Greater Edwards Aquifer Alliance

Member Organizations

Alamo, Austin, and Lone Star chapters of the Sierra Club
Bexar Audubon Society
Austin, Bexar and Travis Green Parties
Bexar Grotto
Boerne Together
Bulverde Neighborhood Alliance
Bulverde Neighbors for Clean Water
Cibolo Nature Center
Citizens for the Protection of Cibolo Creek
Comal County Conservation Alliance
Environment Texas
First Universalist Unitarian Church of SA
Friends of Canyon Lake
Friends of Dry Comal Creek
Friends of Government Canyon
Fuerza Unida
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 Dunlop Association
Preserve Our Hill Country Environment
Riveraid
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
Signal Hill Alliance
Solar San Antonio
Sisters of the Divine Providence
Texas Cave Management Association
Trinity Edwards Spring Protection Association
Water Aid – Texas State University
Wildlife Rescue & Rehabilitation
Wimberley Valley Watershed Association

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October 21, 2026

Monica Reyes
TCEQ EAPP
Sent via online portal at: https://tceq.commentinput.com/

RE: Edwards Aquifer Protection Program 2026 Comments

Dear Ms. Butler,

The following comments are submitted on behalf of the fifty-nine member organizations of the Greater Edwards Aquifer Alliance (GEAA), all of which are united behind a comprehensive plan to protect the Edwards Aquifer, its springs and watersheds, and the Texas Hill Country. The memberships of these organizations represent a large segment of the population that relies on the Edwards Aquifer for their potable water supply, and a broad consensus on how to best protect the aquifer.

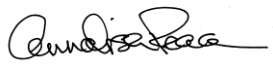
We ask that each member group of our Alliance, all of which have endorsed these recommendations, be listed individually as submitting these comments. Provided here is a list of the member groups that belong to GEAA for inclusion as supporting the comments.

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 a Texas Land Application Permit (TLAP) wastewater disposal area.

We respectfully request that TCEQ conduct a stakeholder process to review current science and discuss potential EAPP rule and guidance document modifications in a collaborative setting. Such a conversation would not only provide an opportunity for stakeholders to efficiently coordinate and reduce duplication of efforts, but also provide TCEQ with the best available research to inform EAPP improvements. We believe that such a stakeholder process is consistent with the TCEQ philosophy to base decisions on sound science, ensure regulations are effective and current, and ensure meaningful public participation in the decision-making process.

Additional, specific comments on the Edwards Rules are attached for your consideration. We ask that you consider and act on the recommended measures embodied therein, as you go about amending the Edwards Rules. Thank you for your consideration of these comments. If you have any questions, please contact me at your convenience at 210-320-6294 or Annalisa@AquiferAlliance.org. .

Sincerely,



Annalisa Peace, Executive Director

Revisions to the Edwards Aquifer Protection Program technical guidance manual, RG-348, including the method for calculating removal of total suspended solids

There is a growing national consensus that drainage problems produced by urban development, such as downstream scour and habitat damage as well as flooding, can best be addressed by incorporating low impact development (LID) practices in new development and retrofit projects. The basic goal of LID is to make site runoff conditions after development mimic the pre-development condition. This is accomplished by using a substantial toolbox of measures, many of which involve promoting infiltration and evapotranspiration in some areas to compensate for the effects of impervious cover in development.

However, in the Edwards Aquifer area this can be very difficult to achieve when many BMPs incorporate liner requirements.

The Edwards Rules do not prohibit the infiltration of stormwater and 30 TAC Chapter 331 implies that it is appropriate in some situations when it states that "improved sinkholes or caves located in karst topographic areas that inject storm water, flood water, or groundwater may be authorized." A primary question then is "What must be the quality of stormwater for 'injection' (or infiltration) to be authorized?" While obvious, it is nevertheless worthwhile to note that "natural" infiltration to the Edwards Aquifer includes runoff through soil that contains animal droppings and a wide range of other organic matter. Expectations for infiltration purity in developed areas need to be based on a realistic and balanced assessment of significant pollution risk.

