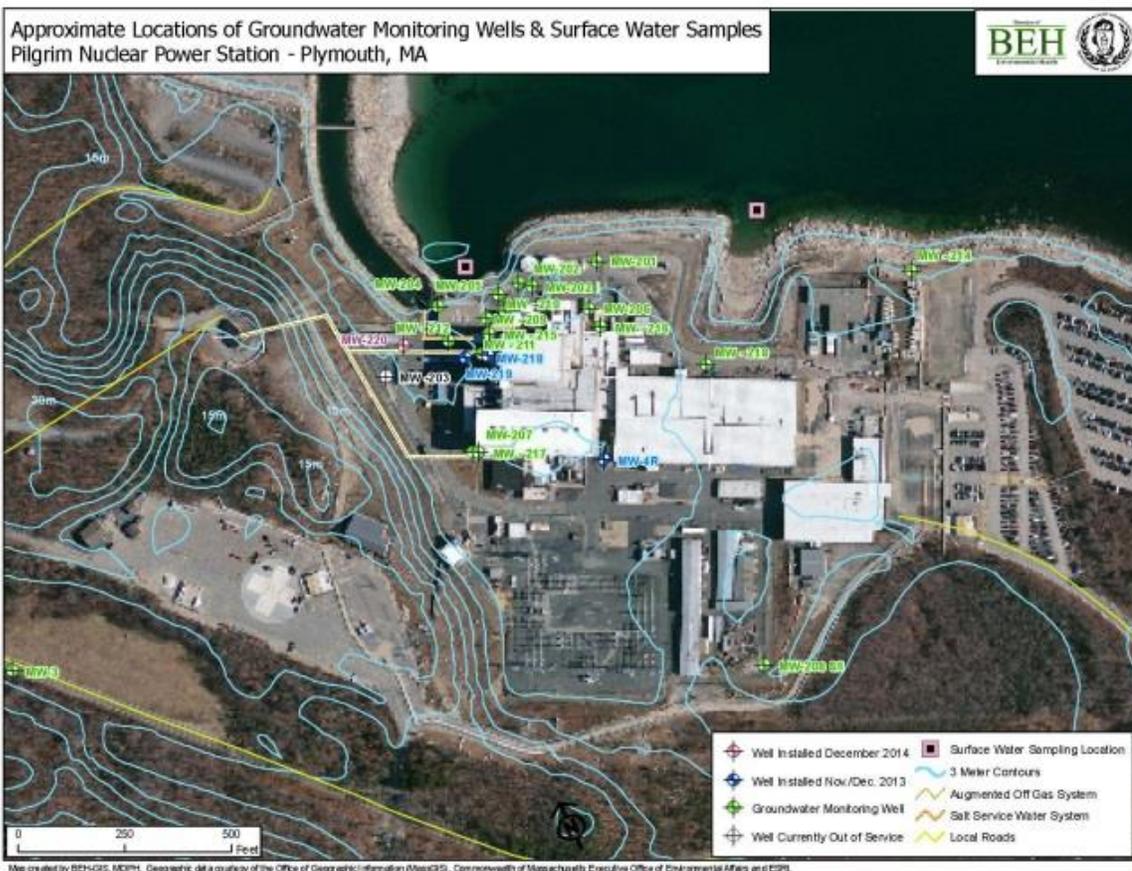
Tritium (H-3) is a radioactive isotope of hydrogen produced during routine nuclear facility operations. It has a half-life of 12.5 years, which is essentially the time it takes for it lose half of its radioactivity. Tritium is a carcinogen and a significant hazard. The most common form of tritium is in water. Tritiated water is colorless and odorless, and is commonly released and leaked at nuclear sites. Tritium’s hazardous life is 10-20x its half-life of 12.3 years and therefore remains a potential health threat for at least 120 years.¹

The National Academies of Science developed a 2005 [report](#), “Health Risks from Exposure to Low Levels of Ionizing Radiation,” which found **no safe level of exposure to radiation**; even low doses can cause cancer. To address this, the U.S. Environmental Protection Agency (EPA) set a [Maximum Contaminant Level Goal](#) (MCLG) for all radionuclides (including tritium) as **ZERO**. EPA defines MCLG as the “level of a contaminant in drinking water below which there is no known or expected risk to health.”

Despite their contaminant goal of zero, EPA permits doses of tritium to the general public of up to 15 millirem per year, and they have also set a maximum threshold for “safe” drinking water at 20,000 picocuries per liter (pCi/L). The

permissible limits for tritium are much lower in some U.S. states and Canadian provinces. For example, California’s recommended goal is 400 pCi/L, Colorado’s limit for surface water is 500 pCi/L, and Ontario’s recommended limit is 540 pCi/L.

The highest tritium level in Pilgrim’s history occurred in Jan. 2014, when 69,000-70,000 pCi/L was recorded a monitoring well.



MassDPH’s most recent map of Pilgrim’s groundwater monitoring wells.

¹ Beyond Nuclear. 2010. Leak First, Fix Later: Uncontrolled and Unmonitored Radioactive Releases from Nuclear Power Plants. 50 pp.