

Alamo, Austin, and Lone Star chapters of  
the Sierra Club  
Bexar Audubon Society  
Bexar Green Party  
Boerne Together  
Bulverde Neighborhood Alliance  
Cibolo Nature Center  
Citizens Allied for Smart Expansion  
Citizens for the Protection of Cibolo Creek  
Comal County Conservation Alliance  
Environment Texas  
First Universalist Unitarian Church of  
San Antonio  
Friends of Canyon Lake  
Friends of Dry Comal Creek  
Friends of Government Canyon  
Fuerza Unida  
Green Party of Austin  
Green Society of UTSA  
Guadalupe River Road Alliance  
Guardians of Lick Creek  
Headwaters at Incarnate Word  
Helotes Heritage Association  
Hill Country Planning Association  
Kendall County Well Owners Association  
Kinney County Ground Zero  
Leon Springs Business Association  
Medina County Environmental Action  
Native Plant Society of Texas – SA  
Northwest Interstate Coalition of  
Neighborhoods  
Preserve Castroville  
Preserve Lake Dunlap Association  
San Antonio Audubon Society  
San Antonio Conservation Society  
San Geronimo Valley Alliance  
San Marcos Greenbelt Alliance  
San Marcos River Foundation  
Save Barton Creek Association  
Save Our Springs Alliance  
Scenic Loop/Boerne Stage Alliance  
Securing a Future Environment  
SEED Coalition  
Solar San Antonio  
Sisters of the Divine Providence  
Travis County Green Party  
Water Aid – Texas State University  
West Texas Springs Alliance  
Wildlife Rescue & Rehabilitation  
Wimberley Valley Watershed Association

July 30, 2019

Ms. Kris Hogan  
MC 205, Office of Legal Services  
Texas Commission of Environmental Quality  
P.O. Box 13087  
Austin, TX 78711-3087

Re: 2016-042-309-OW: Amendments of Chapters 222 and 309 Relating to  
Beneficial Reuse Credits

Dear Ms. Hogan,

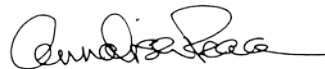
These comments are submitted on behalf of the forty-nine member organizations of the Greater Edwards Aquifer Alliance. Please note and count as commenting all of the organizations listed as signing this cover letter. GEAA positions and comments represent and require 100% consensus from our member organizations.

Unprecedented growth in the Texas Hill Country has boosted disposal of sewage effluent to the forefront of issues of concern among our members. Encouraging land application and the beneficial reuse of this effluent enhances efforts to conserve water and more effectively preserves the quality of recharge to our ground and surface waters. We therefore wholeheartedly support the proposed rule-making to allow beneficial reuse to partially substitute for Texas Land Application Permit (TLAP) wastewater disposal area.

We further propose the addition of rules that require a minimum buffer zone between irrigation & reuse areas, and riparian & aquifer recharge features in order to protect ambient water quality. As Texas grows and adds population, we must strike a balance by adopting rules that protect opportunities for water recreation and water tourism, and property rights of Texans who rely on well water, while permitting sustainable residential and commercial development.

Thank you for your work, and the work of all the TCEQ staff to protect water quality and to prepare a rule proposal that will improve and protect Texas rivers and streams, and for this opportunity to submit the attached comments.

Sincerely,



Annalisa Peace  
Executive Director, Greater Edwards Aquifer Alliance

Alamo Group of the Sierra Club, Bexar County  
Austin Group of the Sierra Club, Travis County  
Bexar Audubon Society, Bexar County

