

Article 2 of 5 in a series of interesting and informative articles from Alberta's Working Well program providing well owners with the knowledge and tools they need to care for their water wells.



Groundwater 101 – Grandma Doesn't Always Know Best

Surprising Myths and Realities about Alberta's Groundwater Reserves

For decades now, a myth has been circulating about Alberta's groundwater reserves. "Imagine a great river flowing underground," my grandmother once told me. "That's where well water comes from."

I have to admit; Grandma was usually right when she told me things about the world and the way things are, but this time she had the story about underground rivers all wrong. "There's a myth out there that Alberta's groundwater flows in underground rivers," says Steve Wallace with the Water Policy Branch of Alberta Environment and Sustainable Resource Development. "For the most part, groundwater moves very slowly through pore spaces, fractures or fissures in rock and soil – more like a complex filtration system than a river."

Understanding the slow moving nature of groundwater is important to rural landowners who use private wells for their main water source, because it has implications when it comes to how aquifers become contaminated and how difficult they are to clean up. It typically takes a long time for contaminants to move within an aquifer or from one aquifer to another. Most often contamination in an aquifer comes from the surface and not from adjacent aquifers. The slow moving nature of these water bodies also makes them difficult to clean up once contaminated. "A contaminated well can be a real challenge to correct," says Ken Williamson, a rural water specialist with the Working Well program. "It's much easier to prevent a problem than to fix one."

The unique way groundwater passes through soil and gravel also affects the chemical and mineral content of the water and its drinkability. Since each aquifer is unique, it is important that periodic water testing be performed to determine the natural chemical and mineral content of the water. This testing can help a well owner determine if a filtration system should be used for household drinking water. Some natural minerals can be harmful to humans and need to be removed by filtration prior to consumption of the water. For example, fluoride is naturally present in most Alberta water and in small amounts it is considered beneficial. But high fluoride levels found in some aquifers may cause dental staining in small children as well as other issues.

Baseline testing prior to nearby development can be important when changes in water quality are noticed and a landowner suspects it was caused by the negligent actions of a third party. If regular testing has been done, the results can be used to help determine if the water quality was good prior to a particular event or date in time. If baseline testing has never been done, there is no empirical evidence that the water quality has declined.

Well owners have a responsibility to protect their water wells and keep ground water resources healthy and clean for future generations. Understanding the basics of where groundwater comes from is the first step in meeting that obligation.

Understand Your Well and Learn How to Manage It

Online resources and community-based workshops offered by the Working Well program provide well owners with the information and tools they need to properly care for their wells. For more information, visit the Working Well website at: www.workingwell.alberta.ca