



**Barton Springs
Edwards Aquifer**
CONSERVATION DISTRICT

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*Sent via email and public
comment form*

Robert Romig, Sunset Commission Project Manager
Texas Sunset Advisory Commission
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RE: Sunset Commission Review of Texas Commission on Environmental Quality (TCEQ)

Dear Mr. Romig:

The Barton Springs/Edwards Aquifer Conservation District (District) offers these comments and recommendations for the Texas Commission on Environmental Quality's (TCEQ) Wastewater Permitting Program. The District has the authority under state law over issues relating to the potential impact of wastewater effluent on the Trinity and Edwards Aquifers within the District. Over the last decade, the District has been involved in multiple initiatives to encourage sustainable management of wastewater to help prevent the degradation of our creeks and streams that recharge the aquifers that we have been entrusted by Texas Water Code to manage and protect. Our state-sanctioned role as a groundwater steward, however, is being threatened by inadequate state regulation of wastewater effluent and insufficient support for alternative ways to imagine reuse of the resource.

The TCEQ is responsible for protecting water quality in the state. The TCEQ is also the authority to regulate activities having the potential for polluting the Edwards and Trinity Aquifers. Furthermore, the purpose of the Wastewater Permitting Program is to protect the quality of the surface and groundwater in Texas by regulating the types and amounts of pollutants introduced into water through the issuance of written authorizations. **The District believes that, in many cases, the existing regulation and effluent standards are inadequate to protect the receiving stream uses and groundwater.** The District's comments, and concerns and their basis are provided below.

1. **Time is of the essence to implement sustainable wastewater management.** The population of Texas has grown 40 percent since 2000 and is projected to increase another 73 percent between 2020 and 2070, from 29.71 to 51.5 million people. As the population increases, so will water demand, wastewater generation, and the proportional increase in wastewater permits. There have been several attempts to pass legislation and adopt rules that would address concerns related to wastewater. In 2009, for example, a rule petition to prohibit domestic wastewater discharge within the Edwards Aquifer Contributing Zone was submitted to the TCEQ with the support of cities and

counties having jurisdiction over 95 percent of land area of the region. A stakeholder process initiated by the TCEQ in response to the petition elicited a weight of scientific evidence in support of the ban, but the effort faltered when the TCEQ proposed effluent standards that were not proven to be protective of water quality in place of a prohibition. In 2013, during the 83rd legislative session, the District helped draft legislation (HB 2046) that would have simply funded a study to provide the science and engineering basis for addressing concerns related to wastewater management. To date, all proposed legislation has failed and the TCEQ has yet to initiate an adequate study or rules on the issue. The current and growing threat to surface and groundwater quality requires greater urgency on the part of the TCEQ.

2. **The TCEQ has yet to develop numeric nutrient standards for rivers and streams despite creating a working group to do so in 2002.** Nutrient pollution, specifically in the form of total phosphorus and nitrate nitrogen, a component of total nitrogen, has numerous negative impacts on aquatic life, recreational uses, and public water supplies. The U.S. Environmental Protection Agency (EPA) recommends that states develop numeric nutrient standards. The TCEQ staff is using narrative nutrient standards for streams not numeric. Narrative standards are qualitative and subjective and can be viewed differently by different permit writers. By lacking numeric standards, TCEQ does not know when a stream has reached a tipping point and is taking a reactive approach, rather than a proactive approach, to protecting out streams and aquifers. Numeric standards are necessary to guide nutrient limits in permits and without numeric standards the TCEQ is without a way to estimate changes in the assimilative capacity of the stream or develop a total maximum daily load for streams that suffer from nutrient pollution. With the unprecedented growth in population and development, the TCEQ should, at minimum, fast track the development of nutrient criteria for the creeks and streams in the Edwards Aquifer Contributing Zone.
3. **TCEQ should seek input and adopt rules on decentralized wastewater systems that promote the maximum beneficial reuse of wastewater effluent.** Wastewater should be viewed as a resource and its reuse can achieve large savings in water, energy, and infrastructure. Decentralized wastewater treatment presents the greatest opportunity for reuse since treated wastewater will be generated closer to the potential reuse sites. This is an especially attractive option where new developments lack the traditional infrastructure either in-place or nearby for affordable connection to a centralized treatment system with available capacity. Reuse of the effluent resource will also lessen demand on potable water sources including groundwater. The TCEQ should foster regional collaboration on innovative initiatives and develop rules to help Texas overcome the mounting challenges regarding growing water demand and wastewater generation while ultimately protecting natural resources. Practical support for decentralized wastewater treatment will encourage water conservation and allow flexibility with how and where development occurs. Stronger agency support for decentralized wastewater treatment will help overcome aversion to risk that often influences local units of government, developers, and the engineering community and thus, perpetuates the traditional approach to dealing with this form of our water resource. Growing demand for water, water-related

services, and ongoing growth and development in our District and beyond, demand new approaches to managing our water resources.

