

Clearwater Source

Clearwater Underground Water Conservation District

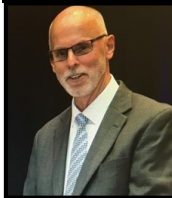
www.cuwcd.org

2023 Annual Newsletter

| October 2023

| Volume 19, Issue 1

WATER RESILIENCY AND THE NEVER ENDING DROUGHT



Clearwater Underground Water Conservation District and our Partners have set the 22nd Bell County Water Symposium for November 14, 2023, in Belton at the Cadence Bank Center (formerly Bell County Expo) on Loop 121. The theme of this year's event is "Water Resiliency and the Never-Ending Drought".

The legacy partners of the annual event are the Texas AgriLife Extension Service in Bell County, the Bell County Engineers Office, and the Bell County Commissioners Court. We also have twelve additional sponsors who have been so very supportive in years past.

The Honorable Bell County Judge, David Blackburn, will welcome the day's attendees and give us an update and understanding of the growth in our County which is a serious concern of citizens living in the unincorporated rural areas. Judge Blackburn is a key leader in Bell County who is helping all communities navigate the need to understand many issues related to our expanding population, our demand for new developments, and the need to supply water in a sustainable fashion.

Our first speaker of the morning will be Mr. Tony Smith, Associate Vice President of Carollo Engineers in Austin Texas. Tony states that he has been fortunate to work with and lead experts on various multi-disciplinary projects in many states. Tony knows and understands water issues both in planning and delivering water to industry and residents.

Mr. Brad Brunett, BRA's Lower & Central Basin Regional Manager, will follow Mr. Smith with an update on BRA's Water Management Strategies including but not limited to the recent announcement of the "Belhouse Drought Preparedness Project". Brad will also provide an in-depth update of the Allens Creek Reservoir which is a water supply storage reservoir planned for construction near the City of Wallis in Austin County. The reservoir is planned to be "off-channel," meaning it will be built near the Brazos River on Allens Creek, a tributary of the Brazos. Water stored in Allens Creek Reservoir will be used to meet the anticipated growth in demand for surface water in the Lower Brazos basin due to projected population increases and hopefully reduces the required releases from both Belton and Stillhouse Lakes for downstream users. The reservoir will also help satisfy regulatory requirements to reduce groundwater pumping, which contributes to land subsidence in the lower Brazos River basin.

Dirk Aaron, Clearwater Board President, Leland Gersbach and the District's Geoscientist, Mr. Mike Keester will present and update on the groundwater resources across the county and provide specifics on current uses of groundwater, pending permits and status of the groundwater resources across the region. With updated data from recent studies conducted and funded by the district to address many of the new understandings.

Then a panel of experts will specifically address "**Aquifer Storage & Recovery the New Reservoir**" by a seven-member panel of ASR experts and those pursuing the need for this invisible reservoir for Bell County. Planned and
(continued on page 2)

INTRODUCING JAMES BROWN, CUWCD DIRECTOR AT-LARGE

On March 8, 2023, I was appointed by the Clearwater UWCD Board to be its Director At-Large to fill a recently vacated position. My role on the Board is to represent the interests of all Bell County citizens in matters related to groundwater supply and quality. The Board focuses on balancing development and conservation of our limited groundwater resources based on the best available geoscience and hydrogeologic information as the basis for its decisions. A key priority is to manage the District's activities using a conservative approach to budgets and spending in order to maintain low costs for Bell County taxpayers.

I was appointed to the Board based in part on my academic and career history. I hold a Bachelor's Degree in Geology, a Master's Degree in Hydrology, and a Masters in Business Administration. During the first half of my thirty-five-year career, I held hydrology and geoscience positions, and the second half involved marketing and management responsibilities. Thus, I am very familiar with Clearwater's approach to hydrologic data collection, modeling, and impact assessments, and I understand the scientific challenges involved in characterizing local geologic features which can impact water well performance. Additionally, my prior management experience allowed me to quickly assume the business and operations responsibilities of the Director-At-Large position.

