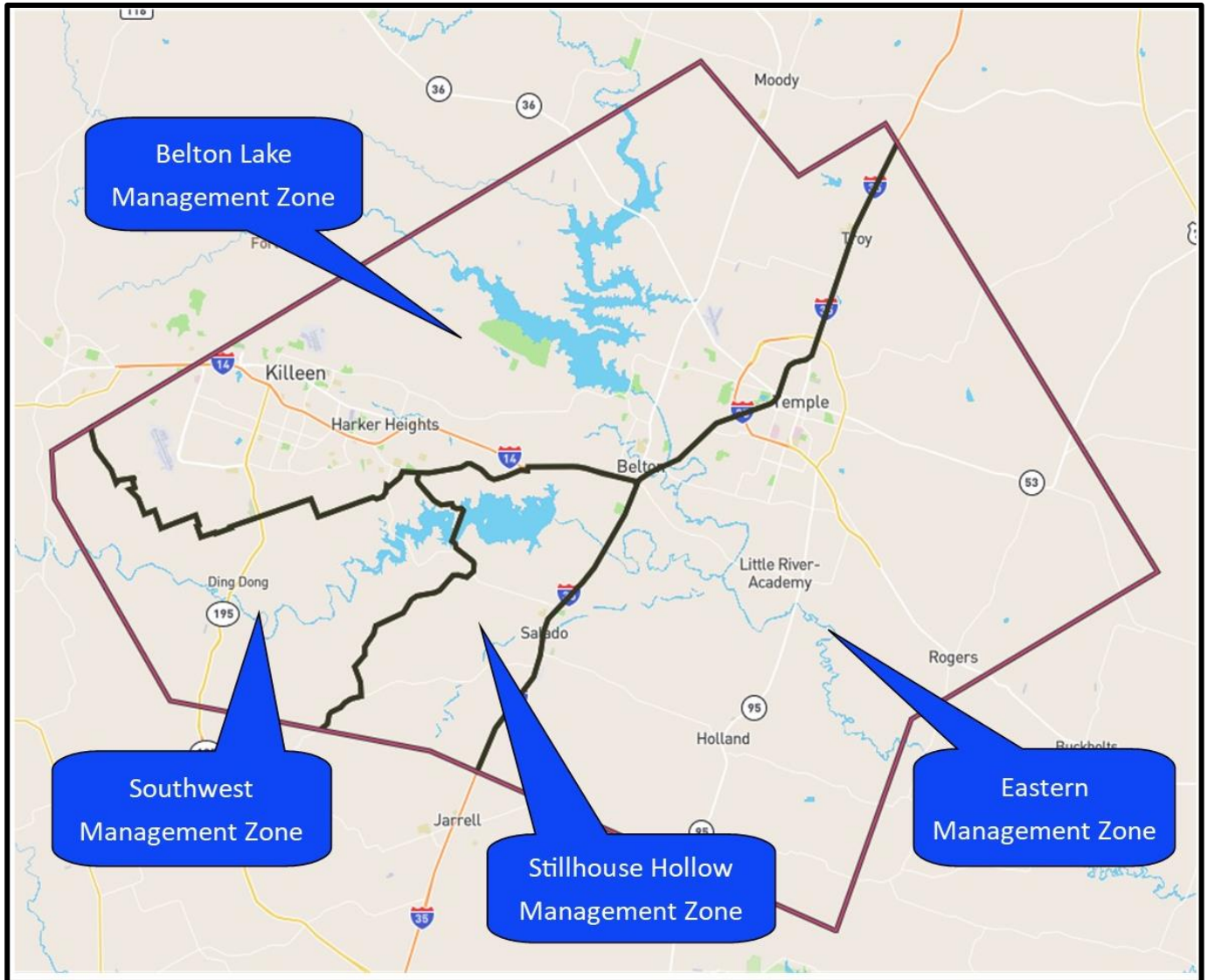


# 2022 ANNUAL REPORT



CUWCD Management Zones

Clearwater UWCD  
Belton, Texas  
[www.cuwcd.org](http://www.cuwcd.org)





## *District Mission Statement*

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

# Clearwater Underground Water Conservation District

## Annual Report - Fiscal Year 2022

*The Annual Report for Fiscal Year 2022 (FY22) is presented to the Directors of the Clearwater Underground Water Conservation District (CUWCD or District) by May of the following Fiscal Year (May 2023). This report summarizes the activities and accomplishments of the District during FY22 focusing on administrative tasks, management plan requirements, and miscellaneous activities. Most activities are based on the District's fiscal year; however, information dealing with well registration, permitting, and production are based on the 2022 calendar year.*

### **2021-2022 Board of Directors**



**Jody Williams**  
**Precinct 3**

**Gary Young**  
**Precinct 2**

**Leland Gersbach**  
**Precinct 1**

**David Cole**  
**At-Large**

**Scott Brooks**  
**Precinct 4**

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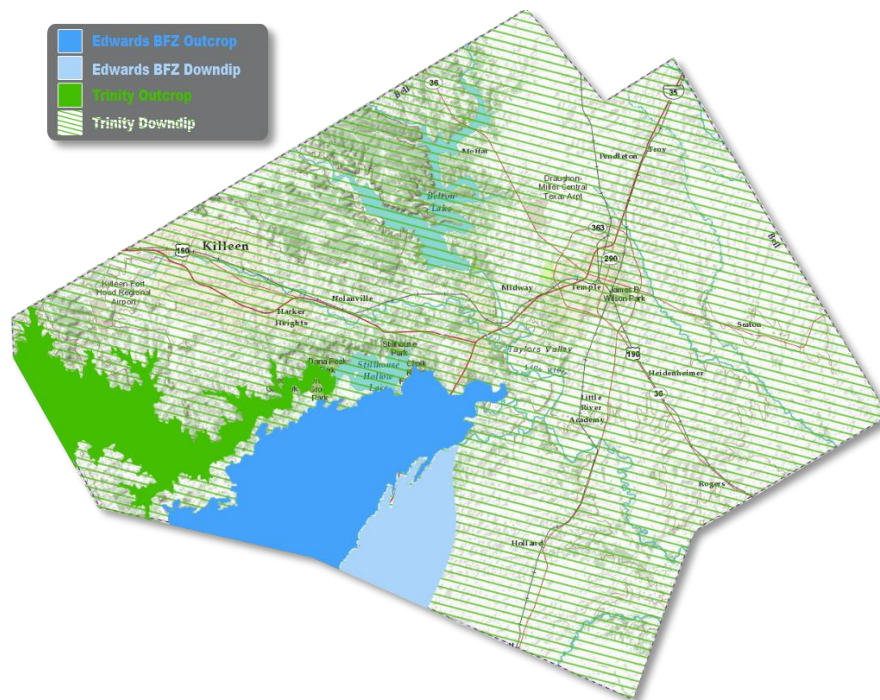
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# 1. Introduction

The Clearwater Underground Water Conservation District was created by the State legislature in 1989 to manage the groundwater resources of Bell County. The District was approved by the voters of Bell County in August 1999 and opened its doors for business in February 2002. Clearwater's fiscal year runs from October 1st through September 30th. This report summarizes the accomplishments and activities of the District during FY22; but reflects registration, permitting, and production figures for the 2022 calendar year.

The District manages the groundwater resources from two major aquifers: The Trinity and The Edwards (BFZ) in Bell County, TX. The Trinity aquifer underlies all of Bell County and is below the Edwards (BFZ), while the Edwards (BFZ) is located in just the southern part of the county.



The Trinity aquifer is comprised of three water bearing layers within the boundaries of Bell County. These layers are the Upper Trinity (Glen Rose), Middle Trinity (Hensell), and Lower Trinity (Hosston). Other water bearing formations in Bell County are Alluvium, Austin Chalk, Buda, Edwards Equivalent, Kemp, Lake Waco, Ozan, and Pecan Gap.

# 2. Administrative Tasks

Administrative tasks include internal administrative activities necessary for a groundwater district to function effectively. Groundwater Management Plan requirements include the required tasks and activities identified in the District's Groundwater Management Plan. Miscellaneous activities include other activities and programs that have been an integral part of the District but are not required by the Groundwater Management Plan.

## A. Contracts / Agreements

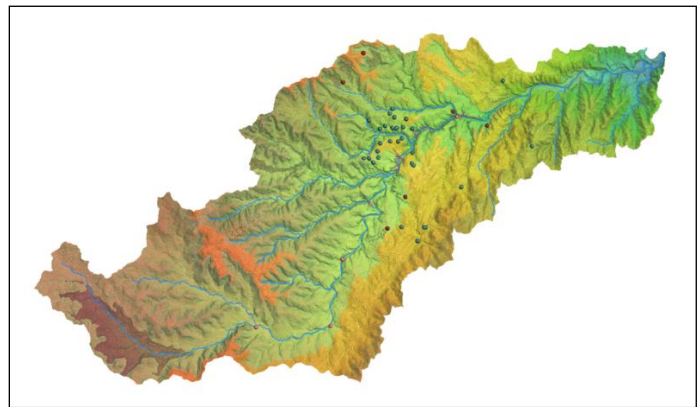
### 1. Technical Consulting Services

#### **LRE Water, LLC / Advanced Groundwater Solutions, LLC / R.W. Harden & Associates**

Since FY19, Clearwater UWCD has maintained a professional services contract with LRE Water, LLC , which provides administrative and technical reviews of drilling and operating permits and investigative analysis of aquifer conditions and well construction complaints. This professional services contract has continued in FY20, FY21, and FY22. In April 2021, the Board of Directors voted to transition to a professional services contract with Advanced Groundwater Solutions, LLC for technical representation of the District in GMA 8. The professional services contract continued in FY22. On January 1, 2022, the District extended a professional services contract to Mike Keester, P.G. with R.W. Harden & Associates.

#### **Allan R. Standen, LLC**

Clearwater UWCD continued a professional services contract with Allan R. Standen, LLC for general consulting services and the annual update of our 3D model. The 2022 3D model updates included the addition of new geophysical and well drilling logs from throughout the county. Updating our model on an annual basis allows for a more accurate analysis and use of this tool by district staff, consulting hydrogeologists, and landowners for well development and prognosis of the aquifer depths prior to drilling. The tool also continues to assist the district in source aquifer determination of newly drilled wells. The District was notified in September 2022 of the pending acquisition of Allan R. Standen, LLC by LRE Water, LLC. The District anticipates LRE Water will maintain the 3D modeling.