4. **The TCEQ should establish a quantitative scientific analysis and the tools necessary for establishing numeric nutrients standards and nutrient effluent limits for Texas Pollutant Discharge Elimination System (TPDES) permits.** Because the TCEQ has not established numeric nutrient criteria for streams, the agency's technical assessment that is relied on is inadequate for assessing water quality degradation in streams. The TCEQ has established numeric nutrient standards for reservoirs and has established in the "Procedures to Implement the Texas Surface Water Quality Standards" document a very detailed and specific quantitative technical assessment screening method and model for assessing nutrient impacts in reservoirs. The TCEQ, however, is still using a simple qualitative screening assessment for streams. The EPA provides multiple approaches to establishing nutrient criteria such as the reference condition approach, empirical stressor-response models, and mechanistic water quality models. The EPA has created the Water Quality Analysis Simulation Program (WASP) used to model water quality responses including impacts from nutrients. It's well past the time for the TCEQ to establish a quantitative technical review and to invest in an adequate nutrient model for streams rather than maintaining the status quo. Furthermore, the EPA provides "Ambient Water Quality Criteria Recommendations," since 2001, for rivers and streams in nutrient ecoregions established throughout Texas and all states. The TCEQ should consider using this practical, science-based guidance for watersheds or smaller geographic areas which includes analysis of historical and recent data, reference conditions based on the 25th percentiles of nutrient data, models, expert review, and the assessment of potential impacts downstream. Any scientific analysis should not only consider the site-specific data related to a permit but the cumulative impacts (runoff, other discharge permits, etc.) and the assimilative capacity of the stream much as it is done when a total maximum daily load is calculated.
5. **Total phosphorus effluent limits should not only be based on achievable technology but on a quantitative scientific analysis too.** The TCEQ must acknowledge that some of Texas's most pristine streams have phosphorus concentrations that are so low as to potentially be nondetectable. Thus, even a small amount of additional phosphorus from wastewater discharges will degrade the water quality and potentially change the designated-use attainment status of the stream. Furthermore, if the TCEQ's desired future is to have clear-running, algae-free streams as many once were, it should require alternative wastewater (e.g., Texas Land Application Permits (TLAPs)) disposal/reuse methods if a scientific analysis determines that technology can't achieve the appropriate effluent limits for discharge to historically-pristine streams. Requiring wastewater disposal/reuse methods that are an alternative to discharge should not be viewed as anti-growth. Developers have used these alternative-to-discharge methods in the state and elsewhere. In addition, instream flows and bed and banks permits should not be the deciding factor in protecting the water quality of Texas's most sensitive streams and aquifers.

6. **Differentiate the technical review between a Tier 1 and Tier 2 anti-degradation review.** The “Procedures to Implement the Texas Surface Water Quality Standards” and “Texas Surface Water Quality Standards” documents state that antidegradation reviews under Tier 1 ensure that designated uses are not impaired and antidegradation reviews under Tier 2 ensure that high quality waters are protected and maintained unless lowering it is necessary for important economic or social development. Degradation is defined as a lowering of water quality by more than a de minimis extent. The TCEQ should establish a quantitative threshold and analysis for determining if a proposed discharge will lower the water quality in streams beyond a “de minimis” amount for Tier 2 anti-degradation reviews. In practice, the TCEQ appears to be conducting the same technical assessment for both Tier 1 and Tier 2 anti-degradation reviews despite the differing levels of protection that the two tiers intend to provide. Additionally, when a Tier 2 anti-degradation review indicates that a proposed discharge is expected to degrade water quality, the TCEQ evaluates whether the lowering of water quality is necessary for economic development such as an increase in employment, tax base, and housing. However, the TCEQ is failing to balance that review with the negative economic consequences or social costs associated with the degradation of water quality. The TCEQ also evaluates whether reasonable alternatives are available and there are multiple wastewater disposal/reuse alternatives available in almost all cases. These deficiencies are noted in the context of a Tier 3 designation that applies to waters classified as Outstanding National Resource Waters. Other states, including our neighboring states of New Mexico, Oklahoma, and Louisiana, have used this designation to acknowledge and protect the highest quality streams, but Texas has not.
7. **River segments located within the Barton Springs/Edwards Aquifer Conservation District that have been assigned the Aquifer Protection designated use especially need updated numeric standards to protect drinking water quality.** There are several environmentally sensitive ephemeral and intermittent streams that are interconnected with the shallow Trinity Aquifer in the Contributing Zone and provide direct recharge to the Edwards Aquifer over the Recharge Zone. These aquifer systems are the primary source of drinking water for tens of thousands of people in the region and the source of federally protected endangered species habitat at the Barton Springs complex. While streams (and their tributaries) that have been assigned the Aquifer Protection designated use – Barton Creek (Colorado River Basin Segment No. 1430) and Onion Creek (Segment No. 1427) – have specific standards established in a watershed rule (30 TAC Chapter 311) and in the Edwards Aquifer rules (30 TAC Chapter 213), the District believes those standards are outdated and ineffective at protecting this designated use as intended. The effluent standards of 5 mg/L carbonaceous biochemical oxygen demand (CBOD), 5 mg/L total suspended solids (TSS), 2 mg/L ammonia nitrogen, and 1 mg/L total phosphorus need to be updated. For example, TCEQ has issued TPDES permits in Bear Creek and Onion Creek (segment No. 1427) with more stringent effluent standards. Hays County Water Control & Improvement District No. 1 (TPDES Permit No. WQ0014293001) has effluent standards of 0.15 mg/l total phosphorus and 5 mg/l total nitrogen, and the City of Dripping Springs (TPDES Permit No. WQ0014488003) has an effluent standard of 0.15 mg/total phosphorus and 6 mg/l total nitrogen. While these phosphorus standards are an improvement over the current