My wife and I moved to Salado in 2018, after living in the Houston area



since 1985, except for several years in foreign places including Colombia, Argentina, Belgium, and Illinois. We came to Bell County to be closer to family members who live and work here, and to enjoy a more rural setting with of course, less humidity. We still have family members in the Houston area, whom we visit regularly.

Since moving here, I have become familiar with the entirety of Bell County, and I appreciate the wide range of communities who live here, including city, suburban, rural, agricultural, and of course, military. These communities each have specific water needs, and Clearwater's activities are a key part of the overall Bell County water supply picture. For example, the CUWCD Board recently approved participation in a joint program at Fort Cavazos which will evaluate the potential use of aquifer storage and recovery (ASR). During wet years, this strategy involves injecting excess surface water into local aquifers for recovery and use during subsequent drought periods. I fully support this strategy and hope it will become a useful tool in other parts of the County in the future. As Bell County continues to grow, it will likely be necessary to utilize a range of water supply strategies for our various communities. Groundwater will continue to be a vital water supply component, and I am proud to be part of this CUWCD Board as we implement prudent and cost-effective groundwater management practices for the benefit of the County.

James Brown, Director At-Large
Clearwater UWCD

BOARD OF DIRECTORS

Leland Gersbach - Precinct 1
2013-Present (President)

Jody Williams - Precinct 3 2018
-Present (Vice President)

Gary Young - Precinct 2
2014-Present (Secretary)

Scott Brooks - Precinct 4
2018-Present (Director)

James Brown - At large
2023-Present (Director)

MISSION STATEMENT

To implement an efficient, economical, and environmentally sound groundwater management program to protect and enhance the water resources of the District.

WATER QUALITY SCREENING

The District's in-house lab offers registered well owners free screening for common constituents and bacteria. Annual screening is recommended.

“HURRICANE HAL” TO GIVE KEYNOTE SPEECH AT THE BELL COUNTY WATER SYMPOSIUM



Dr. Hal Needham, an Extreme Weather and Disaster Scientist located in Galveston Texas. Dr. Hal has been an extreme weather and disaster scientist with fifteen plus years' experience conducting data-driven risk analysis for disaster-prone communities. He specializes in science communication to both professional scientists and the public on extreme weather such as floods and drought. He hosts the GeoTrek podcast <https://www.geo-trek.com/podcast>, ranked by FeedSpot as the #1 podcast on natural disasters.

Dr. Hal is also an international expert on coastal flooding and directs the U-Surge Project, which provides the first comprehensive coastal flood data for the United States, Australia, the Philippines, Bangladesh, and India. He is lead scientist for Flood Information Systems, where he develops address-based flood risk tools. He resides in Galveston, Texas, site of the deadliest

natural disaster in U.S. history. He has obtained a B.S. from Penn State University and M.S. and doctoral degrees from Louisiana State University.

Having somebody of Dr. Hal's stature on the issues and challenges of "Extreme Weather" from both a national and local perspective adds a new dimension to our conference, especially as we navigate the emotions related to our persistent and/or perpetual droughts. He will offer an insightful description of understanding the history of droughts and famines while navigating weather patterns in a rapidly changing world. Dr. Hal will help us all align our personal perspectives on fact and understanding. Hopefully, the attendees glean from his comments personal discernment on how we can resolve or don't resolve our current or pending disputes over both surface water and groundwater. These are unique times of perpetual drought yet persistent in Central Texas.

RAINWATER CATCHER OF THE YEAR, MR. ALLAN STANDEN

The Rainwater Catcher of 2023 was named by the Texas Water Development Board and presented to Mr. Allan Standen who will speak at this year's Water Symposium. If you are on public water supply or groundwater and don't like curtailment in times of drought, come and hear his talk. We are empathetic to the extreme investment people have in their landscape, but the reality is that our extreme use of potable water for landscape is coming to an abrupt change in the near future, thus Rainwater Catchment is a strategy we all must do to protect our outdoor areas and trees. Mr. Allan Standen is recognized for his excellence in the design and implementation of rain catchment in his home. He uses no public water or groundwater in his home.

