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For Immediate Release

City Wastewater Discharge May Threaten Clear-running Creeks and Water Wells

by Vicki Wolf



Photo courtesy of Hill Country Conservancy

(April 17, 2014) Some water experts believe Hill Country clear-running creeks and streams may soon be a thing of the past if cities are permitted to discharge treated wastewater directly into creeks such as Onion Creek. Water wells may also become contaminated.

The sprawling Belterra subdivision was the first entity to be permitted for wastewater discharges into a contributing zone of the Barton Springs part of the Edwards Aquifer. Almost a decade ago,

Belterra received a permit from the Texas Commission on Environmental Quality (TCEQ) to discharge treated wastewater into Bear Creek. Now Dripping Springs is requesting a permit to discharge treated wastewater into Onion Creek as part of the \$28.6 million expansion of their sewage treatment plant.

Onion Creek and nearby wells that rely on groundwater are especially vulnerable to wastewater discharges. “The drought and increased pumpage from wells near Onion Creek have caused the creek to lose its base flow--the creek has often contained no flow during the past few years,” says Raymond Slade, Hill Country hydrologist. “Any effluent discharged to the creek would often represent the only flow in the creek, and that flow will be lost as recharge to the underlying Trinity and Edwards aquifers in Hays County. The effluent going into the stream likely will degrade the quality of nearby well-water.”

Currently, the ebb and flow of Onion Creek doesn't cause a problem for well-water quality of nearby residents because the only flow entering Onion Creek is runoff from the watershed, which is mostly good quality water. City of Austin water quality monitoring of 121 sites across the region currently rank the reach of Onion Creek in the vicinity of the proposed Dripping Springs wastewater discharge as having the second highest overall environmental integrity of all surface water sites monitored.

Treating wastewater can decrease the amount of nutrients, such as nitrogen and phosphorous, in the water. But even the very best technology leaves enough nitrogen and phosphorous to disturb the balance in a clear-running Hill Country stream. According to Dr. Lauren Ross, environmental engineer and owner of Glenrose Engineering, the nutrient load of natural, uncontaminated Hill Country streams is one-half milligram per liter (mg/L). The best treatment available gets the nutrient level down to 1-3 mg/L. Untreated effluent contains 30-60 mg/L. "We still can't discharge directly into creeks or we will eliminate clear, flowing streams in the Hill Country," Ross says.

Preliminary water quality modeling by the City of Austin indicates that, in its current condition, upper Onion Creek today maintains very little algae growth 96 percent of the time. With Dripping Springs' proposed discharge, the condition of the creek would be reversed: Excessive algae growth 93 percent of the time is predicted, with elevated nutrient concentrations continuing for many miles downstream.

Wastewater treatment systems are fallible -- pipes break and leak. Signs of an accident and an excessive nutrient load are Easter basket-green grass, a green stream, and later, algae blooms. Furthermore, wastewater contains contaminants from personal body care products as well as birth control pills, pain relief medicine, blood pressure medications and other pharmaceuticals that cannot be treated or removed from the water. Ross says these "emerging contaminants" are becoming a national problem and are present in the Edwards Aquifer and Barton Springs. "If you take wastewater effluent from a 2014 subdivision, you will have all these products in the wastewater," she says. These products could make their way into the aquifer, and thus the drinking water supply for the 60,000 Central Texans who rely on Edwards Aquifer wells.

Ross and Slade agree that effluent irrigation is better than direct discharge of treated wastewater into streams. Slade says for the Dripping Springs area, effluent irrigation works well as long as there is no irrigation while it is raining, or when the ground is soaked from a good rain. "Substantial amounts of evaporation and transpiration occur in the area. However, most of the time the soil and vegetation are dry, so there is potential for even more evaporation and transpiration," he says. "So the best way to get rid of effluent is to irrigate the vegetation and soil when the soils are dry. The soil absorbs it, and it's good for plants." Some plants, particularly wetland plants, are very effective at removing nutrients and processing other common wastewater contaminants naturally. Beneficial reuse of effluent for irrigation can decrease the amount of potable water used on landscapes. This would reduce pressure on the Colorado River and other surface water resources during extreme droughts.

The amount of effluent that cities must manage will continue to grow as long as the density of towns and cities increases. Ross says the region is not sustaining enough open space for the amount of wastewater that will need to be processed. "One of the initial things we can do is to have fewer people

by having fewer lots and more green space,” she says. “If you aren’t going to figure out how to accommodate loads in the landscape, it is really important for the TCEQ to establish low effluent concentration standards, and they aren’t doing that.”

With the appropriate treatment, wastewater can be a useful resource, according to John Dupnik, general manager, The Barton Springs/Edwards Aquifer Conservation District (BSEACD). With awareness of the drought and limited water supply, the public is beginning to accept reuse of wastewater. “When you start running out of water, bad water isn’t bad anymore,” he says.

Dupnik is involved in a collaborative group that has been working on a regional water plan for about 10 years. The goal is to develop the ideal wastewater management scheme for the Hill Country that will use wastewater as a resource and minimize any adverse impact to the aquifer. “We are hopeful that the city will work with us and consider alternatives to this application.”

Ginger Faught, Dripping Springs deputy city administrator, says the city welcomes beneficial reuse of wastewater and must be prepared for “a worst case scenario” should effluent exceed reuse capabilities or at times when it is inappropriate to irrigate. “We anticipate having a significant number of beneficial reuse customers in the future and want to accommodate that demand,” Faught says. “However, to do so, we are still required to obtain a discharge permit from the TCEQ.”

Chris Herrington, Water Resource Evaluation Section manager at the City of Austin Watershed Protection Department disagrees. “Beneficial reuse of treated wastewater effluent is allowed under Texas law and regulated by the TCEQ,” he says. “It can be accomplished with either a land application permit or a discharge permit. A discharge only permit is not a prerequisite for beneficial reuse of effluent.”

Any proposal from Dripping Springs to discharge water into Onion Creek will be met with careful scrutiny. “It will take a high level of treatment to go into the Edwards Aquifer,” Dupnik says. “We will just see if it meets those standards.”

Dripping Springs is participating in the regional “Sustainable Places” project that has identified parks and trails for open spaces the community can enjoy. These natural areas could provide an opportunity for sustainable wastewater treatment as the Hill Country grows.

Finding cost-effective alternatives to direct discharge of wastewater that will protect the existing high quality of the region’s surface and ground water resources, and accommodate Central Texas growth will be discussed at the upcoming Kent Butler Memorial Summit, April 25, at the LBJ Wildflower Center (<http://kentbutlersummit.com>).

Vicki Wolf writes for the Hill Country Alliance, a nonprofit organization whose purpose is to raise public awareness and build community support around the need to preserve the natural resources and heritage of the Central Texas Hill Country. www.hillcountryalliance.org