**Salado Creek Watershed from Bell County 3D Groundwater Model**

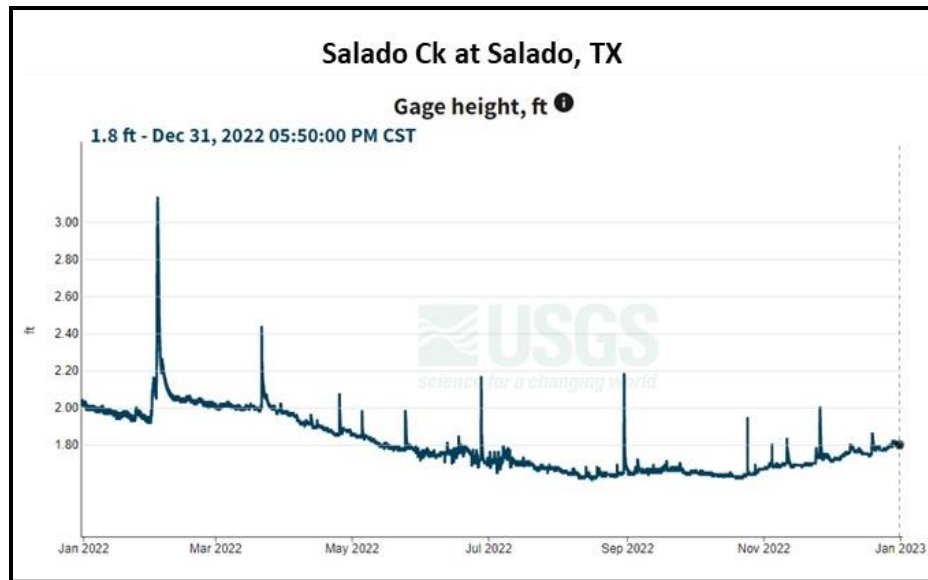
#### **LRE Water, LLC**

In September 2021, the District began working with LRE Water, LLC to develop a new data management system. This system went live in January 2022. This GIS platform allows the District web-based access to the entire database of wells that has been compiled through the years. All well information is available online to staff as well as the public. Some of the information available includes well latitude and longitude, along with ground level elevation of the well head and total depth of well. LRE Water, LLC continues technical support and hosting of the District's online GIS website.

## U. S. Geological Survey, Texas Water Science Survey

During the spring of 2013, the USGS gauging system was installed in the Salado Creek, and the process of analyzing the data and recalibrating the system began. Throughout 2022, the system was continuously fine-tuned to ensure the accuracy of the data collected. This gauging system and relationship with the USGS have proved to be an important step forward in monitoring spring flow, both now and well into the future. The image below shows the 2022 streamflow data taken by the gauging system in Salado Creek. The live data can be found online on our website:

<http://www.cuwcd.org/salado-springs/salado-creek-gauges/>



## Baylor University, Department of Geology

Clearwater UWCD continues to contract with the Department of Geology at Baylor University to conduct research projects. These research projects have provided a deeper understanding of the Northern Segment of the Edwards BFZ Aquifer. An enhanced scientific understanding of the Northern Segment of the Edwards BFZ Aquifer provides insight to CUWCD and community stakeholders, as well as support collaboration between the district and community in future decision-making processes that will be impacted by the Endangered Species Act.

In FY19, the District jointly contracted with WellIntel and Baylor University to deploy a groundwater-level monitoring network in the District to complement ongoing monitoring in the Middle Trinity aquifer. The goal of this program is to gain experience in how the WellIntel technology works and to become familiar with the data management and analytical capabilities, and to demonstrate how the instrumentation of private wells pumping in the Middle Trinity aquifer can provide insight into the stress experienced by the aquifer, over and above what is being seen by dedicated monitoring wells. This joint effort continued in FY20, FY21, and FY22.

In FY22, Baylor University continued to support aquifer tests of the Middle and Lower Trinity Aquifer system in order to participate in the delineation of potential management areas/zones within Bell County.

The studies the District has funded can be found on our website: <http://www.cuwcd.org/aquifer-science/edwards-bfz-aquifer/>



## 2. Legal Services

The District requests legal consulting services on an as-needed basis and utilizes Lloyd Gosselink Rochelle & Townsend, P.C. (LGRT) for consultation. LGRT was the District's sole advisor during FY22 which included the following issues:

- Research and guidance on permitting issues, spacing issues, rule interpretation, public hearing notices, meeting cancellation notices, conservation easements and topics allowed for discussion in closed session.
- Representation of groundwater districts at Texas Water Conservation Association Groundwater Sub-Committee on Desired Future Conditions.
- Research and guidance on the listing of the Salado Salamander, the process for comments and
- Research and guidance on the future development of a Regional Habitat Conservation Plan with Bell and Coryell Counties and 10 public entities.

## 3. Other Services

### **Clearwater UWCD Funding of Reimbursable Task Order on behalf of the former Bell County Adaptive Management Coalition**

The Board entered into an interlocal agreement beginning in fiscal year 2012 that continued into fiscal year 2021. CUWCD, the Bell County Commissioners Court, Village of Salado, Salado Water Supply Corporation, Temple Area Builders Association and Billie Hanks, Jr. have collectively contributed \$639,210.60 since 2012 to evaluate current science and to develop new science regarding the Edwards (BFZ) aquifer and the Salado Salamander habitat. Total expenditures for FY12 – FY21 are \$615,903.07 leaving a balance of \$23,307.53 to fund the FY22 studies. Funding has continued since 2015 by reimbursable task order to fund Pete Diaz's work on specie assessment. The District defends the position that regulating mechanisms are in place (by CUWCD) on spring flow to protect the specie. The efforts for 2023 will no longer be covered by Clearwater as the team is pursuing grant funds for continuation.

### **BelCor Karst Coalition**

The BelCor Karst Coalition currently is working with Blanton & Associates, a division of ICF, for the development of a two-county regional habitat conservation plan (RHCP). The entities entered into an interlocal agreement to pursue a section 6 grant from USFWS & TPWD. The entities named Dirk Aaron as project manager as approved by the Board of Directors. The entities are Bell County, Coryell County, Clearwater UWCD, Brazos River Authority, Middle Trinity GCD, Cities of Belton, Temple, Harker Heights, Killeen, Copperas Cove, Salado, and Gatesville.

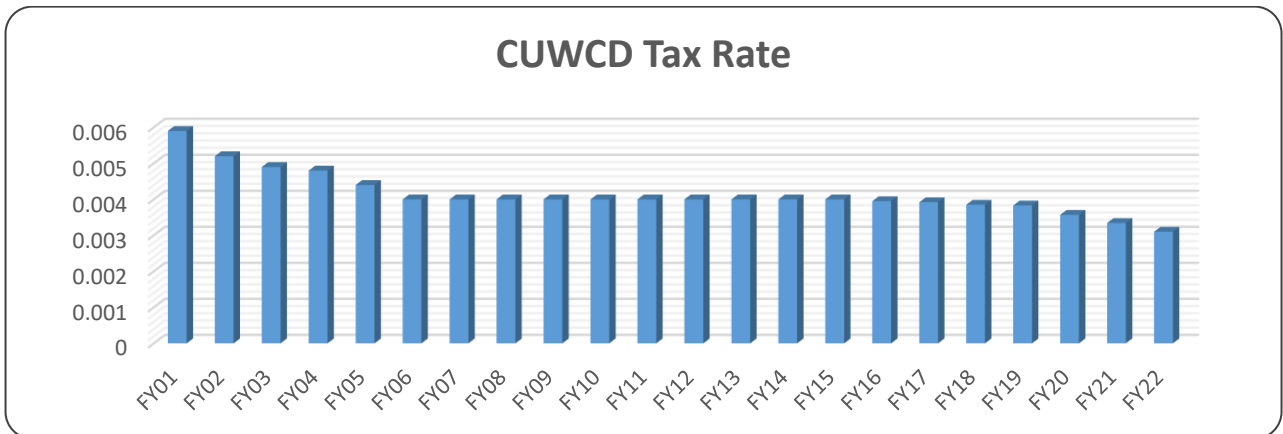
### **Ludwick, Montgomery & Stapp, P.C.**

An annual audit of the District's finances is required by Chapter 36.153 of the Texas Water Code to determine the financial condition of the district. Ludwick, Montgomery & Stapp, P.C., Certified Public Accountants located in Temple, Texas provides the annual financial audit for the District. For more information, see section "B.2 Financial Audit" later in this report.

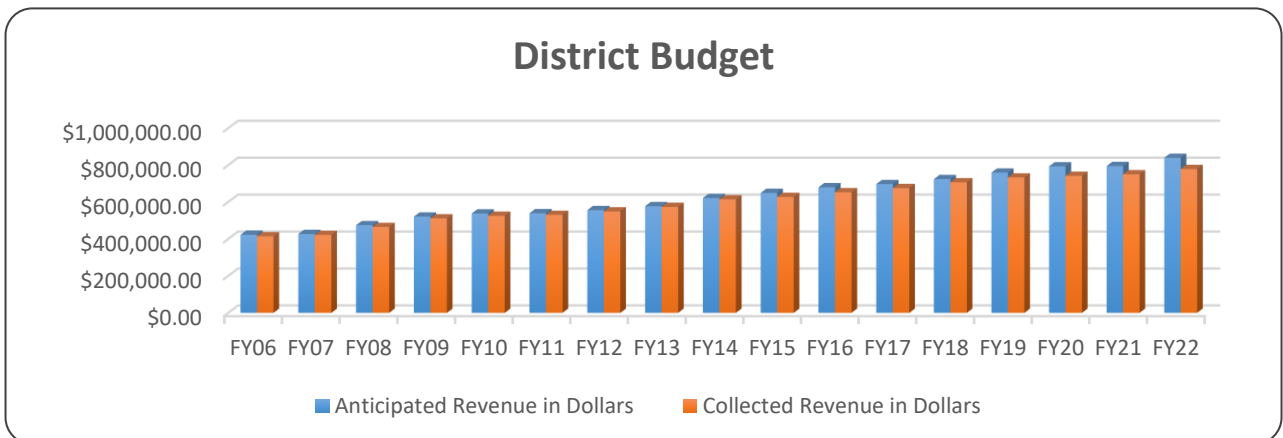
## B. Financial Items

### 1. Budget and Tax Rate

The adopted tax rate for FY22 was \$0.0031/\$100 valuation. The Board voted to lower the tax rate for the seventh consecutive year. Since the inception of the District, the Board has consistently lowered or kept the same tax rate since it began assessing taxes. Three workshops (June, July, and August) were held in 2021 to develop an operating budget for the upcoming fiscal year (FY22) and to set the corresponding ad valorem tax rate.



The original budget for FY22 was \$839,606.00, actual income collected was \$778,970.769. The District had an additional income of \$50,000 from the sale of District property. The adjusted income for FY22 was \$828,970.76. The total expenditures for FY22 were \$717,690.36. The gross return to fund balance was \$111,280.40 with a less sale of assets (property) of \$50,000.00 and a net return to fund balance of \$61,280.40.