The Standen residence was designed and built with rainwater harvesting in mind since municipal water service is unavailable in his neighborhood. The design provides for 100 percent of the household water needs by maximizing the 4,000-square-foot metal roof collection area while minimizing the conveyance distance between roof eaves and storage tanks. The two 10,000-gallon storage tanks are located underneath an exterior deck, allowing the system to conform to the natural slope of the lot while keeping the tanks out of sight. By collecting and capturing rainwater, Mr. Standen has conserved local groundwater resources by avoiding the need to drill a well, minimized erosion, and provided water back into the watershed through an underground overflow pipe. One individual said to me that rainwater catchment is pie in the sky, but I was also told that as a kid when I dreamed of a talking Dick Tracy Watch. Oh, but the innovation of man.

Mr. Standen is not new to Bell County because as a professional geoscientist, he has overseen the development of the 3D visualization of the

County for Clearwater which has brought great discernment on how managing the resource is being affected by the geologic structure of the County and the influence of overuse in Williamson County has affected the resource in such a negative way that is now insurmountable in sustain the resource in the next decade.



(continued from page 1)

implemented strategies for our county will be laid out by the panelists. This update reflects the newest information since first being discussed in 2019.

The Board of Directors of Clearwater UWCD look forward to another year of showcasing the importance of both surface water and groundwater to our robust economy coupled with the untethered growth and demands occurring

along the IH35 corridor. Call 254-933-0120 or email tsmith@cuwcd.org to reserve your seat by November 9, 2023.

Dirk Aaron, General Manager
Clearwater UWCD



www.cuwcd.org

Phone: 254-933-0120

Contact Us

Physical Address: 700 Kennedy Court
Belton, TX 76513

Mailing Address: P.O. Box 1989
Belton, TX 76513



Contact the District office if you would like to be added to our e-mail list for more frequent updates.

GROUNDWATER VOCABULARY

- GCD:** Groundwater Conservation Districts are political subdivisions created to protect aquifers and manage the use of groundwater. GCDs are granted authority in Chapter 36 of the Water Code to manage groundwater production through various methods, including well spacing and production limitations.
- GMA:** Groundwater Management Areas are designated by the TWDB for regional planning purposes. GCDs within the GMA meet to jointly develop DFCs for the GMA region.
- DFC:** a Desired Future Condition is a quantifiable condition of an aquifer at a specified future time. It may be based on aquifer levels, spring flows, or volumes of water in the aquifer (example: average drawdown not to exceed 75 feet at the end of 50 years). In setting DFCs, GCDs balance groundwater production with conservation and protection of the aquifer and then manage that production on a long term basis to achieve and maintain the DFC.
- TWDB:** The Texas Water Development Board is the state agency responsible for overseeing state and regional water planning, providing financial assistance for local government water projects, and studying the state's surface water and groundwater resources.
- MAG:** the Modeled Available Groundwater is calculated by the TWDB and is the amount of water that may be produced on an average annual basis to achieve a DFC. The MAG is one tool used by GCDs to ensure consistency with the DFC, and is regional water planning groups.
- Rule of Capture:** grants landowners a legal right to capture the water beneath their property without regard to effects on neighboring wells except in cases of waste or malice.
- Groundwater Ownership:** the Texas Legislature and Texas Supreme Court have recognized that landowners have a constitutionally protected property right in groundwater and own the groundwater below the surface as real property, subject to the rule of capture and regulation by GCDs.
- GAM:** a Groundwater Availability Model is a regional groundwater flow model approved by TWDB.
- Joint Planning:** the process by which GCDs in a GMA work together to develop DFCs, review groundwater management plans, assess the accomplishments of the GMA, and evaluate the need to modify the DFCs.
- Management Plan:** a plan adopted by a GCD, approved by the TWDB, and forwarded to regional water planning groups that outlines the GCD's management goals and objectives. The plan must include performance standards, methods for achievement, and groundwater estimates.
- TAGD:** the Texas Alliance of Groundwater Districts is a 501(c)(3) association that assists GCDs, provides outreach and education, and facilitates communication.
- GCDI:** the GCD Index is available on TAGD's website and is searchable, interactive online information bank with data on GCDs across the state.

Join the District for the 22nd Annual

Bell County Water Symposium

November 14, 2023 8:00 A.M. --- 3:30P.M.