Permanent BMPs revisions to promote LID and water conservation

1. Replace impermeable liner requirement with leaky liner that provides sufficient filtering for discharge. Suggested language (from retention/irrigation guidance): Liners should consist of a minimum of 12 inches of biologically active soil with vegetation to remediate stormwater pollution. Any geologic/sensitive features that could allow the water to directly enter the aquifer must be sealed prior to installing the liner. Rocky soils are acceptable for liners provided that sharp edges in this media do not perforate the liners; however, the coarse material (diameter greater than 0.5 inches) should not account for more than 30% of the soil volume.
2. Require that underdrains be configured to provide internal water storage (IWS) as shown in Figure 1 for sand filters and bioretention (without the impermeable liner shown in that version). Reason – underdrains will likely be required because of low soil permeability, but IWS will increase recharge between events.
3. Eliminate filter fabric separating filtration media from gravel underdrain in bioretention systems and replace with a choker layer consisting of 2 inches of #8 or #89 stone. Reason – Allows plant roots access to the soil below the system to improve survivability in dry weather
4. Allow roof runoff to be used for direct aquifer recharge after sand filtration or biofiltration, if not comingled with another runoff from the site. Reason - Roof runoff is substantially cleaner than runoff associated with paved surfaces and enhanced recharge would offset groundwater demands associated with new development.

Temporary BMPs

Recent research (Eck et al. 2012) and experiences locally (e.g., City of Austin Water Treatment Plant 4) indicate that substantial improvement in discharge quality at construction sites can be achieved with the use of mulch on disturbed areas. Consequently, we recommend a new section specifically on mulch, which would require that all vegetation removed as part of land clearing activities be chipped/shredded on site and used to cover disturbed areas to the extent feasible.

In order to reduce soil compaction by construction equipment to enhance infiltration of stormwater, we further recommend that pathways traversed by heavy equipment should be mulched ¾ " before initiating site work.

- **Compliance monitoring of plan-related best management practices following installation.**

We have seen frequent examples of inadequate erosion and sedimentation construction controls causing significant pollution events. Off-channel ponds, rock gabions in addition to silt fences, and appropriately limited phasing of clearing and grading all need to be required and strictly enforced to protect the aquifer from construction runoff. Construction staging should also be minimized to allow for immediate revegetation and minimization of pollution risks. These requirements should all be strictly monitored and violations assessed significant penalties to act as a deterrent to non-compliance.

An investigation into the monitoring of permanent water quality BMPs within the Edwards Aquifer Recharge Zone in Bexar County was initiated after GEAA staff received documentation that scattered BMPs accessible to viewing (not within gated communities) were not being maintained. Issues included:

a. Sedimentation within the basin preventing inflow of stormwater into the basin
b. Stormwater not being collected into the basin, bypassing the structural BMP
c. Standing water within the basin for more than 48 hours after a rain event

While ongoing inspection for BMP maintenance is completed by San Antonio Water Systems (SAWS) within San Antonio and its ETJ, TCEQ has final responsibility for water quality within the aquifer. Interviews with TCEQ noted that there is no shared database between TCEQ and SAWS and that TCEQ only takes action after SAWS files a complaint when an entity responsible for a non-compliant basin has not addressed the issue.

While investigating the issue, GEAA staff were repeatedly sent to the Central Registry by TCEQ staff to secure information in regard to non-compliant basins. This effort highlighted that the Central Registry did not contain most of the pertinent data needed to evaluate the BMP, especially when trying to obtain a list of the commercial and residential BMPs.

i. The tracking number (first number in the registry): neither local TCEQ staff nor staff in Austin knew what the tracking number referenced yet it is the first number given.
ii. Searching and being able to open permits for projects over the recharge zone could only be accessed through all of the permits for a project, no matter the size:

a) Projects are located by the closest known intersection even for projects of more than 1,000 acres.

b) All of the permits for a project are included with no method for sorting. Permits for a large project may have 100's of permits that include those associated with the SWPPP. Therefore, to find a permanent water quality BMP permit, every line item must be reviewed.

c) Once a permanent water quality BMP is located, there are typically no details available when the link is opened:

- no specific location within the project for the permitted BMP
- minimum dates for approval, construction initiated and completion, final inspection or as- built information
- while there is link for legal documents, it appears the link does not go anywhere

Finally, after numerous phone interviews with TCEQ staff, it was determined that TCEQ does have an internal system with coordinates and a greater amount of detail information, it is simply not available to the public. Therefore, a PIR would be required for each BMP in question at a cost to the requestor.