The approved budget for FY22, along with the schedule of revenues and expenditures is attached as Appendix A.

Online: <http://www.cuwcd.org/public-records/cuwcd-budget/>

### 2. Financial Audit

An annual audit of the District's finances is required by Chapter 36.153 of the Texas Water Code to determine the financial condition of the District. Ludwick, Montgomery & Stapp, P.C., Certified Public Accountant, located in Temple, Texas provided the 2022 annual financial audit for the

District. The audit began immediately at the closing of FY22 on September 30, 2022, and they concluded their audit and submitted their findings to the District in February 2023.

See Appendix B for FY22 Financial Audit.

Online: <http://www.cuwcd.org/public-records/audits/>

## C. Miscellaneous Policies / Issues

### 1. District Rule Amendments

The Board of Directors amended the District Rules in November 2022 in accordance with Chapter 36 requiring public notice, a public hearing, and Board approval. The Board of Directors voted to amend the rules based on scientific evidence that validated a need for such changes in aquifer management, policy and application.

See our website for complete rules: <http://www.cuwcd.org/regulatory-program/district-rules/>

### 2. Bylaws Revised

At the time the District Rules were amended in 2016, the rules that addressed the operations of the District were deleted and moved to the Bylaws. The Board of Directors approved the amendments to the Bylaws by resolution on April 13, 2016.

See our website for complete Bylaws: <http://www.cuwcd.org/district-overview/bylaws/>

## D. Board of Directors

### 1. District Officers

The Board of Directors, per District bylaws, elect officers annually at the first board meeting of the calendar year. The FY 2022 Officers are identified below, along with the office they held and precinct they represent. The map to the right is a map of the Bell County Commissioner Precincts which also serves as the precinct boundaries for the District.

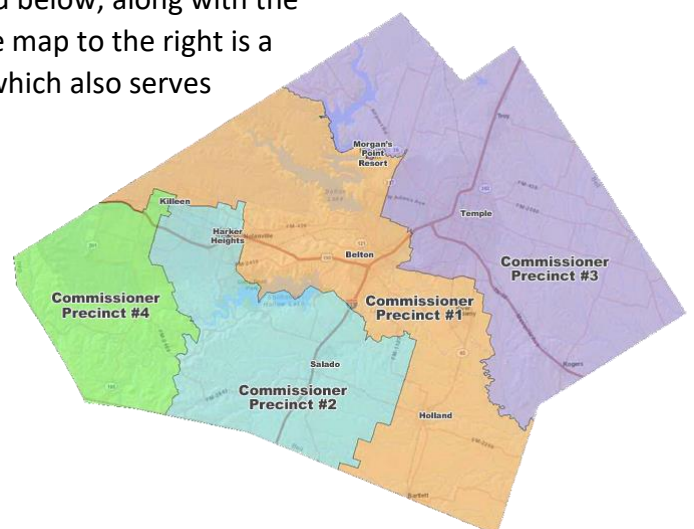
Leland Gersbach, President – Precinct 1

David Cole, Vice President – At Large

Gary Young, Secretary – Precinct 2

Jody Williams, Director – Precinct 3

Scott Brooks, Director – Precinct 4



## 2. Meetings – FY22 (Oct 2021-Sept 2022)

The Board of Directors held 13 Board meetings in FY22. The Workshops and regular Board meeting agendas included discussions and presentations on the topics listed below.

- Presentations by USGS Water Science Group
- Presentations by Baylor University regarding the current status of the Edwards (BFZ) Aquifer and the Trinity Aquifer
- Legislative updates
- Conduct hearings on drilling and operating permits
- Salado Salamander issues as it pertains to CUWCD's governance of groundwater

All board meeting agendas, minutes, and financial reports can be viewed online by visiting <http://www.cuwcd.org/public-records/>

### E. Groundwater Management Plan

Texas Water Code, Chapter 36.1071--36.1073, states the Groundwater Management Plan (GMP) must be reviewed and readopted every 5 years by all GCDs in Texas. The plan is then subject to approval by the Texas Water Development Board (TWDB). Clearwater's Initial Groundwater Management Plan was adopted by the District Board of Directors on October 24, 2000 and was formally certified by TWDB on February 21, 2001.

Revisions are required every 5-years, even if simply updated with new DFC's. During each revision, the proposed GMP must go through staff evaluation and a minimum of one preliminary review by the Texas Water Development Board (TWDB). The previous GMP was amended to include the DFC/MAG revisions and was formally readopted by the Board of Directors on January 9, 2019, after the prescribed public hearing on the revised version and was approved by TWDB on March 12, 2019.

The District was still required to review and update the current plan in 2020 and have it readopted by TWDB prior to January 13, 2021. The District completed a full review and formally adopted the revised plan on November 11, 2020, and received final approval from TWDB on December 30, 2020.

The District Groundwater Management Plan can be found on CUWCD's website at:

<http://www.cuwcd.org/district-overview/management-plan/>

## 4. Groundwater Management Plan Requirements

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The District Groundwater Management Plan identifies the goals and objectives of the District and provides performance standards and tracking methods to measure the District's effectiveness in meeting these goals. The District goals are mandated by Texas Water Code Chapter 36, Section 36.1071. Although all groundwater conservation districts are subject to these goals, each district chooses how to best implement the goals within their district by establishing their own objectives and performance standards.

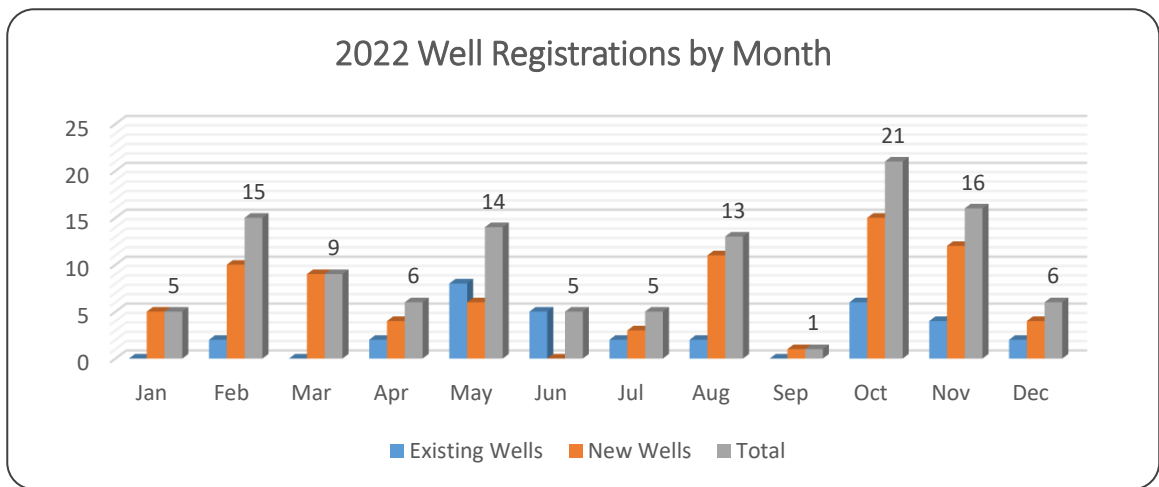
## A. Providing the Most Efficient Use of Groundwater

### 1. Well Registrations

Objective: Each year, CUWCD will require the registration of all wells within the District’s jurisdiction.

*Objective Satisfied*

During the calendar year 2022, 116 wells were registered. The tables below summarize well registration and permitting activity from January 1, 2022, through December 31, 2022. Since 2018, District Staff has been conducting a robust search of all TWDB and TCEQ databases to identify wells that have not been properly registered. The District’s field technician follows up with landowners to properly get the unregistered wells registered in the District’s database. During the calendar year 2022, 33 existing wells (blue columns) were registered and 83 new wells (orange columns) were registered.



*Appendix C for Master Registration Table*

### 2. Permitted Well Applications

Objective: Each year, CUWCD will require permits for all non-exempt use of groundwater in the District as defined in the District rules, in accordance with adopted procedures.

*Objective Satisfied*

Of the 116 wells registered in 2022, only 4 of those were classified as non-exempt. The Table below summarizes the non-exempt wells or permits that were approved during 2022 and the corresponding permits that were issued where applicable.

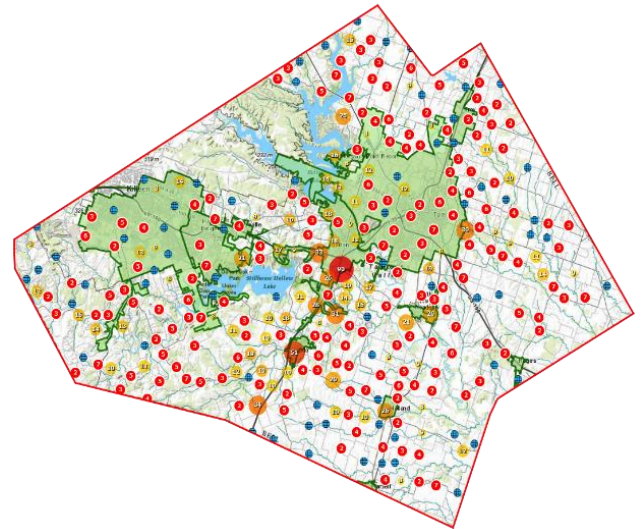
**Non-Exempt Permitted Well Registrations for 2022 Calendar Year**

Well #	Land Owner	Ac-Ft / Year	Aquifer	Use	Permit Type
N2-22-001P	Aria Prairie	N/A	Edwards BFZ	Domestic	Drilling
N2-22-002P	Scott Gillman	0.389	Middle Trinity	Domestic	Drilling & Operating

N2-22-003P	Big Elm RV Resort	N/A	Middle Trinity	Public Supply	Drilling
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### 3. Groundwater Database

Objective: Each year, CUWCD will maintain a groundwater database to include information relating to well location, production volume, and other pertinent information deemed necessary by the District to enable effective monitoring of groundwater in Bell County.



*Objective Satisfied*

#### **District GIS Database**

In August of 2021, the Board of Directors voted to move the online GIS system to LRE Water, LLC from Halff Associates, Inc. Since September 2021, staff has been diligently working with the database programmers of LRE Water, LLC to develop the new data management system that went live in January 2022 and replaced the Halff Associates, Inc. GIS system.

Every well registered in the District is available on our database with latitude and longitude coordinates and the elevation of the land surface at the well head. With the well information, the District can attach production and permit information along with other pertinent data.

