

Summary of Available Geologic Data on Natural Radioactivity, Woodbridge, Middlesex County

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May 25, 2022

The Mayor of Woodbridge Township, Middlesex County, reached out to the New Jersey Department of Environmental Protection to request a geologic assessment be done of the township to determine if there is any naturally-occurring radiation sources in the area. In response, the New Jersey Geological and Water Survey reviewed available data on naturally-occurring radioactive deposits in the area. In summary, there are no reports of elevated levels of radioactivity due to naturally-occurring geologic materials in Woodbridge Township. This evaluation is based on several sources of information including an understanding of the area geology, previously conducted on-the-ground exploration for radioactive ores with sample analysis, aerial surveys, and recent water quality tests.

Geologically, western Woodbridge Township is underlain by the Passaic Formation of the Piedmont Province. Eastern Woodbridge is underlain by the Raritan formation of the coastal plain. Neither formation has been found to contain any significant deposits of a naturally-occurring radioactive substance, nor is expected to.

Historically, there have also been a number of searches for radioactive minerals in New Jersey. In the 1950's prospectors looked for uranium deposits across the nation and, while not centrally coordinated, these prospectors are believed to have covered most of the State. These surveys failed to find any significant deposits of radioactive materials. Many results were reported to the NJ Geological and Water Survey and are available in the report "Radioactive Mineral Occurrences in New Jersey" (see Resource #1 below).

Further, the U.S. Department of Energy, through its National Uranium Resource Evaluation (NURE) program, conducted aerial surveys over the United States in the 1970's. The primary goal of this program was the identification of uranium resources in the United States. These surveys did not find any significant elevation of radioactivity over background levels in the Woodbridge area (Resource #2). Paper copies of the data collected in New Jersey are on file with the NJ Geological and Water Survey.

Radiological contaminants can be a concern in drinking water. For customers served by public water purveyors, drinking water is tested routinely, with varying frequency depending on the sampling history. These results are reported to customers via the purveyor's annual Consumer Confidence Report and online at the Department's Drinking Water Watch (Resource #3). The Middlesex Water Company serves the high school area. Middlesex Water had no violations for

radiological contaminants in the most recent monitoring in 2020, nor were there any over the period 2004-2020.

For private well owners, the Private Well Testing Act requires water testing of private domestic wells before a house sale and every five years for rental properties. These data are used to inform potential home buyers and tenants and to evaluate state-wide ground water quality. Generalized results are available on the Department's website (Resource #4). In the area around Colonia, one of the 53 private wells tested for gross alpha (a surrogate measure of uranium and radium) exceeded the standard of 15 pCi/L Maximum Contaminant Level (MCL). This is an exceedance rate of 1.9%. Statewide 11% of the private wells sampled for gross alpha exceeded this standard.

The following resources may be of interest or were noted in the text above.

1. [Radioactive Mineral Occurrences in New Jersey](#)
2. [National Uranium Resource Evaluation \(NURE\) Hydrogeochemical and Stream Sediment Reconnaissance data](#)
3. [Drinking Water Watch](#)
4. [NJ Private Well Testing Act Data Summary \(Sep. 2002 to Dec. 2018\)](#)
5. [NJDEP Radon Potential Map](#)
6. [Field Guide to the Geology of Radon Hazard Areas in New Jersey](#)
7. [Radon Testing and Mitigation: The Basics](#)