EACoE Environotes
Immediate Release August 12, 2005, 495 words

YOUR SEPTIC AND THE GROUNDWATER SYSTEM

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Previous articles have described various aspects of the groundwater supply under the Town of Erin, including the operation of private wells. Today's topic is the waste products that result for our use of water on a daily basis – disposal into the household septic system. As always, it is the protection of our groundwater resource that is the current challenge for each of us. So again, how can this protection be accomplished in a long term and sustainable way when it comes to liquid waste disposal into the shallow groundwater?

In the Town of Erin, all septic systems are privately owned and operated by each residence and business. As with everything in life, this is a two-edged sword. Without a municipal sewage treatment system, the rate of growth is limited, so that the Town maintains its beauty and charm. However, there are currently several thousand individual septic systems that are used by people with widely varying interest and experience of how the septic system works. It only takes one incident, and a wide area within the shallow groundwater can be seriously damaged for many decades.

For all modern septic systems, the household waste is discharged into a large underground concrete tank that has two chambers. The larger chamber holds the raw waste. The chemistry in this chamber is critical. The microbes and bacteria are actively breaking the waste products down into simpler components. If this balance is disturbed (pouring concentrated cleaning solutions, solvents, engine oil down the drain), then the helpful bacteria is destroyed Many nasty things happen, so that the system functions poorly, weeping tiles become clogged and groundwater becomes seriously contaminated.

When the large chamber is full, it is designed to overflow into the smaller one. The decanted waste is then pumped (or gravity drained) to the weeping tiles for percolation into the unsaturated soils. With this older and still common style of septic system, we depend on several natural processes to take place to break down the dissolved compounds in the effluent. Plants use the nitrogen species (usually ammonia and nitrates) and phosphates as food. Below the root zone, these nutrients migrate with the groundwater over long distances, allowing slower chemical and physical processes break the compounds down.

As an alternative, there are tertiary treatment septic systems. Their name implies another level of treatment before the effluent is discharged to the shallow groundwater. These systems are designed to significantly reduce the nitrates and ammonia as part of the active treatment. Some systems can also reduce other

components, like phosphorus, bacteria and viruses. This eases the burden on Earth Mother to metabolize all of the effluent, and protects our groundwater!

Finally, your septic system is like ALL man-made constructions – it requires maintenance. Depending on volume of use, be prepared to pump the septic tank every five years; and be prepared to replace the tile field every 15 to 20 years.

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