

# Why is Source Water Protection Important?



Scott Hanson, MRWA Source Water Protection Specialist



## We can always drill deeper right?

Why is source water protection important? We can always drill deeper, *right?*

If you ask someone, “*what are you going to do if your water quality degrades to a level that no longer meets the standards of the Safe Drinking Water Act?*” you will typically get the response, “*We can always drill a deeper well right?*” Well, that depends.

.....  
*“There are few, if any, other options.”*  
 .....

In southwest Minnesota, there is not only a water quality issue but also a water quantity issue. In most cases the groundwater they are using is the only groundwater available. Because of this, the concept and acceptance of source water protection hits closer to home. There are few, if any, other options to the water they are using.

In southeast Minnesota the geology is dominated by a distinctive topography referred to as karst. The karst landscape is shaped by the dissolving action of water on carbonate bedrock (limestone and dolomite). Karst features include sinkholes, springs, disappearing streams and caves. This geology is very vulnerable to man-made contaminants especially in areas with very little cover or geologic protection over the carbonate rock formations. Due to the cracks and crevices, water rapidly infiltrates and larger openings form. Because of this, it is no surprise that several public water supply wells in this region have elevated nitrates. The degree to which is often determined by land use within the recharge area and the

amount of geologic protection above the uppermost rock layer.

In most of southeast Minnesota deeper aquifers protected by confining units do exist below this upper carbonate bedrock. You can drill a well into a deeper aquifer and avoid issues with man-made contaminants such as nitrates. However, this may not be the end of your water quality issues. Depending on the location and the formation in which the deeper well is completed, there is the potential for naturally occurring radium to be present at levels that require treatment to meet the Safe Drinking Water Act. It is possible to trade a man-made contaminant for a natural occurring contaminant. These deeper wells will often contain other minerals that are not health threats but trigger consumer complaints about taste, odor, and staining of fixtures.

A well thought-out wellhead protection plan can help identify measures that can prevent, mitigate, or slow down the impacts man-made contaminants have on a recharge area. In most instances, the contamination has not occurred overnight, and it might take the same amount of time to see the benefits of implementing a wellhead protection plan. However, with the karst in southeast Minnesota, it is possible that the contamination could have occurred overnight. This reiterates the need for a source water protection plan to identify and address any known contaminant. Source water protection is vital to protect the aquifers we are using today. “*We can always drill deeper*” comes with its own set of challenges.