The public maps are available on the District website's homepage, or by going to the following web address and clicking on Public Access Maps: <http://www.cuwcd.org/>

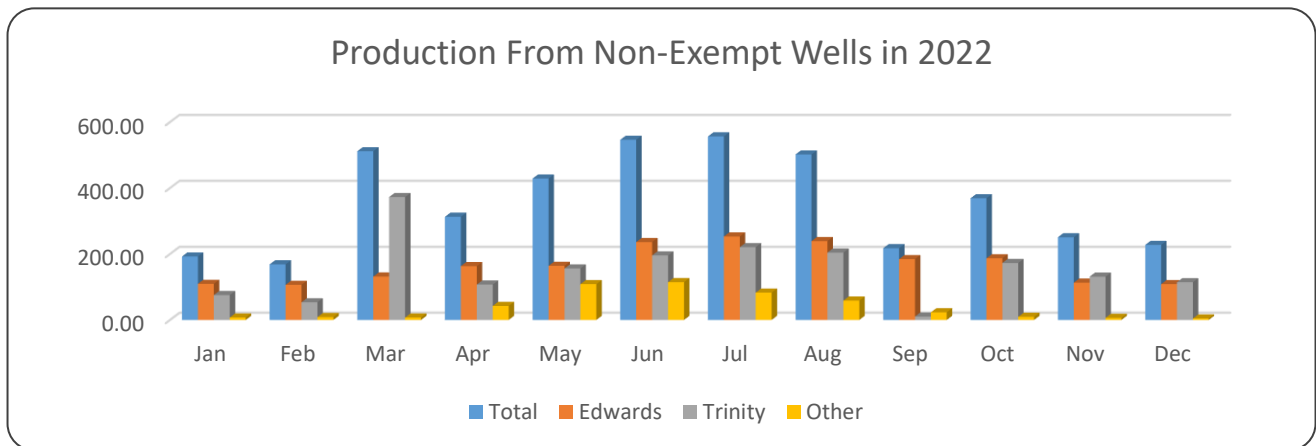
#### **Non-exempt Well Production**

The District continued collecting data from non-exempt wells during 2022. Monthly production reports are required by the 5th day of the following month for all wells with operating permits. The tables below show the total permitted amount for the non-exempt wells and their total production. In 2022, actual water production figures were significantly lower than the amount permitted. Part of this is due to the issuance of Historic and Existing Use Permits (HEUP). The HEUPs are issued for the full permit amount, regardless of whether the permittee will be using this amount during the year.

### 2022 Permitted Wells

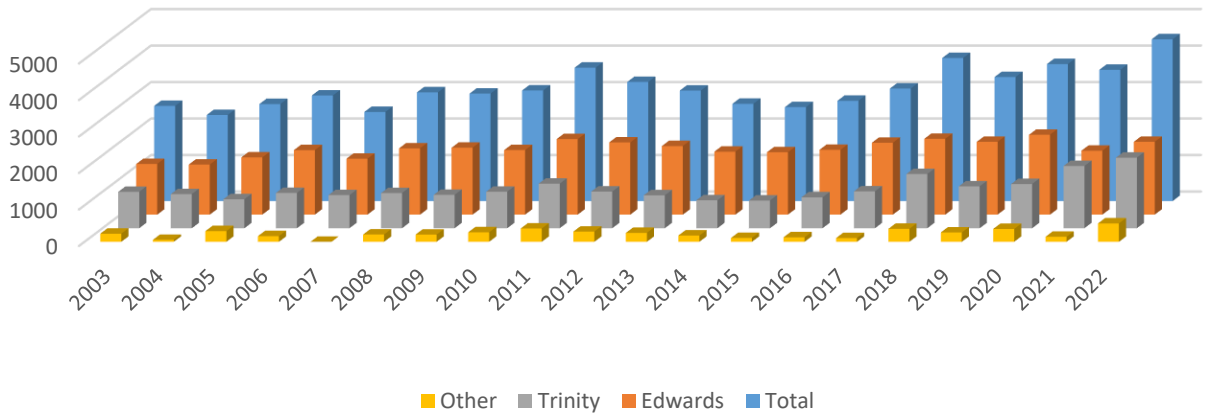
	Permitted Ac-Ft	# Permitted Wells	Actual Use Ac-Ft	# Active Permitted Wells	% Usage
Edwards (BFZ)	2,459.08	61	1,995.86	49	81.16%
Trinity (total)	4,992.31	72	1,933.56	57	40.77%
Glen Rose	134.63	7	23.79	6	17.67%
Hensell	467.07	34	67.06	25	14.36%
Hosston	4,390.61	31	1,842.71	26	41.97%
Other Aquifers	579.37	22	503.99	14	86.99%
<b>Total</b>	<b>8,030.76</b>	<b>155</b>	<b>4,433.41</b>	<b>120</b>	<b>55.21%</b>

The following chart shows 2022 production by month and aquifer. Production was at its highest level during the month of July with a monthly withdrawal of 556.55 ac-ft. Throughout the year, withdrawals from the Edwards BFZ were consistently higher than from the Trinity aquifer. Production from other source formations was minimal throughout the year. Production from other source formations is higher during summer months which reflects agriculture irrigation necessary at that time of year.



In the graph on the following page, production from 2022 (120 wells) is shown compared to production in years 2003 through 2021. Overall production in 2022 was 4,433.41 ac-ft which is slightly higher than the total production in 2021. The Edwards (BFZ) had a total production for 2022 of 1,995.86 ac-ft, total Trinity aquifer production was 1,933.56 ac-ft, and other formations produced 503.99 ac-ft of water.

### Production From Non-Exempt Wells 2003 - 2022



See Appendix D for 2022 Well Production Report

### Groundwater Transport

During 2021, six entities in Bell County transported groundwater outside the District. A total transport of 70.80 ac-ft. occurred from the Edwards BFZ aquifer and 95.40 ac-ft. from the Trinity aquifer. The District is allowed by state law to charge a transport fee of \$0.025/1,000 gallons transported. This generated a total revenue of \$1,353.87 for 2022.

Entity	Aquifer	County	Ac-Ft	Gallons	Fee
Bell-Milam-Falls WSC	Lower Trinity	Falls, Milam, Williamson	37.12	12,096,180	\$302.40
Central Texas WSC	Lower Trinity	Falls, Milam	53.54	17,444,982	\$436.12
East Bell WSC	Lower Trinity	Falls	1.79	583,875	\$14.60
Jarrell-Schwertner WSC	Edwards (BFZ)	Williamson	70.80	23,070,854	\$576.77
Little Elm Valley WSC	Lower Trinity	Falls	2.49	810,712	\$20.27
O&B WSC	Lower Trinity	Falls	0.46	148,594	\$3.71
		TOTAL	166.20	54,155,197	\$1,353.87



## Water Loss in Public Water Systems

The District tracks water loss of all public water supply systems in Bell County that utilize groundwater. Real Losses, also referred to as physical losses, are actual losses of water from the system and consist of leakage from transmission and distribution mains, leakage and overflows from the water system's storage tanks and leakage from service connections up to and including the meter.



Water leaking from a supply line

### Bell County Water Loss 2016-2021

Entity	2022 Loss (% of water)	2021 Loss (% of water)	2020 Loss (% of water)	2019 Loss (% of water)	2018 Loss (% of water)	2017 Loss (% of water)
Armstrong WSC	12.00	21.00	19.00	19.00	18.00	11.12
Bell Co. WCID #2	11.00	12.00	15.00	14.00	11.10	9.20
Bell Co. WCID #5	3.47	3.00	2.81	24.71	16.72	20.97
Bell-Milam-Falls WSC	36.00	44.00	31.28	41.92	36.60	29.03
Central Texas WSC	19.00	17.00	8.00	9.00	8.00	8.30
City of Troy	22.40	21.98	18.96	21.70	34.75	17.20
East Bell WSC	10.55	14.85	10.74	14.42	16.21	12.54
Jarrell-Schwertner WSC	23.00	38.00	41.00	50.00	48.04	49.33
Little Elm Valley WSC	19.00	26.00	17.54	20.75	23.04	22.16
Moffat WSC	11.00	16.00	10.00	26.00	26.70	19.68
Oenaville/Bellfalls WSC	7.09	7.04	5.54	6.42	7.39	8.99
Pendleton WSC	12.68	18.12	21.51	22.03	24.43	20.30
Salado WSC	2.26	10.20	9.88	8.30	9.76	7.60

\* Not Reported

## Exempt Well Production

Each year, the exempt wells that have been registered are evaluated. The aquifer from which they are producing is determined and an estimate of their total annual production is calculated. The results are shown below for exempt wells registered through December 31, 2022. Most of the exempt wells in Bell County are used for domestic purposes and their use estimate assumes 106 gallons/person per day (USGS estimate of domestic use outside of a municipal water system) and 2.76 persons/household (U.S. Census Bureau, Population Estimates Program (PEP) July 1, 2019). Exempt well use estimate factors out all plugged, capped, monitor and inactive wells in the database.

### 2022 Exempt Well Production

	Reserved	Estimated Use*	# Wells
Edwards (BFZ)	825 ac-ft	361 ac-ft	846
Trinity	1,419 ac-ft	775 ac-ft	1,557
Other Aquifers	N/A	825 ac-ft	1,574
Total	2,244 ac-ft	1,961 ac-ft	3,977
* Domestic use estimate assumes 106 gallons/person per day (USGS estimate of domestic use outside of a municipal water system) and 2.76 persons/household (U.S. Census Bureau, Population Estimates Program (PEP) July 1, 2019)			

See Appendix E for 2022 Exempt Well Use

## Combined Well Production Data

Combining the production from the non-exempt wells with the estimated production from the exempt wells, the following production figures result:

Aquifer	Non-Exempt Well Production (Ac-Ft / Year)	% of Total Permitted	Estimated Exempt Well Production (Ac-Ft / Year)	% of Total Reserved	Total Production (Ac-Ft / Year)	% of Total Available
Edwards (BFZ)	1,995.86	81.16	361	43.76	2,356.86	36.43
Trinity	1,933.56	40.77	775	54.62	2,708.56	29.23
Other Aquifers	503.99	86.99	825	N/A	1,328.99	N/A
Total	4,433.41	55.21	1,961	50.62	6,394.41	32.19

The previous chart shows that overall, exempt wells account for approximately 51.20% of all the groundwater produced in Bell County. In the Trinity, 55.88% of production is attributed to exempt wells and, in the Edwards BFZ, exempt wells account for 43.15% of groundwater production.

Overall, production from the Edwards BFZ aquifer accounts for 32.58% of total groundwater used in Bell County and the Trinity aquifer accounts for 26.97% of total groundwater used in Bell County.