Bexar Green Party, Bexar County  
Boerne Together, Kendall County  
Bulverde Neighborhood Alliance, Comal County  
Cibolo Nature Center, Kendall County  
Citizens Allied for Smart Expansion, Comal County  
Citizens for the Protection of Cibolo Creek, Guadalupe County  
Comal County Conservation Alliance, Comal County  
Environment Texas  
First Universalist Unitarian Church of San Antonio, Bexar County  
Friends of Canyon Lake, Comal County  
Friends of Dry Comal Creek, Comal County  
Friends of Government Canyon, Bexar County  
Fuerza Unida, Bexar County  
Green Party of Austin, Travis County  
Green Society of UTSA, Bexar County  
Guadalupe River Road Alliance, Comal County  
Guardians of Lick Creek, Burnet County  
Headwaters at Incarnate Word, Bexar County  
Helotes Heritage Association, Bexar County  
Hill Country Planning Association  
Kendall County Well Owners' Association, Kendall County  
Kinney County Ground Zero, Kinney County  
Leon Springs Business Association, Bexar County  
Lone Star Chapter of the Sierra Club  
Medina County Environmental Action, Medina County  
Native Plant Society of Texas – SA, Bexar County  
Northwest Interstate Coalition of Neighborhoods, Bexar County  
Preserve Castroville, Medina County  
Preserve Lake Dunlap Association, Guadalupe County  
San Antonio Audubon Society, Bexar County  
San Antonio Conservation Society, Bexar County  
San Geronimo Valley Alliance, Medina County  
San Marcos Greenbelt Alliance, Hays County  
San Marcos River Foundation, Hays County  
Save Barton Creek Association, Travis County  
Save Our Springs Alliance, Travis County  
Scenic Loop/Boerne Stage Alliance, Bexar County  
Securing a Future Environment, Comal County  
SEED Coalition  
Solar San Antonio, Bexar County  
Sisters of the Divine Providence, Bexar County  
Travis County Green Party, Travis County  
Water Aid – Texas State University, Hays County  
West Texas Springs Alliance, Valverde County  
Wildlife Rescue & Rehabilitation  
Wimberley Valley Watershed Association, Hays County



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July 26, 2019

Ms. Kris Hogan  
MC 205, Office of Legal Services  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, Texas 78711-3087

**Subject: Rule Project Number 2016-042-309-OW: Proposed rule-making to allow beneficial reuse to partially substitute for TLAP wastewater disposal area**

Dear Ms. Hogan:

I am writing, on behalf of the Greater Edwards Aquifer Alliance and Save Our Springs Alliance to support the proposed rule-making to allow beneficial reuse to partially substitute for TLAP wastewater disposal area.

I am well-qualified to offer these opinions on the proposed rules. I have a Bachelor of Science, a Master of Science, and a Doctor of Philosophy degrees in civil engineering, each with a focus on water resources and environmental engineering. I also have forty years of experience in environmental engineering and have provided expert opinions regarding nine permit applications under the Texas Land Application Permit (TLAP) process. I am licensed to practice engineering by the State of Texas.

As development rapidly expands across the Texas Hill Country, vast quantities of water are and will be imported from the Highland Lakes and eastern aquifers. Much of this imported water will be converted to sewage. Of the many threats to Texas Hill Country stream quality and Edwards Aquifer recharge, this sewage is the biggest.

Historically, treated sewage over the Edwards Aquifer recharge and much of the contributing zone has been irrigated onto golf courses, other developed landscapes, or natural areas. Even though land application systems for wastewater disposal are not perfect, they are significantly better for stream water quality than directly piping sewage effluent into streams.

There is, however, financial pressure to substitute beneficial reuse for effluent irrigation. Even if treated effluent is supplied free or at cost, beneficial reuse eliminates land, operation, and maintenance costs associated with irrigation disposal. The proposed beneficial reuse rules could help preserve land application as the preferred Texas Hill Country wastewater effluent disposal option. The proposed rules may also conserve natural water in the face of increasing demands on finite resources.

Research has demonstrated, however, stream quality impacts from sewage effluent irrigation. The proposed rule must be written with clear standards to prevent water pollution from overly optimistic estimates of beneficial reuse demands. We strongly support the following five critical elements of the proposed rule.