It appears the only actions taken by TCEQ occur when SAWS refers non-compliant sites to TCEQ for greater punitive actions. Therefore, it is our understanding that there is no follow-up by TCEQ to ensure that SAWS and/or BMP owners are completing inspections and required maintenance to ensure BMPs are compliant.

To remedy these deficiencies, we recommend that TCEQ:

a. Separate the permanent water quality BMP plan submittals from the temporary SWPPP
b. Create a database that can be shared between TCEQ and SAWS to ensure that a permit is not issued until SAWS has completed and approved the plan review. Allow access to the basic data to the public (see DSD online permit database)
c. Utilize this database for ongoing compliance monitoring.
d. Codify that TCEQ will revisit/inspect basins on a random basis, ensuring that each basin is inspected within seven years.
e. Include record keeping on BMP maintenance companies to track those with continuing issues/violations

Improving and Facilitating use of Sustainable Development Stormwater Structural Control Measures within the Edwards Aquifer Recharge Zone

Stormwater management engineering best practices and scientific knowledge about regulated activities with the potential to pollute the Edwards Aquifer and hydrologically connected surface streams have advanced in recent years. For example, GEAA is very interested in discussing EAPP guidance regarding media composition and liner requirements for certain types of stormwater structural control measures. We have been awarded a grant for a stormwater retrofit and research project from the City of San Antonio's Proposition 1 Edwards Aquifer Protection Projects within the Urbanized Areas of Bexar County's Recharge and Contributing Zone Program. Included in our funding agreement is pre- and post-construction stormwater monitoring data that will, we hope, be useful to this discussion. GEAA's model project implements a treatment train employing a sediment basin, a biofiltration basin, and natural retention in a park-like setting.

Some specific improvements to the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program (EAPP) and 30 Texas Administrative Code Chapter 213 (Edwards Rules) and associated guidance documents that would improve the level of protection provided to the aquifer might be enhanced by studying model projects to determine the effectiveness of constructed wetlands and prairies employed as filtration systems.

- **Technical guidance documentation for stormwater structural control measures (SCM) should be reviewed and updated to reflect current engineering science.** Design criteria for some SCM may be out dated. For example, TCEQ EAPP biofiltration media requirements include 20% compost, which City of Austin analysis has demonstrated may result in unintended nutrient export comprising the effectiveness of the SCM. Compost should be defined as humus material of decomposed vegetation without manure or biosolid content.

Clarification of guidance documents regarding infiltration for certain SCM is also needed for consistency, and could occur in an administrative manner not requiring a rule revision. Additionally, liner requirements for infiltration SCM for some land uses less likely to generate highly contaminated runoff should be reviewed using the best available data to determine if regulatory requirements may be simplified such that additional recharge to the aquifer may be achieved without degrading the quality of recharge by an unacceptable amount.

- Performance comparison of stormwater biofiltration designs https:// repositories.lib.utexas.edu/handle/2152/ETD-UT-2010-08-1921
- Evaluation of potential for water quality impacts from unlined stormwater basins in the Barton Springs Recharge Zone http://www.austintexas.gov/watershed_protection/publications/document.cfm?id=240241

- **The stormwater best management practice performance standard should be reviewed relative to the stated purpose of 30 TAC 213.1 to protect the Edwards Aquifer using the latest engineering and hydrogeologic data.** Substantial information on stormwater structural control measure performance has been generated by multiple entities, including the City of Austin (see below for examples). Water quality temporal trend analysis for Edwards Aquifer Spring, well, and hydrologically-connected surface water resources has been generated by multiple entities (see below for examples), and indicates degradation over time for some constituents in Barton Springs. The 80% total suspended solids removal standard of the Edwards Rules remains the benchmark used for assessing compliance for critical infrastructure projects like State Highway 45 Southwest. TCEQ, in a collaborative stakeholder process, should compile and review the latest available stormwater structural control measure performance information in comparison to water quality data from Edwards Aquifer springs, wells, and hydrologically connected surface streams to ensure that existing regulations are effective in protecting the Edwards Aquifer.