Cadence Bank Center - Assembly Hall

****This event is free but requires RSVP by November 9th****

"Water Resiliency While Battling the Never Ending Drought"

8:00 a.m. - Registration

Issues of the Day on Water

Honorable David Blackburn, Bell County Judge

Understanding Today and Tomorrow's Water Needs

Tony Smith, Associated Vice President, Carollo Engineers

Brazos River Authority Update

Brad Brunett, Lower/Central Basin Region Manager, Brazos River Authority

Bell County Groundwater Resource Update: Concerns, Conservation and Future

Leland Gersbach, Board President, Clearwater UWCD
Dirk Aaron, General Manager, Clearwater UWCD
Mike Keester, Geoscientist, R.W. Harden & Associates

The 88th Texas Water Session

12:00 p.m. - Lunch

Dr. Hal Needham, Extreme Weather & Disaster Scientist, Galveston, TX

Aquifer Storage & Recovery the New Reservoir (ASR Panel)

Moderator: Honorable David Blackburn, Bell County Judge
Dr. Steve Young, INTERA
Dr. Neil Deeds, INTERA
Mr. Ricky Garrett, WCID No. 1
Mr. Rick Kasberg, KPA Engineers
Mr. David Olson, City of Temple
Mr. Brian Dosa, DPW, Ft. Cavazos
Ms. Andrea Croskrey, Geoscientist, ASR Lead, TWDB

Designing Your Home with Rainwater Catchment

Allan Standen, LRE Water, 2023 Texas Rainwater Catchment Award Winner

Event Sponsors

Bell County Engineers Office

R.W. Harden & Associates

KPA Engineers

MRB Group

Eno Scientific

Michelle A. Sutherland

Lloyd-Gosselink Attorneys at Law

LRE Water, LLC

ICF

Gamblin Engineering Group

INTERA

Advanced Groundwater Solutions

Clearwater Underground Water Conservation District

Texas AgriLife Extension Service

****This event is free, but requires RSVP by November 9th****

Phone: 254-933-0120

Email: tsmith@cuwcd.org



P.O. Box 1989
Belton, TX 76513



FORT CAVAZOS AQUIFER STORAGE & RECOVERY FEASIBILITY STUDY A SOURCE WATER RESILIENCY PROJECT

The words “water supply” have a heightened urgency for a lot of people living in the Heart of Texas, or Central Texas. State and local water suppliers are double checking water use projections and keeping an eye out for new supply opportunities.

One supply opportunity, Aquifer Storage & Recovery (ASR) is being explored in West Bell County just south of Lake Belton on the Fort Cavazos Military Reservation. According to the United States Geological Service “Aquifer storage and recovery (ASR) is a water resources management technique for actively storing water underground during wet periods for recovery when needed, usually during dry periods. The timeframe can range from months to decades.” In this case, treated or potable water would be injected into the most suitable aquifer in the test area during times when water is plentiful. Unlike with large lakes, there will be no loss of stored water due to evaporation or sedimentation. Natural disasters such as extreme freeze events or tornados can impact a water supply sys-

tem. Having potable water stored and available would enable the owner to use that water during a natural disaster to meet their needs. Additionally, an intense drought such as the one we’re in can result in curtailed surface water usage to preserve lake supplies. Having additional water stored can minimize the impact of curtailments.

Thanks to the generous contributions from several supporters in the region including; the Killeen Economic Development Corporation, the Clearwater Underground Water Conservation District, the City of Harker Heights, the City of Copperas Cove and the Bell County Water Control & Improvement District #1 (WCID 1), the necessary funding is in place to conduct the well drilling and geological study necessary to assess the feasibility for moving forward with a successful resiliency project. INTERA Incorporated has been selected to perform the viability testing and work directly with the well driller to acquire the necessary geological data.