**Modeled Available Groundwater - Analysis of Permits and Exempt Use Reserves (in acre-feet)**

Aquifer	MAG Modeled *	Reserved for Exempt	Managed	HEU Permit	Operating Permit	Remaining MAG
Edwards (BFZ)	6,469	825	5,644	2,139.20	319.73	3,184.92
Trinity	9,266	1,419	7,847	1,502.60	3,489.71	2,854.69
Paluxy	0			0	0	0
Glen Rose (Upper)	974	693	281	61.90	72.73	146.37
Hensell (Middle)	1,099	548	551	259.30	207.77	83.93
Hosston (Lower)	7,193	178	7,015	1,181.40	3,209.21	2,624.39

\* The Modeled Available Groundwater (MAG) is the estimated amount of water available for permitting assigned to Clearwater UWCD by the Executive Administrator of TWDB.

See Appendix F for the 2022 Edwards and Trinity Aquifer Status Reports

#### 4. Annual Newsletter

Objective: Each year, CUWCD will disseminate educational information on groundwater through publication of a District newsletter, quarterly web news and website.

##### *Objective Satisfied*

Annually, the District publishes a newsletter and mails it to registered well owners in Bell County. In 2022 the total number of newsletters printed were 3,000 with 2,876 copies directly mailed to well owners. The others are handed out to people that come into the office and electronic copies are emailed out to permit holders and other interested parties. The District also sent out 3 quarterly reports through Mail Chimp.

See Appendix G for Annual Newsletter and quarterly web news.

Online: <http://www.cuwcd.org/district-overview/district-newsletter/>

## B. Controlling and Preventing Waste of Groundwater

### Outreach and Education

Objective: Each year, CUWCD will disseminate educational information on controlling and preventing the waste of groundwater focusing on water quality protection through at least one classroom or public presentations to civic organizations and invited opportunities to speak.

#### *Objective Satisfied*

District staff is available to speak to any group within our geographical boundaries. In 2022, District staff reached 1,504 adults and children in Bell County directly through presentations and making contact at event booths. We often give PowerPoint presentations to adult groups explaining the District and how we function along with covering important water topics like conservation and watershed management.

In the classroom, we provide the Major Rivers curriculum and give supporting presentations with an Enviroscape watershed model and rainfall simulator. We make sure to always have handouts for the kids like color-changing pencils, rulers, and cups that change color when cold water is poured in. All handouts are branded with district information and most items have water conservation tips printed on them.

*See Appendix H for Education and Outreach Events.*

## C. Addressing Conjunctive Surface Water Management Issues

### Regional and Joint Planning Process Participation

Objective: Each year, CUWCD will participate in the regional planning process by attending a minimum of two meetings of the Brazos G Regional Water Planning Group per fiscal year.

#### *Objective Satisfied*

During FY22, District General Manager Dirk Aaron attended the scheduled meetings listed below. In 2019, Dirk Aaron was elected by the GMA8 Membership to represent the Groundwater Management Area as an appointed member of Region G. Dirk also serves on the Brazos G Scope of Work Committee.



March 23, 2022

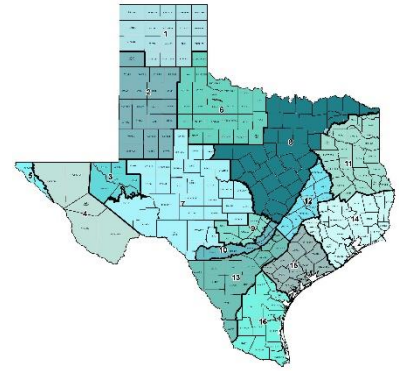
Attended

July 13, 2022

Attended

Online: <http://www.brazosgwater.org/>

In addition to the regional planning group, District General Manager Dirk Aaron and Director Gary Young also attended the meetings for Groundwater Management Area 8. Groundwater Management Areas were created in order to provide for the conservation, preservation, protection, recharging, and prevention of waste of the groundwater, and of groundwater reservoirs or their subdivisions, and to control subsidence caused by withdrawal of water from those groundwater reservoirs or their subdivisions, consistent with the objectives of Section 59, Article XVI, Texas Constitution.



November 4, 2021      Attended      July 26, 2022      Attended

Online: <http://www.gma8.org>

#### D. Addressing Natural Resource Issues Which Impact the Use and Availability of Groundwater, and which are impacted by the Use of Groundwater

##### **Monitoring Water Quality**

Objective: Each year, CUWCD will monitor water quality within the District by obtaining water samples from all newly constructed wells and testing the water quality of a minimum 90% of newly constructed wells.

*Objective Satisfied*

The District has an in-house water quality lab and offers a free screening service to registered well owners. Testing parameters include coliform bacteria; alkalinity; conductivity; total dissolved solids; fluoride; hardness; nitrate; nitrite; pH; phosphate; and sulfate. During FY22, the staff conducted screening on 85 groundwater samples. 18 samples tested were from the Edwards (BFZ) aquifer, 6 samples from the Upper Trinity, 40 samples from the Middle Trinity, 15 samples from the Lower Trinity, and 6 samples from other formations.

The District's lab is intended to provide a general water quality screening only. When a certified test is needed, the District sends properly collected well samples to BioChem located in West, Texas. During FY22, 2 samples were sent out for certified testing.

*A summary of the well screening results are shown in Appendix I.*

Objective: Each quarter of the year, CUWCD will monitor the water quality and spring-flow of the Salado Springs Complex and the Robertson springs of Salado in accordance with the necessary agreements under the Endangered Species Act (ESA) and a proposed, soon to be negotiated 4(d)rule with United States Fish and Wildlife Service (USFWS) and such, per Chapter 36.108 GMA8 Joint Planning, to manage to the Edwards BFZ Aquifer DFC.

*Objective Satisfied*

Quarterly water quality assessments for nitrate, nitrite, and dissolved oxygen of both Salado Spring Complex and groundwater flow from all seven of the downtown springs collectively known as the Salado Spring Complex were completed in 2022.

*A summary of the Salado Springs Complex screening results is shown in Appendix J.*

Objective: Each year, CUWCD, in accordance with the agreed-upon five-year reimbursable-task-order with Texas Fish and Wildlife Conservation Office (TXFWCO), will fund and support the efforts of the assigned research biologist, to assess the status of the Threatened Salado Salamander by systematically monitoring under the federal permit TE676811-9 and state permit SPR-0111-03.

*Objective Satisfied*

A summary of the formal findings of the assigned research biologist is in appendix K and on the district website at <https://cuwcd.org/salado-salamander/>

*TXFWCO’s report for FY22 is shown in Appendix K.*

## E. Addressing Drought Conditions

The District’s Groundwater Management Plan requires that the General Manager, Staff and Board of Directors review the District’s drought status on a monthly basis. The decisions to declare drought levels per the District’s Drought Management Plan approved December 17, 2009, are reviewed weekly by the General Manager. The Drought Management plans are designed to reflect conditions of the Trinity and Edwards (BFZ) Aquifers independently of each other based on the specified triggers (PDI and/or Spring Flow).

### 1. Monitor Drought Conditions in the Edwards Aquifer

Objective: Each month, CUWCD will monitor drought conditions in the Edwards aquifer through the process established in the drought management plan for the Edwards aquifer adopted by the Board of Directors.

*Objective Satisfied*

Under the Edwards BFZ Drought Management Plan, a drought stage is triggered when either the Precipitation Deficit Index (PDI) is less than a drought state trigger condition exceeding for a period of 28 consecutive days and shall be reduced or terminated when the PDI is greater than the trigger condition exceeding for a period of 42 consecutive days, or the average spring discharge measured via stream flow gauges in Salado Creek fall below the trigger level for the periods described time.

Online: <http://www.cuwcd.org/regulatory-program/drought-management/edwards-drought-management-plan/>

The chart on the next page shows the declared stages during the fiscal year.

**EDWARDS BFZ AQUIFER DROUGHT STATUS**



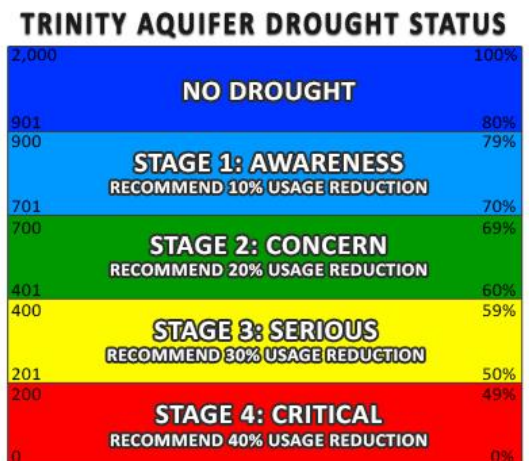
Date	Declared Drought Stage	Salado Creek Acre ft/Month	Salado Creek CFS	PDI Total	PDI % Total
10/3/2021	No Drought	2,319.47	38.98	33.005	100.01
11/7/2021	No Drought	6,789.43	114.10	37.97	115.06
12/1/2021	No Drought	1,478.08	24.84	37.57	113.85
1/6/2022	No Drought	1,639.94	27.56	35.79	108.45
2/14/2022	No Drought	1,799.41	30.24	36.438	110.42
3/6/2022	No Drought	1,557.82	26.18	35.371	107.18
4/10/2022	No Drought	918.74	15.44	35.338	107.08
5/10/2022	No Drought	1,032.99	17.36	33.72	102.17
6/5/2022	Stage 2 Drought	624.79	10.5	27.381	82.97
6/13/2022	Stage 2 Drought	619.319	10.408	27.178	82.316
6/20/2022	Stage 2 Drought	721.191	12.12	27.148	82.27
6/27/2022	Stage 2 Drought	595.99	10.016	25.541	77.40
7/5/2022	Stage 2 Drought	579.094	9.732	24.837	75.26
7/10/2022	Stage 2 Drought	585.76	9.84	23.252	70.46
7/14/2022	Stage 2 Drought	520.78	8.752	22.009	66.69
7/24/2022	Stage 3 Drought	371.66	6.246	22.009	64.05
8/9/2022	Stage 3 Drought	287.64	4.834	19.346	58.62
8/15/2022	Stage 3 Drought	344.053	5.782	19.339	58.60
9/12/2022	Stage 3 Drought	424.026	7.126	23.67	71.73

## 2. Monitor Drought Conditions in the Trinity Aquifer

Objective: Each month, CUWCD will monitor drought conditions in the Trinity aquifer through the process established in the drought management plan for the Trinity aquifer adopted by the Board of Directors.

*Objective Satisfied*

Under the Trinity Aquifer Drought Management Plan, a drought stage is only to be triggered when the Precipitation Deficit Index (PDI) is less than a drought state trigger condition exceeding for a period of 28 consecutive days and shall be reduced or terminated when the PDI is greater than the trigger condition exceeding for a period of 42 consecutive days.