1. **The proposed requirement that applicants demonstrate firm beneficial reuse demand.** The consequences of overly optimistic estimates of water demand are effluent application to frozen or saturated soils, off-site runoff and stream pollution. While these conditions are prohibited by permit terms and TCEQ rules, the history is one of nonenforcement. The proposed requirement that the applicant demonstrate a firm demand for wastewater effluent as a basis for eliminating irrigation area is key to the success of the proposed rule change.
2. **The 50% limit on the irrigation area reduction.** This area reduction limit ensures that at least part of the required irrigation area will be available during extended wet periods when beneficial reuse demand will be weak.
3. **The requirement to maintain 100% of the effluent storage.** During wet periods there will be no demand for sewage effluent from users. Effluent storage capacity during these periods is essential to ensure that irrigation will not occur when there is no available soil capacity for effluent uptake.
4. **The requirement to submit monthly reports on operation to TCEQ.** Currently records regarding flow rates, irrigation volumes, and effluent quality are maintained by operators onsite. TCEQ staff must travel to the wastewater facility to review these records. The public has no review opportunity except during the discovery

process for a permit renewal contested case hearing. The availability of wastewater irrigation disposal records for office review by TCEQ staff and the public will increase operational accountability.

5. **The requirement for pump-and-haul contracts to be in place.** Pump-and-haul disposal is required as a permit term for all TLAPs. The conditions that would result in pump-and-haul, however, occur during severe or extended weather conditions or during plant emergencies. Either of those conditions are difficult times during which to find and establish a transporter relationship. Anticipatory pump-and-haul contracts for times when the permittee is otherwise unable to operate within permit parameters will facilitate compliance.

There are also areas where we recommend that the proposed rules be strengthened to protect fragile streams, aquifers and ecosystems of the Texas hill country:

- **Implement buffer requirements.** Effluent movement through soil extracts nutrients and other chemicals that damage water quality. A strip of vegetated land between irrigation area and stream banks or recharge features is essential to keep treated effluent from moving directly into surface water or a karst aquifer. Vegetated land buffer requirements for TLAP effluent disposal are based on sound scientific reasoning.

The additional Type II treatment requirements for beneficial reuse do not address this nutrient contamination. Buffer protection is, therefore, equally important to protect water quality whether the effluent application is through TLAP or beneficial reuse authorization. We request that a buffer requirement be added to the proposed rule.

- **More protective effluent limits than Type II.** The City of Austin has extensive experience with reclaimed water irrigation. Their studies show nutrient increases in streams downstream from sewage effluent irrigation disposal areas. We recommend that nutrient loading standards similar to those for TLAP be

implemented for all irrigated beneficial reuse to prevent that degradation. Where nutrient load calculations indicate the potential for application rates higher than what can be used by vegetation, effluent nutrient reduction should be required prior to beneficial reuse for landscape irrigation.

- **Alternate demonstration of beneficial reuse firm demand.** The proposed rule contemplates firm demand for beneficial reuse based on historical records of reuse. There are two problems with this basis. First, during extended drought, historical records will over-estimate demand compared to ordinary or wet weather conditions. Second, reliance solely on historical records eliminates the opportunity for irrigation area off-sets for new wastewater facilities without access to historical reuse data.

This reliance solely on historical records as a basis for firm reuse demand is unnecessarily restrictive. The engineering community that prepares TLAP applications already has experience with water balance methods to estimate irrigation demand. Those same water balance methods could be applied to estimate beneficial reuse firm demand and the results would be at least as good, and likely better, than actual use records during dry periods.

Firm demand based on a water balance instead of historical use records would make the benefits of the proposed rule available to new wastewater facilities. It should not, however, eliminate the requirement for good record keeping regarding the daily volume of water supplied to each user and the beneficial use, including the size of irrigated areas.

- **Surface water monitoring.** Wastewater effluent permits that allow for reuse should include a requirement to monitor surface water downstream from beneficial reuse areas to verify that there is no surface water quality degradation. The City of Austin's study of surface water quality downstream from reclaimed water irrigation areas provides a useful modeling for such monitoring.

*Ms. Kris Hogan*

*July 26, 2019*

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Thank you for your work, and the work of all the TCEQ staff to protect water quality and to prepare a rule proposal that will improve and protect Texas rivers and streams. I am happy to answer any questions or offer clarifications to what I have written here.

Sincerely,



Lauren Ross, Ph. D., P. E.  
President  
Glenrose Engineering, Inc.



Sealed on July 26, 2019