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# ENVIRONMENTAL Fact Sheet

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WD-DWGB-1-1

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## Overview of Water Supply Sources

This is the first in a series of fact sheets pertaining to sources of drinking water supply commonly used in New Hampshire. Our goal is to provide a brief overview of issues pertaining to private wells used in New Hampshire.

### Types of Water Supply Sources

#### Surface Water Sources

Approximately 60 surface water supplies are used as sources of public water supply in New Hampshire. The Department of Environmental Services strongly recommends that **surface waters not** be used as the source of drinking water for private homes due to their risk of bacterial contamination. For information regarding using surface waters for private drinking water please see fact sheet WD-DWGB-11-1 "[Use of Lakes or Streams for Domestic Water Supply.](#)"

#### Groundwater Sources

New Hampshire is relatively water rich. Wells that take water from the unconsolidated sand and gravel deposits (above the bedrock) are only feasible where the soils are sufficiently porous to transmit water and where the water table is sufficient deep to resist drought effects. Bedrock (also called drilled or artesian) wells are easily developed through out the state.

Well drillers and pump installers in New Hampshire are licensed by the Water Well Board. The rules of the board are numbered We 100-900. There are **no** state requirements relative to water quality or quantity for private home wells. Some towns have local requirements for private water wells.

The frequency of occurrence of iron, manganese, taste and odor is approximately the same in all types of wells in New Hampshire.

#### Bedrock (Artesian) Wells / Drilled Wells

Most wells in New Hampshire are drilled into bedrock. The average bedrock well is 295 feet deep and has a yield of 6.5 gallons per minute (gpm). These wells are often called "artesian," however the term drilled or bedrock is generally more accurate. For more information on bedrock well design see fact sheet WD-DWGB-1-2 "[Bedrock \(Artesian, Drilled\) Well Design.](#)"

Approximately 5,000 bedrock wells are drilled annually in New Hampshire. The yield of bedrock wells can be improved by two processes. Before drilling, the precise placement of the well can be guided by the process called **fracture trace analysis**. Once drilled and where outputs are low, the well's yield can often be improved by the process called **hydrofracturing**.

Hydrofracturing is explained in fact sheet WD-DWGB-1-3 “[Well Development by Hydrofracturing](#).” Bedrock wells are typically the most expensive to construct. The operations of bedrock wells are also expensive because of the electrical energy needed to lift the water from deep in the ground.

Bedrock wells generally have high reliability relative to bacteria. Bedrock wells can experience the following natural contaminants: fluoride (2 percent over 4 mg/L) and radioactivity including, radium (1percent) and uranium (5 percent) compliance gross alpha (2 percent). Radon gas occurs in approximately 90 percent above 300 pCi/L and 70 percent above 2,000 pCi/L. Hardness minerals are typically higher in bedrock wells than sand and gravel type. Arsenic exceeding the new standard of 10 ug/L is likely in 15 percent of bedrock wells.

## **Wells in Soil**

**Point Wells.** These wells capture water in the loose soil deposits. Fewer than 2 percent of the wells in New Hampshire are point wells. These wells are typically 2-3 inches in diameter and located in fine sandy soil. For more information on point wells see fact sheet WD-DWGB-1-6 “[Point Well Design](#)” concerning point wells. These wells have low construction and low operational costs but are subject to drought effects and subject to manmade contamination from many “backyard” activities. Point wells are very reliable relative to bacterial quality.

**Dug Wells.** These wells also capture water in the upper sand and gravel deposits. Fewer than 10 percent of all wells in New Hampshire are dug. Historically dug wells were made from fieldstone. These wells are notorious for poor construction which leads to frequent bacterial problems. More modern dug wells are made from precast concrete components. For more information on a dug well design see fact sheet WD-WSEB-1-4 “[Dug Well Design](#).” The construction cost of dug wells is typically between that of point well and bedrock well. The operational cost of a dug well is low. Dug wells are sensitive to drought effects if not sufficiently deep and they are subject to manmade chemicals contamination from many “backyard” activities. Poor configuration and aging of the construction materials can contribute to frequent bacterial problems.

## **For Additional Information**

Please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or [dwgbinfo@des.state.nh.us](mailto:dwgbinfo@des.state.nh.us) or visit our website at [www.des.nh.gov/dwgb](http://www.des.nh.gov/dwgb). All of the bureau’s fact sheets are on-line at [www.des.nh.gov/dwg.htm](http://www.des.nh.gov/dwg.htm).

Note: This fact sheet is accurate as of January 2007. Statutory or regulatory changes, or the availability of additional information after this date may render this information inaccurate or incomplete.