  - Stormwater Control Measures in Austin, TX: Data Report http://www.austintexas.gov/watershed_protection/publications/document.cfm?id=202219
  - Impacts of Stormwater Control Measures on Water Quality in Austin, TX http://www.austintexas.gov/watershed_protection/publications/document.cfm?id=202218
  - Stormwater Control Measure Bypass Pollutant Concentrations Based on Storm Runoff Concentrations http://www.austintexas.gov/watershed_protection/publications/document.cfm?id=214826
  - Analysis of Water Quality Trends at Barton Springs and surrounding springs in Austin, TX (1995-2015) and an Alternative Framework for Future Analysis http://www.austintexas.gov/watershed_protection/publications/document.cfm?id=263435
  - An Examination of Stormwater Quality and Quantity in Austin Area Creeks http://www.austintexas.gov/watershed_protection/publications/document.cfm?id=283712

Please review existing EAPP staffing levels to ensure sufficient staff is available to effectively achieve the stated purpose of the Edwards Rules. Water Pollution Abatement Plans are not consistently verified with proactive inspections in the field, and inspections occur only in response to complaints. However, greenfield developments may occur in areas not visible or accessible to the public, such that no complaints may be generated.

We also ask that TCEQ provide adequate funding for trained and experienced staff, and that monitoring and enforcement of the Edwards rules, where appropriate, be delegated to local agencies that are better equipped to handle these duties.

We are aware that TCEQ staff is under special pressure to process Water Pollution Abatement Plans for approval within 60 days rather than the 90-day period provided for in the Edwards Rules. If anything, the rules should increase the 90-day period to provide for more comprehensive review of WPAPs.

Permitting Texas Pollutant Discharge Elimination System (TPDES) should be prohibited in the Contributing Zone of the Edwards Aquifer.

In addition to pollution from construction and urban runoff, sewage and wastewater effluent are among the primary pollutants of the Edwards Aquifer. In light of the recent ruling SOS v. TCEQ; in the 459th Judicial District Court of Travis County, Texas[1] we recommend that TCEQ consider a rulemaking process that would require the Agency to adhere to the measures upheld in this ruling and/or align with the prohibition recommended in SB 1709 / HB 3606[2] introduced during the 85th session of the Texas Legislature.

Disposal of wastewater is one of the greatest threats to maintaining water quality in the contributing watersheds to the Edwards Aquifer. Current rules only prevent wastewater discharge within the Recharge Zone. Discharges in the Contributing Zone, even in compliance with current rule, would significantly alter the quality of these oligotrophic surface waters and degrade the aquifer, as demonstrated by recent analysis a recent report, "Bioassessment of four Hill Country streams threatened by proposed municipal wastewater discharges" by Dr. Ryan S. King and Dr. Jeffrey A. Back of the Center for Reservoir and Aquatic Systems Research, Baylor University, Waco, TX[3] The quality of water in the Contributing Zone directly impacts the quality of discrete recharge in the Recharge Zone. Direct discharge of wastewater should be prohibited not only within the Recharge Zone, but also within the Contributing Zone of the San Antonio and Barton Springs segments of the Edwards Aquifer.

There is widespread scientific consensus, and governmental support for, prohibiting wastewater discharges into the Edwards Aquifer in order to prevent degradation. GEAA recommends that TCEQ should revise Section 213.6 regarding Wastewater Treatment and Disposal Systems, to prohibit TPDES permits from being approved within the Contributing Zone of the Edwards Aquifer. We believe that direct discharge of wastewater into waterways on the contributing zone is a growing problem that needs to be urgently addressed. Effluent discharges pose a risk to human health by introducing anthropogenic pharmaceuticals and other unmonitored chemicals into potable water supplies. Sensitive surface waters within the Contributing Zone cannot withstand the reductions in dissolved oxygen and increases in algae producing constituents that are caused by effluent discharge.