CONTINUED INVESTMENTS IN THE FUTURE

From the Red River to the Rio Grande and everywhere in between, the conversation remains the same – water supply challenges are a pressing concern for many communities and landowners across the State. The ongoing exceptional drought and Drought Disaster Declarations from Governor Abbot have only exacerbated these conversations by highlighting the fragility of our water infrastructure, including our aquifers. As drought persists, those pressures applied to our aquifers are increased and can sometimes prompt fluctuations in water levels, well yields and chemistry. Fear can easily set in when these aquifer changes are poorly understood, whereas when planned for, can simply be a minor inconvenience.

In Bell County, the Clearwater Underground Water Conservation District has invested approximately \$1.5 million in scientific initiatives to advance and enhance our understanding of the groundwater resources within the County. These scientific initiatives have shed light on county-wide aquifer conditions and the great disparities that exist within those systems. Most recently, this research supported the development of management zones that protect the investment-backed expectations of current and future landowners and residents of Bell County by establishing well column pipe and spacing requirements specific to each zone. This is just one of many examples that demonstrate how Clearwater has used science to guide groundwater management strategies.

In a continued effort to develop and work with the *best available science*, as prescribed in Chapter 36 of the Texas Water Code, the Clearwater UWCD has partnered with neighboring groundwater conservation districts (Central Texas and Southwest Travis County), and Travis County to develop a detailed hydrogeologic model of the Trinity Aquifer. This research specifically evaluates the hydrogeology of the Trinity Aquifer for the area west of Interstate Highway 35 in portions of Bell, Burnet, Travis, and Williamson Counties (Figure 1). With this research, the local communities will have a better understanding of the movement of groundwater within the Trinity aquifer and how water levels may be impacted by the underlying aquifer geology. For Clearwater, this provides a better understanding for how water flows into and across Bell County. This research is currently ongoing and scheduled for completion in early 2024.

Vince Clause, GISP, Project Manager
LRE Water

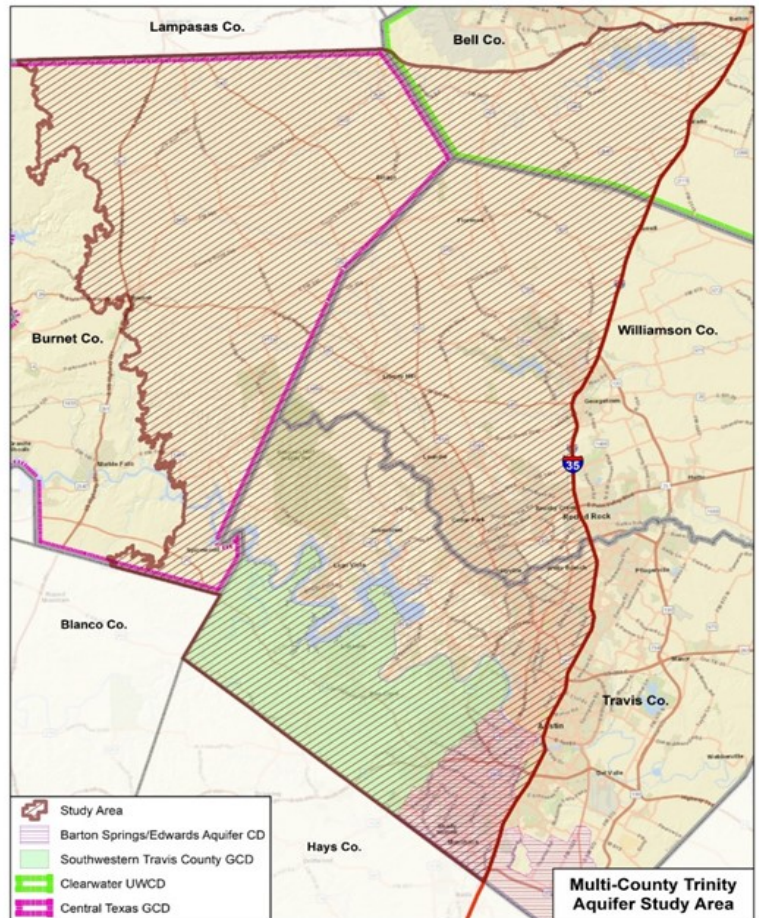


Figure 1 – Study Area for the jointly funded study of the Trinity Aquifer for portions of Bell, Burnet, Travis, and Williamson County.