ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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DWGB-1-1 2020

Overview of Water Supply Sources

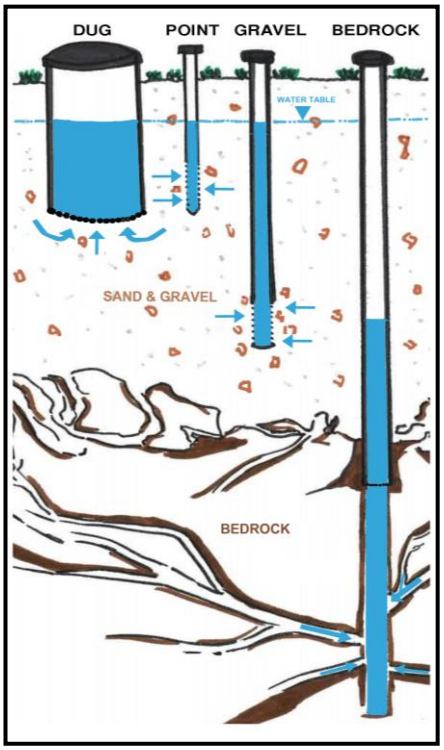
This is the first in a series of fact sheets regarding sources of drinking water supply commonly used in New Hampshire. The two types of water supply sources, surface water and groundwater sources, are described within. Refer to additional fact sheets from the New Hampshire Department of Environmental Services (NHDES) for more details on these sources of water supply.

Surface Water Sources

Approximately 40 surface water supplies are used as sources of public water in New Hampshire. NHDES strongly recommends that surface waters ***not*** be used as the source of drinking water for private homes due to their risk of contamination by bacteria and other disease-causing organisms. Refer to the fact sheet WD-DWGB-1-11 "Use of Lakes or Streams for Domestic Water Supply" for more information.

Groundwater Sources

New Hampshire is relatively water rich. Wells that take water from unconsolidated soil and rock deposits (sand and gravel above the bedrock) are called gravel wells, wash wells, point wells or dug wells. These wells are only feasible where the soils are sufficiently porous to transmit water and where the saturated zone (the area below the water table and above the bedrock) is sufficiently thick to resist drought effects. Bedrock wells (also referred to as drilled or artesian) are easily developed throughout the state, with a few exceptions.



Types of wells (NHDES, 2018)

Well drillers and pump installers in New Hampshire are licensed by the Water Well Board under NH RSA 482. The rules of the board are numbered We 100-1000. There are no state requirements relative to water quality or quantity for private home wells. Some towns have local requirements for private water wells. For guidance and recommendations on adequate water quantity, please see fact sheet WD-DWGB-1-13 "Determining the Reliable Capacity for a Private Water Supply Well and Pumping System." For recommendations on water quality testing, refer to a brochure developed by NHDES and the New Hampshire Department of Human Health Services titled "What's in Your Water."

Bedrock (Artesian or Drilled) Wells
Most wells in New Hampshire are drilled into bedrock. The median depth of bedrock wells drilled in New Hampshire is 400 feet and the median yield is 15 gallons per minute (gpm). Every bedrock well is different. The depth and yield of your neighbors well does not mean you will find a similar yield at the same depth on your property. If a bedrock well yield is low, the well's yield can often be improved by either surging or hydro-fracturing. For more information on bedrock well construction, refer to the NHDES fact sheet WD-DWGB-1-2 "Bedrock (Artesian, Drilled) Well Design."

Bedrock wells generally have few incidents of bacteria contamination, but tend to have high levels of naturally occurring contaminants, often at levels that pose a risk to human health. Specifically, concentrations of arsenic and radiological compounds (radon, radium and uranium) are, on average, much higher in bedrock wells than sand and gravel wells. Hardness minerals are typically higher in bedrock wells as opposed to sand and gravel wells. The occurrence of iron, manganese, taste and odor in bedrock wells is approximately the same as in wells in sand and gravel deposits.

Wells in Sand and Gravel

Dug Wells. These wells capture water in the upper unconsolidated soil and rock deposits. Historically, dug wells made from fieldstone were very common. More modern dug wells are made from precast concrete components and installed with an excavator. In a properly installed and maintained dug well the water enters the well from the gravel-lined bottom. Poorly constructed or aging wells can have water entering from the top or along the side walls, which contributes to their common bacterial problems. Refer to the fact sheet WD-WDWGB-1-4 "Dug Well Design" for more information.

Gravel Wells and Point Wells. These wells also capture water in the upper unconsolidated soil and rock deposits. Gravel wells are typically installed to depths greater than 30 feet and are installed using specialized drilling equipment (often cable tool or drive and wash rigs). Gravel wells are constructed with plastic (Schedule 40 PVC or thicker) casing and incorporate a screen (typically made of stainless steel) that is installed at the bottom of the well after the borehole is created. Point wells are essentially the same as gravel wells, however, the construction method is different. Point wells are installed with the screen at the front of the pipe being driven into the ground. Some point wells are less than 3-inches in diameter and installed by hand with hammers; these are typically installed to depths less than 30 feet. For more information, refer to the fact sheet WD-DWGB-1-6 "Point Well Design." In gravel and point wells water flows into the screened area at the bottom of the well.

All sand and gravel wells are susceptible to manmade chemicals contamination from many "backyard" activities. Gravel and point wells are less susceptible to bacteria contamination as groundwater is filtered through soil materials prior to entering the well through the screen. All sand and gravel wells are susceptible to manmade chemicals contamination from many "backyard" activities. Gravel and point wells are less sensitive the drought then dug wells as they are often installed deeper into saturated materials.

For More Information
Please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov or visit our website at des.nh.gov.

Note: This fact sheet is accurate as of June 2019. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.