- Emerging contaminants: Current rules for the contributing zone do set minimum levels of effluent treatment for pollution control. However, anthropogenic contaminants only found in sewage effluent, such as unmetabolized pharmaceuticals and personal care products, are not regulated. The effects of allowing these contaminants to accumulate in groundwater which will be used for drinking water are unknown, and potentially dangerous. Many private well owners, local water supply companies,

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[1] Cause No. D-1-GN-19-003030; SOS v. TCEQ; in the 459th Judicial District Court of Travis County, Texas

[2] https://aquiferalliance.org/wp-content/uploads/2018/07/NoDischargeBill-FactSheet.pdf

[3] https://www.bartonspringsuniversity.org/uploads/2/1/7/4/21744914/final_report_from_baylor_university_to_sosa_final_10.23.20.pdf

Including San Antonio Water Systems that serves the entire City of San Antonio, do not pretreat Edwards Aquifer water prior to distribution and consumption.

- Rapid, dense residential development over the contributing zone: Three counties in the contributing zone, Comal, Hays, and Kendall, are among the ten fastest-growing counties in the USA. Developers are building dense subdivisions and applying for TPDES permits. The growing number of wastewater treatment plants discharging directly into waterways in the Contributing Zone is cause for great concern.

Existing discharge permit procedures should be re-evaluated relative to 2006 U.S. Fish and Wildlife Service recommendations.

- Recommended water quality for federally listed species in Texas https://www.researchgate.net/publication/323522633_RECOMMENDED_WATER_QUALITY_FOR_FEDERALLY_LISTED_SPECIE S_IN_TEXAS_USFWS_Technical_Report
- Recent (2008–10) Concentrations and Isotopic Compositions of Nitrate and Concentrations of Wastewater Compounds in the Barton Springs Zone, South-Central Texas, and their Potential Relation to Urban Development in the Contributing Zone https://pubs.usgs.gov/sir/2011/5018/
- WASP Model Analysis of a City of Dripping Springs Proposed Wastewater Treatment Plant Discharge to Onion Creek http://www.austintexas.gov/watershed_protection/publications/document.cfm?id=254063
- An Analytic Water Quality Model of Onion Creek examining Impacts from a Proposed Wastewater Point Source Discharge http://www.austintexas.gov/watershed_protection/publications/document.cfm?id=266618

Recommendations for Texas Land Application Permits

Many of the sewage plants in the region use irrigation/land application for wastewater effluent disposal. The Edwards rules should be strengthened to include specific requirements for wastewater treatment, storage, and irrigation in the following ways:

- Increase storage required for subsurface irrigation systems to be equivalent to what is currently required for surface irrigation systems.
- Require effluent monitoring for total nitrogen and phosphorous
- Require automatic shut-off soil moisture monitoring using tensiometers
- Baseline sampling of adjacent creeks and quarterly sampling after rainfall during irrigation.
- Measure buffers from creek beds rather than stream center to ensure adequate creek protection as stream beds wash out from development.
- Adopt stricter standards for lift stations, similar to City of Austin standards.

Provide Additional Protection for the Edwards Aquifer Contributing Zone

GEAA urges TCEQ to adopt rules for the Edwards Aquifer Contributing Zone. According to recent studies[4]

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4 Interconnection of the Trinity (Glen Rose) and Edwards Aquifers along the Balcones Fault Zone and Related Topics Karst Conservation Initiative, February 17, 2011, Meeting Proceedings - Austin, Texas, July 2011http://www.bseacd.org/uploads/AquiferScience/Proceedings_Edwards_Trinity_final.pdf

"Currently, Texas Commission on Environmental Quality (TCEQ) regulations on the Edwards Aquifer Contributing Zone are limited, especially when compared with those for the Edwards Aquifer Recharge Zone. The rules are predicated on the premise that no water from the Contributing Zone directly recharges the Edwards Aquifer and that the role of the Contributing Zone is solely to convey surface water to the Edwards Aquifer Recharge Zone where it can then enter the subsurface.

In reality, the Edwards Aquifer is significantly recharged by water infiltrating the Contributing Zone. This infiltrated water is then conveyed to the Edwards Aquifer from the Trinity Aquifer by intraformational flow. Recent studies support the supposition that hydraulic communication between the upper Glen Rose Aquifer (i.e., the upper most unit of the Trinity Aquifer) and the Edwards Aquifer is greater than previously believed. Because of this high level of hydraulic communication, the distinction between the Contributing Zone and the Recharge Zone of the Edwards Aquifer is not great, and in many localities, the Edwards Aquifer Contributing Zone effectively acts to recharge the Edwards Aquifer in a fashion indistinguishable to the Edwards Aquifer Recharge Zone."