Below are the declared stages during the fiscal year.

Date	Declared Drought Stage	PDI Total	PDI % Total
10/3/2021	No Drought	32.255	97.74
11/7/2021	No Drought	36.28	109.94
12/1/2021	No Drought	35.98	109.03
1/6/2022	No Drought	34.189	103.60
2/14/2022	No Drought	34.627	104.93
3/6/2022	No Drought	33.795	102.41
4/10/2022	No Drought	33.873	102.65
5/10/2022	No Drought	32.98	99.94
6/5/2022	No Drought	26.785	81.44
7/10/2022	Stage 1 Drought	23.451	71.06
7/14/2022	Stage 2 Drought	21.785	66.02
7/24/2022	Stage 2 Drought	21785	64.05
8/9/2022	Stage 3 Drought	19.797	59.99
8/15/2022	Stage 3 Drought	19.771	59.91
9/12/2022	Stage 3 Drought	23.933	72.52

## F. Addressing Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, and Brush Control, Where Appropriate and Cost-Effective

### 1. Conservation

Objective: Each year, CUWCD will promote conservation by conducting and hosting educational events with AgriLife Extension Service and Texas 4-H2O Ambassadors on water conservation and by distributing conservation brochures and literature to the public at a minimum of two educational events attended by district staff and directors.

#### *Objective Satisfied*

During 2022, the District exceeded this requirement and was able to reach over 560 adults and children in Bell County directly through giving presentations and making contact at event booths where conservation materials were both discussed and handed out. The District also presented the same topics in the ongoing electronic quarterly newsletter and the annual newsletter.

*See Appendix H for Education and Outreach Events.*



## 2. Rainwater Harvesting

Objective: Each year, CUWCD will promote rainwater harvesting by posting information on rainwater harvesting on the District website.

### *Objective Satisfied*

The District's Groundwater Management Plan requires promotion of rainwater harvesting by posting information on the District website. The District satisfied this requirement by including a segment on rainwater harvesting on its website under the Education menu tab along with a link to the Texas A&M AgriLife Extension website and their Rainwater Harvesting Manual. Also included are links to Rainwater Harvesting Contacts and Suppliers and to the Texas A&M AgriLife Extension manual on Rainwater Harvesting Landscape Methods. The District's office has a rainwater harvesting setup for demonstration purposes.

<http://www.cuwcd.org/education/rainwater-harvesting/>

*A copy of the posted information is included under Appendix L.*

## 3. Brush Control

Objective: Each year, the District will provide information relating to brush control on the District web site.

### *Objective Satisfied*

The District's Groundwater Management Plan requires promotion of conservation by providing information relating to brush control on the District website. The District satisfied this requirement by including a segment on brush control on its website under the Education menu tab. For additional information on brush control, links to the Texas A&M AgriLife Extension website are provided. Also included is a link to the Brush Management Fact Sheet produced by Environmental Defense.

<http://www.cuwcd.org/education/brush-control/>

*A copy of the posted information is included under Appendix M.*

## 4. Recharge Enhancement

Objective: Each year, the District will provide information relating to recharge enhancement on the District web site.

### *Objective Satisfied*

The District's Groundwater Management Plan requires promotion of conservation by providing information relating to recharge enhancement, and the District satisfied this requirement by including a segment on recharge enhancement on its website under the Education menu tab. For additional information on recharge enhancement, links to the Texas State Soil and Water Conservation website, and the Leon River Restoration Project website are provided. In addition, the District has contracted with Baylor University to help gain a better scientific understanding of the Edwards (BFZ) and its recharge zone.

<http://www.cuwcd.org/education/recharge-enhancement/>

## G. Addressing in a Quantitative Manner the Desired Future Conditions of the Groundwater Resources

### 1. Salado Springs

Objective: Each month, CUWCD will operate a gauge system on Salado Creek by contract with USGS Water Science Team in Austin Texas, to accurately record the estimates of the discharge from the Edwards (BFZ) Aquifer at the Salado Springs Complex, Robertson, Big Boiling, Little Bubbly, Side Spring, Critchfield, Benedict and Anderson Springs.

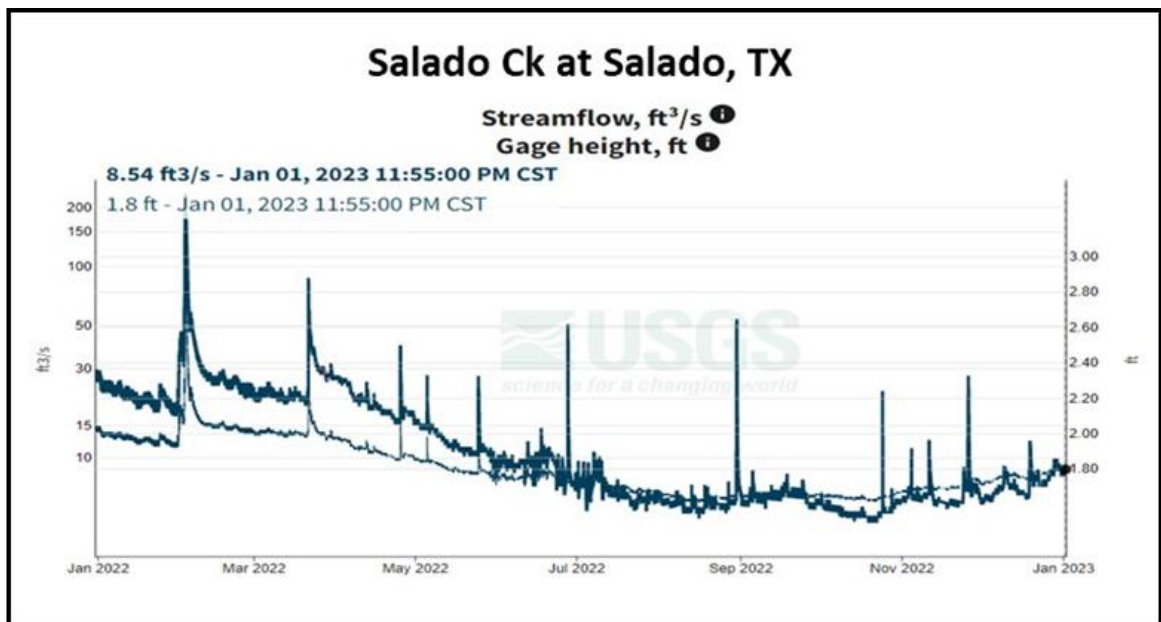
#### *Objective Satisfied*

The gauges in the Salado Creek have been an important mechanism to protect spring flow. The District began collecting data from the Salado Creek stream flow gauges during FY08 with the assistance of multiple contractors. During the spring of 2013 an upgraded gauge package by the USGS Water Science Group was installed and the process of analyzing the data and recalibrating the system began. This process was lengthy, but essential to ensure accuracy of the data collected. The new gauges and relationship with the USGS have proved to be an important step forward in monitoring spring flow. The live data can be found online on our website:

<http://www.cuwcd.org/salado-springs/salado-creek-gauges/>

Each month, CUWCD provides a summary of the monthly average discharge rate of Salado Springs and discusses the conservation measures implemented (if any are necessary) to avoid impairment of the Desired Future Conditions for the Edwards (BFZ) Aquifer established by GMA 8.

The image below is a screenshot of the spring flow data for the calendar year 2022.



## 2. (a) Static Water Level Measurements

Objective: Each month, CUWCD will collect at least 15 water-level measurements from the Trinity aquifer monitor wells located in the District.

### *Objective Satisfied*

The Texas Water Development Board (TWDB) typically measures water levels in selected wells in January each year. Clearwater measures water levels in selected wells four times annually to collect more comprehensive data on water levels in Bell County. The District also collects water level measurements from all newly constructed wells in Bell County and from all WellIntel participants.

Comparing the water level measurements taken by the District with those taken by the TWDB is sometimes difficult due to differences in measurement procedures and equipment. Clearwater primarily uses a Sonic Wave Meter and only utilizes an e-line if necessary. Large producers are asked to turn the pump off at least one hour prior to the measurement to allow the aquifer levels time to stabilize. TWDB typically uses a steel tape or an airline and does not request the pump to be turned off. During calendar year 2022, the District took water level measurements from 116 wells.

The District has been increasing continuous monitor well locations throughout Bell County, thus some wells have very little historical information. Adding these wells is essential to have a broader spectrum of data to analyze in future years. The District has 12 continuous monitor wells that are monitored by TWDB. The continuous water level measurements can be viewed on TWDB's website at: <https://waterdatafortexas.org/groundwater>.

*A copy of the measurements is included under Appendix O.*

## 2. (b) Changes in Water Levels

Objective: Each year, the Annual Report to the Board of Directors will include a discussion of the change in water levels in each Trinity aquifer layer for which a Desired Future Condition is established by GMA-8.

### *Objective Satisfied*

The District prepares a monthly status report (Appendix F – Trinity Aquifer Status Report 2022) that explains the status of the Trinity aquifers by layer at any given time. The DFC analysis from 2000 to present compares DFC adopted drawdown to actual drawdown figures for Bell County. In addition, potential production from both permitted wells and exempt wells is compared to MAG with figures showing how much actual water is available for permitting. Report can be viewed at:

[https://cuwcd.org/wp-content/uploads/2023/01/20230123\\_Trinity\\_Study\\_BelcoWilcoTravco-Groundwater-Use.pdf](https://cuwcd.org/wp-content/uploads/2023/01/20230123_Trinity_Study_BelcoWilcoTravco-Groundwater-Use.pdf)

## 5. Miscellaneous Activities

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In addition to the Groundwater Management Plan requirements, Clearwater is involved in several miscellaneous activities as follows:

### A. Abandoned Wells

The District continues to coordinate with the Texas Department of Licensing and Regulation (TDLR)

to identify and investigate reports of abandoned wells. After initial investigation, staff refers abandoned wells to TDLR for further investigation, determination of corrective action, and enforcement. The District did not refer any abandoned wells to TDLR during the calendar year 2022.

The District continues to work with the Bell County Public Health District for assistance in locating abandoned wells when septic systems are inspected. The District promotes the plugging of abandoned wells by distributing educational information at various conferences and events and hosting well plugging demonstrations with the Texas A&M AgriLife Extension.

According to records from the Texas Department of Licensing and Regulation, during 2022 a total of 18 wells were plugged in Bell County.

## B. Bell County Water Symposium

Clearwater sponsored its twenty first annual water symposium on November 16, 2022 at the Bell County Expo Center. Event partners included Bell County Engineer's Office, KPA Engineers, LRE Water LLC, Lloyd Gosselink Attorneys at Law, Capital Farm Credit, Allan R. Standen LLC, R.W. Harden & Associates, Inc, Michelle A. Sutherland Groundwater Resource Consulting, Advanced Groundwater Solutions LLC, Blanton & Associates, and Texas A&M AgriLife Extension-Bell County.

