

## Ripple Effect #25

### **Septic System Dynamics**

Keeping our ground and surface water resources free from pollutants is a concern for everyone in the Red River Basin. Regulations have been enacted to protect water resources from both point-of-discharge and non-point sources.

The most common “point” discharge sources are community waste water treatment systems, industrial discharges and animal feedlot systems. Another common discharge point is an individual septic treatment system (ISTS), usually found in rural areas.

Unlike other point discharge systems, ISTS aren’t regulated in the US through the National Pollutant Discharge Elimination System (NPDES), which is administered by state agencies under the guidance of the U.S. Clean Water Act. However, ISTS are regulated by local jurisdictions, as mandated by state law. In Canada, Manitoba Conservation has regulations in place controlling the location, installation and operation of septic systems, holding tanks and outhouses.

Concerns associated with ISTS arise from the potential for increased levels of nitrogen, phosphorus and coliform bacteria entering surface and ground water. These pollutants can enter water resources through improperly sized or installed septic systems, old systems that have failed, illegal straight-line systems or because of improper system maintenance. Another concern is disposal of medicines, chemicals, oils and paints—they can not only cause the system to fail, but are not naturally decomposed and can cause further damage to the ecosystem beyond the water resources.

Why are we concerned with nitrogen, phosphorus and coliform bacteria? Too much nitrogen and phosphorus entering shallow lakes or streams can cause eutrophication, meaning there is an abundance of plant growth, typically algae, in the water. Highly eutrophic waters can deplete aquatic life, be unsightly and make the water less useable for swimming, drinking or fishing. Coliform and other disease-causing bacteria coming from human or animal waste is not removed in septic systems and can cause dysentery, hepatitis or other diseases.

In addition, too much nitrogen, specifically nitrate, in ground water, too close to individual wells, can cause “blue baby syndrome” in babies or very young children. This syndrome occurs when excessive nitrates ingested through contaminated water react with the hemoglobin in the blood, preventing blood from carrying enough oxygen, causing the extremities to appear blue.

If you use an ISTS, make sure it is certified by a licensed technician as properly functioning. If it is an old straight-line system, change it to a properly installed system with an effluent settling tank and proper discharge pipes. Only if the effluent is allowed to filter through the soil profile can the effluent be purified by natural processes so there is less contamination to water resources.

Contact your local county or municipality to learn more about the care of your ISTS and let's all help to make sure we have good water quality in the Red River Basin.

Until the next Ripple Effect,

The Red River Basin Commission (RRBC)