Regulation of aggregate production operations (APOs) located over the Edwards Aquifer

The creation of a draft Best Management Practices (BMP) for aggregate production operations impacting the Edwards Aquifer is long overdue. Soliciting public input is appreciated by those of us who are interested in preventing pollution of the Edwards Aquifer from APO's.

TCEQ should also consider incorporating Edwards-specific rules for quarries and rock crushers in the Recharge and Contributing Zones. Where these facilities are located in Edwards Limestone, the underlying aquifer is particularly vulnerable to contamination, whether or not the quarry actually excavates to below the aquifer water level. Without more stringent TCEQ regulations, quarries and rock crushers threaten to degrade the Aquifer and damage the health and water supply of adjacent communities.

TCEQ should provide additional venues for public participation in considering APO's on the Edwards Aquifer Recharge Zone (EARZ) by providing for public meetings, public hearings and contested case hearing process for water pollution abatement. This could be achieved by changing the Water Pollution Abatement Plan (WPAP) to a Water Pollution Abatement Permit. Since APO's are only required to go through the permit application process for air quality, the public is deprived of the opportunity to pursue concerns regarding vital groundwater resources.

GEAA recommends increasing buffer zone requirements around aggregate operations. Buffering impacted residents will provide greater protections from air and water quality impacts. Of special concern are potential impacts to exempt wells that many rural residents rely on as their primary source of water.

Allowing aggregate mining to an estimated depth of only twenty-five feet over the Edwards Aquifer Recharge Zone is an unsafe practice. Mining depth should be raised to at least fifty feet over the Edwards Aquifer in order to avoid pollution. Edwards Aquifer pollution can potentially occur at any time during the operation of a quarry, as well as at any given time after the quarry pit site is abandoned. The use of a well for mining depth information in the quarry pit area can be unreliable and inaccurate. Currently, determining where the placement of a well should be in relation to the quarry pit is not defined. Aggregate quarries can be very large. For example, two quarries in Medina County were proposed to be one-mile-wide and three miles in length. If wells are to be used to accurately determine the safe depth of quarrying, they must be in close proximity to the active mining area. In large quarries, it may be necessary to have multiple monitoring wells to accurately determine the safe depth of mining permitted. Data obtained from these wells should be

monitored closely to determine the water level in order to ensure that pollution of the aquifer does not occur due to excessive removal of limestone, especially after periods of heavy rainfall over the underlying quarry pit.

Sensitive features identified in geologic assessment: Currently, TCEQ permits the practice of allowing residue derived from settling ponds during the aggregate processing and allowing this material to be returned to the quarry pit, where it is dumped. This practice should be prohibited on the EARZ. No analysis of this material is currently required, yet it contains potential pollutants including surfactants. Allowing this material to be placed back into the recharge zone, where it can leach back into the aquifer not only exposes the Aquifer to pollution, but also creates an impervious cover for the floor of the quarry pit. If TCEQ allows the continued disposal of this grout-like material to be dumped into the quarrying pit, the aggregate company should be required to provide an alternative to make up for the loss of recharge to the aquifer, as is noted when it is determined that a sensitive feature must be sealed.

A major problem with the present regulations is that there is no requirement for any land reclamation and/or revegetation upon quarry abandonment. There is also no provision for maintenance of any berms or other pollution controls that were installed by the quarry operator.

Furthermore, the technical guidance on BMP for quarrying operations should not solely apply to the EARZ, but should be utilized in other karst aquifers, particularly in areas where both the Contributing Zone of the Edwards Aquifer overlaps the recharge zone of other aquifers. Given that recent studies identify communication between the Trinity and the Edwards karst aquifer systems, it does not seem to be prudent that this manual should apply only to the Edwards Aquifer.

Pollution of the Edwards Aquifer or other karst aquifers can still occur if aggregate companies are not closely monitored on a regular basis. Violators should be subjected to substantial, strictly enforced fines and cleanup costs.