standards set for the aquifer protection designated use, the nitrogen standards are still too permissive. In Florida, for example, where there is a similarly strong connection between drinking water, surface, and groundwater, total nitrogen nutrient thresholds for streams range from 0.67 mg/L to 1.87 mg/L across the majority of the state. Nitrate nitrogen in groundwater is a major concern and a stringent total nitrogen standard is necessary to protect human health and the health of bays and estuaries downstream. Failure to address the Aquifer Protection designated use with appropriately protective numeric standards poses a threat to public health and more.

8. **Defining numerical nutrient standards and technical procedures will help to minimize the number of contested-case hearings on wastewater permits.** The current regulatory environment has become an issue of great concern and contention and new wastewater permits for direct discharge, especially in the Texas Hill Country, are likely to be contested by a range of protestants. The contested-case hearing process is long and expensive for applicants and protestants alike with a highly uncertain outcome. There is a need to clarify regulatory uncertainty and provide a clear path to permitting. These types of rational outcomes depend on the TCEQ to adhere to its mission and act in a manner that is consistent with the agency's stated philosophy.
9. **The TCEQ should establish additional protective rules for TLAP and TPDES permits.** For TLAP permits, the TCEQ should require adequate treatment technology (e.g., membrane reactor) and effluent standards for TLAPs proposed over the Edward Aquifer Recharge Zone and require permittees to install soil moisture monitors to determine soil saturation to help determine when areas are unsuitable for irrigation. For certain of the TPDES permits, the TCEQ should require a category A wastewater-operator license, require the permittee to conduct a study of instream conditions, require disinfection by way of ultraviolet treatment instead of chlorination and require instream monitoring on ambient-background conditions and post-discharge conditions.
10. **The TCEQ should ensure that the cumulative or collective flow of On-Site Septic Facilities (OSSF) is being considered in permit decisions.** The TCEQ permits OSSFs producing 5,000 gallons a day or more and should ensure there are no loopholes in the rules relating to flow calculations that allow a developer to design a system of multiple OSSFs that falls under the individual OSSF flow requirement. Regardless of the number and the size of OSSFs that are designed to serve a new development, nitrogen limits should be established for outflow in concert with the assimilative capacity of the development site to protect groundwater and nearby creeks and streams from nutrient enrichment. This recommendation may require improved coordination with county governments that become the permitting authority in certain circumstances.

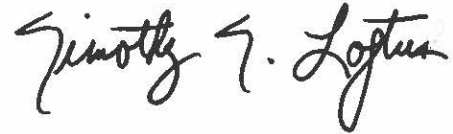
As a regulatory agency, we distinctly understand the need to consider science and follow thoughtful policies when making decisions on rules and permits. We are also keenly aware of the resources needed to have an adequate and skilled staff in order to fulfill our mission. The Texas Constitution makes clear that the preservation and conservation of the state's water and natural resources are public rights and duties. The TCEQ, along with the state legislature, is on the front line of ensuring that an ever-growing

number of Texans aren't being denied their constitutional rights. The TCEQ needs the funding and staff to accomplish their mission "to protect our state's public health and natural resources consistent with sustainable economic development." Improving the TCEQ's Wastewater Permitting Program is necessary in order for the Lone Star State to remain faithful in their promise to all Texans.

Respectfully yours,



Kendall Bell-Enders
Regulatory Policy and Project Manager



Timothy T. Loftus, Ph.D.
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