Topics that were discussed:

- *Reflecting on Growth (Opportunities & Challenges)* – Honorable David Blackburn, Bell County Judge
- *Water Management Strategies and System Update* – David Collinsworth, General Manager & CEO, Brazos River Authority and Brad Brunett, Lower/Central Basin Region Manager, Brazos River Authority
- *History and Role, Serving in Times of Need* – Richard Garrett, General Manager, Bell County WCID No. 1
- *Bell County Groundwater Resource Update, Concerns, Conservation and Future* – Leland Gersbach, Board President, Clearwater UWCD and Dirk Aaron, General Manager, Clearwater UWCD
- *Annexation Request from Aquifer Conservation Alliance (ACA)* – Panel – Moderator: Honorable David Blackburn, Bell County Judge, Panelists: Cole Ruiz, Attorney, Lloyd Gosselink Rochelle & Townsend, P.C., Kristen Fancher, Attorney, Fancher Legal, PLLC, Vince Clause, Hydrogeologist, LRE Water, Keith Elliston, President, Aquifer Conservation Alliance
- *Domestic and International Perspective of Water Resources and Legal Disputes* – Dr. Gabriel Eckstein, Professor of Law and Director of the Energy, Environmental, and Natural Resource Systems Law Program, Texas A&M University
- *Texas Climatic Trends and Drought Predictions for 2022 & Beyond* – Dr. John Nielsen-Gammon, Regents Professor, Texas A&M University, Texas State Climatologist, Director of the Southern Regional Climate Center
- *Texas State Water Planning and Brazos G Regional Planning for the Future* – Mr. Tony Smith, Associated Vice President, Carollo Engineers
- *Your Aquifer and You: Data Insights from the Middle Trinity Aquifer and the People Who Use It* – Dr. Joe Yelderman, Professor & Chair, Department of Geosciences, Baylor University and Dr. Logan Yelderman, Associate Professor of Psychology, Prairie View A&M University and Will Brewer, Graduate Assistant, Department of Geosciences, Baylor University

Refer to Appendix P for an agenda of the meeting.

Online: <http://www.cuwcd.org/education/annual-water-symposium/>

## C. Internet Site

The District's website continues to grow on a monthly basis. The website contains general information about the District and Board of Directors along with a calendar of events and meeting agendas. Press releases and other water-related articles are posted to continually provide water-related resources to the residents of Bell County.

Below are some highlights of the website available to the public:

- [Current Drought Status](#)
- [Educational Resources](#)
- [Texas Drought Monitor](#)
- [Salado Creek Gauges](#)
- [District Rules](#)
- [Groundwater Management Plan](#)
- [Access to online GIS Maps](#)
- [Link to TWDB Groundwater Levels](#)
- [Link to TWDB Texas Reservoir Levels](#)
- [Public Records](#)
- [District Forms and Documents](#)

The website can be viewed at <http://www.cuwcd.org>

## 6. Summary

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Based on the governance of the Board of Directors and management under the executive direction of the General Manager, District staff continued expanding their efforts in developing in-depth aquifer science, enhancing educational outreach to public schools and civic organizations, and refining database management for the District records.

The District staff has expanded the educational efforts in a partnership with Texas A&M AgriLife Extension, Master Naturalist, and Master Gardener programs. Strategies include: an education trailer (mobile classroom), classroom curriculum, science day events, field days, Earth Day events, and informative presentations for civic organizations.

Clearwater UWCD has maintained relationships with Bell County, all cities within Bell County, USGS, and Baylor University to continue efforts to better understand the Edwards BFZ Aquifer and its complex of springs and recharge features. Maintaining the regulatory system of protecting the spring flow has been validated by the USFWS decision to list the salamander as threatened rather than endangered. The 2015, 2016, 2017, 2018, 2019, 2020, 2021 and 2022 final reports from USFWS can be found on our website at <http://www.cuwcd.org/salado-springs/salado-salamander/>.

The District is also committed to continuing our efforts to enhance the network of monitor wells in the three layers of the Trinity Aquifer in order to measure drawdown relative to pumping. This allows the Board of Directors to manage the aquifers to the DFC rather than simply to the MAG. The District continues to monitor over 50 wells in both the Trinity and Edwards (BFZ) Aquifers.

The Board of Directors of Clearwater UWCD have officially amended the District Rules (effective November 1, 2022) after investing approximately \$1.5 million (since 2014) in advanced scientific endeavors and with this new understanding has made significant changes to our permitting process and protection of landowner rights. Clearwater Directors amended the rules in both a legal and scientific manner. Due to our enhanced understanding, we have been able to address the many complex

questions, but in general, we have established management zones, limited column pipe sizes depending on the zone, enhance exempt well spacings and enhance tract size limits on non-exempt wells. In addition, we have added remedies for exceptions, waivers, and tract size encumbrances. The new District rules can be found on our website at [https://cuwcd.org/wp-content/uploads/2022/10/20221101\\_FINAL\\_CUWD-Rules-.pdf](https://cuwcd.org/wp-content/uploads/2022/10/20221101_FINAL_CUWD-Rules-.pdf)

# *Appendix A*

**Clearwater Underground Water Conservation      08/26/2021**  
**Adopted Budget FY2022**

FILED FOR RECORD  
 2021 AUG 26 P 2:04  
 SHELLEY COSTIN  
 CO. CLK. BELL CO. TX

**REVENUE**

Application Fee Income	50,000.00
Bell CAD Current Year Tax	777,106.00
Bell CAD Delinquent Tax	10,000.00
Interest Income	1,000.00
Transport Fee Income	1,500.00
<b>Total Income</b>	<b>839,606.00</b>
<b>Gross Profit</b>	<b>839,606.00</b>

**EXPENDITURES**

**Administrative Expenses**

Audit	8,500.00
Conferences & Prof Development	4,000.00
Contingency Fund	90,264.00
Director Expenses	7,500.00
Director Fees	12,750.00
Dues & Memberships	4,000.00
Election Expense	500.00
GMA 8 Expenses	7,500.00
Meals	1,000.00
Mileage Reimbursements	5,000.00
Travel & Hotel	4,500.00

**Total Administrative Expenses      145,514.00**

**Salary Costs**

Administrative Assistant	56,000.00
Educational Coord/Support Tech	50,000.00
Manager	100,000.00
Part Time/Intern	4,500.00
Office Assistant/Field Tech	47,000.00
Health Insurance	34,525.00
Payroll Taxes & Work Comp	25,300.00
Retirement	11,385.00
Payroll Expenses	125.00
Freshbenies	432.00

**Total Salary Costs      329,267.00**

**Operating Expenses**

Bank Service Charges	50.00
Advertisement	4,000.00
Appraisal District	9,000.00
Clearwater Studies	92,500.00
Spring Flow Gage System	15,900.00
Computer Consulting	47,400.00
Computer Licenses/Virus Prctn	1,500.00
Computer Repairs and Supplies	2,000.00
Computer Software & Hardware	5,000.00
Copier/Scanner/Plotter	6,000.00
Educational Outreach/Marketing	19,500.00
Furniture & Equipment	2,500.00
Legal	42,500.00
Office Supplies	3,500.00
Permit Reviews	50,000.00
Postage	2,500.00
Printing	2,500.00
Reserve for Uncollected Taxes	20,000.00
Subscriptions	900.00
Mobile Classroom Expense	2,000.00
Vehicle Expense	4,000.00

**Total Operating Expenses      333,250.00**

**Facility Costs      22,375.00**

**Utilities      9,200.00**

**TOTAL EXPENDITURES      839,606.00**

*For a detailed copy of the FY22 Budget, contact CUWCD at 254-933-0120*



**RESOLUTION AND ORDER  
OF THE BOARD OF DIRECTORS OF THE CLEARWATER  
UNDERGROUND WATER CONSERVATION DISTRICT  
MEETING HELD AUGUST 25, 2021**

<b>THE STATE OF TEXAS</b>	§	
	§	<b>A RESOLUTION AND ORDER</b>
<b>COUNTY OF BELL</b>	§	
	§	<b>SETTING ANNUAL TAX RATE</b>
<b>CLEARWATER UWCD</b>	§	

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The Board of Directors of the Clearwater Underground Water Conservation District met in a regular session, open to the public, after due notice, at the Clearwater Underground Water Conservation District, located at 700 Kennedy Court, Belton, Texas, within the boundaries of the District, on the 25<sup>th</sup> day of August 2021, whereupon the roll was called of the members of the Board of Directors, to wit:

Leland Gersbach	President
David Cole	Vice President
C. Gary Young	Secretary
Scott A. Brooks	Director
Jody Williams	Director

Five (5) of the five (5) Board members were present, thus constituting a quorum.

WHEREUPON, among other business conducted by the Board, Director **JODY WILLIAMS** introduced the Order set out below and moved for its adoption, which motion was seconded by Director **SCOTT BROOKS** and, after full discussion and the question being put to the Board of Directors, said motion was carried by the following vote:

“Aye”: 4 ; “No”: 1 ; “Abstained”: 0 ; “Absent”: 0 .

The Order thus adopted is as follows:

WHEREAS, the Board of Directors was authorized by applicable statutory law to levy a sufficient tax to cover all maintenance and operation expenses of the District;

WHEREAS, the Board of Directors reviewed and approved its budget for its fiscal year October 1, 2021, through September 30, 2022, and determined what tax rate should be set to meet such budget requirements;

WHEREAS, the appraisal roll of the District for 2021 has been prepared and certified by the Tax Appraisal District of Bell County and submitted to the District's tax collector; and

NOW, THEREFORE, BE IT ORDERED BY THE BOARD OF DIRECTORS OF THE CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT THAT:

**I.**

The operation and maintenance tax rate for tax year 2021 shall be \$0.003100 per one hundred dollars (\$100) of assessed valuation. Be it known that this 2021 tax rate is less than last year's tax rate at \$0.003272 per \$100 of assessed valuation, but this rate will increase total taxes in Clearwater by 6.0%, or 26¢ on the average appraised value of a residence at \$193,203.00.

**THIS TAX RATE WILL RAISE MORE TAXES FOR MAINTENANCE AND OPERATIONS THAN LAST YEAR'S TAX RATE.**

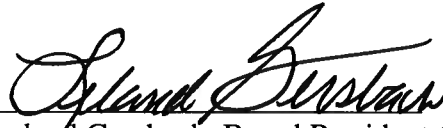
The Bell County Tax Assessor and Collector shall take all steps necessary and authorized by the law to collect taxes as owed pursuant to this order. Said taxes shall be levied, assessed and collected at the rate of \$0.003100 per \$100 valuation for 2021 as provided for in the District's enabling act; Chapters 36 Texas Groundwater Water Code, as applicable; and all other applicable laws.