The TCEQ (January 2012) guidance document *RG-500, Best Management Practices for Quarry Operations – Complying with the Edwards Aquifer Rule* should be used to determine the appropriate bottom elevation of the quarry to minimize impact to the Edwards Aquifer. In this document, Section 2.1 requires a "High water levels for purposes of setting quarry bottom elevation and that the water level in a 12-month period with rainfall total at or above 90th percentile." Section 2.1 defines how to calculate the separation from Groundwater in the Recharge Zone. In addition, there needs to be a 25-foot buffer from the quarry bottom to the top of the groundwater table. RG-500 indicates how to calculate the actual permitted quarry bottom.

Additional Comments

As detailed in our 2005 comments and supported by the Scientific Consensus paper, our recommendations include requiring adequate buffer zones to protect streams, springs and recharge features, limits to impervious cover on the Edwards Recharge and Contributing zones, expanding the pollution reduction standards to include toxic metals, organic chemicals and nutrients, and other measures and strategies that we believe will be adequately protective of our water quality.

The Optional Water Quality Measures (appendices A and B of RG-348, EAPP Technical Guidance Manual) are not adequate to protect Endangered Species and allow unnecessary pollution of the Edwards Aquifer. The optional measures, among other deficiencies, fail to limit impervious cover, only monitor for on

constituent (Total Suspended Solids), allow for increases in pollutant loads from developed properties, and allow for sealing of sensitive recharge features rather than preservation and setbacks.

There is widespread scientific consensus that limiting impervious cover in both the recharge and contributing zones is necessary to maintain water quality in the Edwards Aquifer.[5] Scientists agree that engineered controls, even when perfectly maintained, cannot replace impervious cover limits. TCEQ should recognize this sound science by implementing impervious cover limits of no more than 10% in the recharge zone and 15% in the contributing zone.

Where engineered water quality controls are used these should be inspected frequently with significant fines assessed for malfunctioning facilities. In general, the penalties for violations of the Edwards Rules seem low in relation to the severity of the violations and should be increased to act as a preventative deterrent.

Incorporating PFAS Regulations: In April 2024, the US Environmental Protection Agency (USEPA) announced the final National Primary Drinking Water Regulation (NPDWR) for six Per- and polyfluoroalkyl substances (PFAS). PFAS are manufactured chemicals that have been used in industry and consumer products since the 1940s. Because of their widespread use and their persistence in the environment, many PFAS are found in the blood of people, drinking water, waste sites, and animals all over the world. Further, an individual can be exposed to PFAS by touching, drinking, eating, or breathing in materials containing PFAS. Ongoing research has shown that exposure to certain levels of PFAS may lead to health effects such as increased cancer and development effects and reduced ability in one's immune system to fight infections.

To address this growing issue, the USEPA established legally enforceable levels, called Maximum Contaminant Levels (MCLs), for six PFAS in drinking water: PFOA, PFOS, PFHxS, PFNA, and HFPO-DA as contaminants with individual MCLs, and PFAS mixtures containing at least two or more of PFHxS, PFNA, HFPO-DA, and PFBS using a Hazard Index MCL to account for the combined and co-occurring levels of these PFAS in drinking water. EPA also finalized health-based, non-enforceable Maximum Contaminant Level Goals (MCLGs) for these PFAS. We urge the TCEQ to incorporate these recommended PFAS levels (see Table 1 below) in surface water quality monitoring efforts to ensure the protection of public health across Texas

Compound	Final MCLG	Final MCL (enforceable levels)
PFOA	Zero	4.0 parts per trillion (ppt) (also expressed as ng/L)
PFOS	Zero	4.0 ppt
PFHxS	10 ppt	10 ppt
PFNA	10 ppt	10 ppt
HFPO-DA (commonly known as GenX Chemicals)	10 ppt	10 ppt
Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS	1 (unitless) Hazard Index	1 (unitless) Hazard Index

Table 1: USEPA Final MCLGs and MCLs for six PFAS in Drinking Water

The Greater Edwards Aquifer Alliance and the many groups who join us ask that you act now to adopt these recommendations into the TCEQ Edwards Aquifer Protection Program.

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5 See *Protecting the Edwards Aquifer: A Scientific Consensus*, signed by 39 scientists, planners, and engineers in 1997, https://aquiferalliance.org/Library/LibraryFiles/Resources/Scientific_consensus1.pdf