Radon

Radon is a naturally occurring, odorless, colorless radioactive gas found throughout the United States. It is a daughter product formed by the radioactive decay of Radium and ultimately Uranium. Radon has been identified especially as a problem with indoor air quality.

The EPA estimates as many as eight million private residences may have radon contamination. Radon may enter the home though cracks in the foundation, floor drains, sump pumps, and any other openings. If the residence has a private well for drinking water supply, radon becomes a potential threat to the drinking water as it can easily be dissolved in nearby groundwater. Radon can also be a result of nearby uranium or phosphate mining operations.

Most experts agree that radon in air poses the greatest health threat; however, radon present in drinking water is suspected to cause stomach cancer and can contribute to the amount of radon in air. Since radon is a gas, it readily volatilizes into the air when water is used for cleaning, dishwashing, bathing and washing. The biggest health risk associated with radon in air is lung cancer. The National Cancer Institute and the Center for Disease Control believe that indoor radon is the number one cause of lung cancer in non-smokers and the number two cause of lung cancer in smokers. Radon in air attaches itself to dust particles that are breathed into the lungs. It then may release radiation that may lead to lung cancer. In order to determine if radon is a problem in the area a test must be performed. Radon should be tested for in the lowest level of the home, typically the basement. If the radon level in the basement exceeds 4 Pico curies per liter (pCi/L) and there is a private well for drinking water, one should also consider testing the water for radon levels.

There are currently two acceptable methods of removing radon from water, granular activated carbon or aeration. The problem associated with granular activated carbon is accumulation of radioactivity within the unit. Once the carbon is filled with radioactivity, it is considered a radioactive waste material and must be disposed of properly. Disposal of such materials can be costly and difficult. Aeration, a preferred method, removes the radon by degassing the water and venting the radon to the atmosphere above the roofline. Radioactive materials do not accumulate in this unit.

The established EPA standard for levels of radon gas in the air is 4 (pCi/L). At this time, the EPA has established a guideline for radon gas in drinking water at levels of 4,000 pCi/L for states or communities that have adopted and approved multi-media mitigation programs, and 300 pCi/L for those who have not. These standards were submitted to federal regulators in early to mid-November 2004; therefore, it is expected that there shortly will be enforcement of these standards. The EPA is considering a recommended level of 1000 pCi/L for those with private wells to give homeowners an idea of what is a safe level.

Worldwide Drilling Resource
April 2005
Author: Marianne Metzger

National Testing Laboratories, Ltd.
6571 Wilson Mills Road * Cleveland, OH 44143
800-458-3330 (Toll Free) / 440-449-8585 (Fax)
sales@ntllabs.com / www.watercheck.com