**II.**

The Board President or Vice President are authorized to execute, and the Secretary or any Assistant Secretary to attest, this order on behalf of the Board of Directors.

PASSED, APPROVED AND ADOPTED this the 25<sup>st</sup> day of August 2021.

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

By:   
Leland Gersbach, Board President (or)  
David Cole, Board Vice President

ATTEST:

  
C. Gary Young, Board Secretary (or)  
Dirk Aaron, Assistant Secretary

# *Appendix B*

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

**Audited Financial Statements**

**For the Year Ended September 30, 2022**

**and Independent Auditors' Report**

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## INDEPENDENT AUDITORS' REPORT

To the Board of Directors  
Clearwater Underground Water Conservation District  
Belton, TX

### Opinions

We have audited the accompanying financial statements of the governmental activities and each major fund of the Clearwater Underground Water Conservation District, as of and for the year ended September 30, 2022, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities and each major fund of Clearwater Underground Water Conservation District, as of September 30, 2022, and the respective changes in financial position thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

### Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of Clearwater Underground Water Conservation District, and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

### Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about Clearwater Underground Water Conservation District's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

### Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Clearwater Underground Water Conservation District's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about Clearwater Underground Water Conservation District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

### **Required Supplementary Information**

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and budgetary comparison information on pages 3–7 and 19 be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

### **Other Information**

Management is responsible for the other information included in the annual report. The other information comprises the Texas supplementary information section but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

### **Other Reporting Required by *Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated February 7, 2023, on our consideration of Clearwater Underground Water Conservation District's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of Clearwater Underground Water Conservation District's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Clearwater Underground Water Conservation District's internal control over financial reporting and compliance.

*Ludwick, & Montoya, & Stump, P.C.*

Temple, Texas  
February 7, 2023

## **CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Management's Discussion and Analysis

For the Year Ended September 30, 2022

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In this section of the annual financial report, we, the managers of Clearwater Underground Water Conservation District (the District), discuss and analyze the District's financial performance. Please read it in conjunction with the independent auditors' report on page 1 and the District's basic financial statements, which begin on page 8.

### **FINANCIAL HIGHLIGHTS**

- The District's net position increased by \$51,177 as a result of this year's operations.
- The ending net position was \$1,471,774.
- During the year, the District had expenses that were \$51,177 less than the \$800,797 generated in revenues.
- Total costs of all the District's programs were \$749,620.
- The resources available for appropriation were \$111,280 more than budgeted due to an over budgeting of compensation and benefits, Clearwater studies and other operating expenses offset by an over budgeting of revenues.

### **OVERVIEW OF THE FINANCIAL STATEMENTS**

This annual report consists of three parts: (1) Management's Discussion and Analysis (this section), (2) government-wide and fund financial statements, and (3) notes to the financial statements. The government-wide and fund financial statements include the statement of net position and governmental fund balance sheet and the statement of activities and governmental fund revenues, expenditures, and changes in fund balance (on pages 8 and 9). The government-wide and fund financial statements are presented together because the District has only one fund. These provide information about the activities of the District as a whole. They reflect the flow of total economic resources in a manner similar to the financial reports of a business enterprise.

The notes to the financial statements, starting on page 10, provide narrative explanations or additional data needed for full disclosure in the government-wide statements and fund financial statements. This report also contains the budgetary comparison schedule as required supplementary information in addition to the government-wide and fund financial statements themselves.

### **GOVERNMENT-WIDE FINANCIAL STATEMENTS**

The government-wide financial statements are designed to provide readers with a broad overview of the District's finances, in a manner similar to a private-sector business. The government-wide financial statements use the economic resources measurement and the accrual basis of accounting. Revenues are recorded when earned and expenses are recorded when a liability is incurred regardless of the timing of the related cash flow.

The statement of net position presents information on all of the District's position and liabilities, with the difference between the two reported as net position. The District's net position (the difference between assets and liabilities) provide one measure of the District's financial health or financial position. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the District is improving or deteriorating. To fully assess the overall health of the District, however, you should consider nonfinancial factors as well. The analysis of the District's overall financial condition and operations begins on page 8.



## **CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Management's Discussion and Analysis

For the Year Ended September 30, 2022

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### **GOVERNMENT-WIDE FINANCIAL STATEMENTS (CONTINUED)**

The statement of activities presents information showing how the District's net position changed during the most recent year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Thus, revenues and expenses are reported in this statement for some items that will only result in cash flows in future periods.

These two statements report the District's net position and changes in them.

### **FUND FINANCIAL STATEMENTS**

A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. The District uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements. The District has only one fund, namely the general fund.

The general fund is a governmental fund used to account for essentially the same function reported as governmental activities in the government-wide financial statements. However, unlike the government-wide financial statements, governmental fund financial statements focus on near-term inflows and outflows of spendable resources, as well as on balances of spendable resources available at the end of the year. Such information may be useful in evaluating a government's near-term financing requirements.

The District maintains one general fund in the governmental fund balance sheet and the governmental fund statement of revenues, expenditures, and changes in fund balance.

Because the focus of the general fund is narrower than that of the government-wide financial statements, it is useful to compare the information presented in the general fund with similar information presented for governmental activities in the government-wide financial statements. By doing so, readers may better understand the long-term impact of the government's near-term financial decisions. Both the general fund balance sheets and the general fund statement of revenues, expenditures, and changes in fund balance provide a reconciliation to facilitate this comparison between the general fund and governmental activities. The general fund financial statements are shown in conjunction with the government-wide financial statements on pages 8 and 9.

### **NOTES TO THE FINANCIAL STATEMENTS**

The notes provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements. The notes to the financial statements can be found on pages 10 through 18 of this report.

### **REQUIRED SUPPLEMENTARY INFORMATION**

The budgetary comparison schedule is presented for purposes of additional analysis as required by accounting principles generally accepted in the United States of America. The schedule can be found on page 19 of this report.

### **GOVERNMENT-WIDE FINANCIAL ANALYSIS**

The District implemented GASB 34 during the fiscal year ended September 30, 2004. The following analysis focuses on the Net Position (Table I) and Changes in Net Position (Table II) of the District's governmental fund activities.

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Management's Discussion and Analysis

For the Year Ended September 30, 2022

**GOVERNMENT-WIDE FINANCIAL ANALYSIS (CONTINUED)**

Net position of the District's governmental activities increased from \$1,420,597 to \$1,471,774. Unrestricted net position - the part of net position that can be used to finance day-to-day operations without constraints established by debt covenants, enabling legislation, or other legal requirements was \$1,002,622 at September 30, 2022.

The District's total revenues increased by \$51,576. The cost of all governmental activities this year was \$749,620 compared to \$728,759. Therefore, revenues and expenses both had increases.

**Table I**  
**Clearwater Underground Water Conservation District**

Net Position		
	Governmental Activities 2022	Governmental Activities 2021
<b>Assets:</b>		
Cash	\$ 1,003,949	\$ 902,467
Taxes receivable	17,804	21,208
Capital assets - net of depreciation	469,152	530,292
Total Assets	1,490,905	1,453,967
<b>Liabilities:</b>		
Current	19,131	33,370
Total Liabilities	19,131	33,370
<b>Net Position</b>		
Unrestricted	1,002,622	890,305
Net investment in capital assets	469,152	530,292
Total Net Position	\$ 1,471,774	\$ 1,420,597

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Management's Discussion and Analysis

For the Year Ended September 30, 2022

**GOVERNMENT-WIDE FINANCIAL ANALYSIS (CONTINUED)**

**Table II**  
**Clearwater Underground Water Conservation District**

**Changes in Net Position**

	Governmental Activities 2022	Governmental Activities 2021
<b>Revenues</b>		
Property taxes	\$ 760,441	\$ 723,678
Permits and other fees	12,736	24,736
Interest income	8,542	807
Gain on sale of assets	19,078	-
Total Revenues	<u>800,797</u>	<u>749,221</u>
<b>Expenses</b>		
Operating expenses	<u>749,620</u>	<u>728,759</u>
Total Expenses	<u>749,620</u>	<u>728,759</u>
Increase (decrease) in net position	51,177	20,462
Net position - beginning of the year	<u>1,420,597</u>	<u>1,400,135</u>
Net position - end of the year	<u>\$ 1,471,774</u>	<u>\$ 1,420,597</u>

**FUND FINANCIAL ANALYSIS**

The focus of the District's governmental fund is to provide information on near-term inflows, outflows, and balances of spendable resources. Such information is useful in assessing the District's financing requirements. In particular, fund balance may serve as a useful measure of a government's net resources available for spending for program purposes at the end of the year.

As the District completed the current year, its governmental fund, which consists of one general fund, as presented in the governmental fund balance sheet on page 8 reported an ending fund balance of \$997,794, which is \$111,280 higher than last year's total of \$886,514. The District's major source of revenue is property taxes. The fund balance represents funds available for operations.

The District's general fund balance of \$997,794 reported on page 19 differs from the General Fund's budgetary fund balance of \$886,514 reported on the same schedule. This is principally due to expenses being under budget offset by revenues being over budgeted.

## **CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Management's Discussion and Analysis

For the Year Ended September 30, 2022

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### **CAPITAL ASSETS**

At the end of fiscal year 2022, the District had \$469,152 invested in building, land and equipment, net of accumulated depreciation. During the year ended September 30, 2022, there was land sold for a gain of \$19,078.

### **DEBT**

The District had no debt during the year or at year end.

### **ECONOMIC FACTORS AND NEXT YEAR'S BUDGET**

The District's board considered many factors when setting the 2023 budget. One of the factors was the appraisal value of property. Additionally, the economy and population growth were considered.

### **CONTACTING THE DISTRICT'S FINANCIAL MANAGEMENT**

This financial report is designed to provide our citizens and taxpayers with a general overview of the District's finances and to show the District's accountability for the funds it receives. If you have questions about this report or need additional financial information, contact the District's business office, Clearwater Underground Water Conservation District, 700 Kennedy Ct., P.O. Box 1989, Belton, TX 76513.

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Statement of Net Position and Governmental Fund Balance Sheet

September 30, 2022

	General Fund	Adjustments (Note 11)	Statement of Net Position
<b>Assets</b>			
Current Assets:			
Cash and cash equivalents	\$ 49,084	\$ -	\$ 49,084
Temporary investments	954,865	-	954,865
Taxes receivable, net of allowance of \$-0-	17,804	-	17,804
Total Current Assets	1,021,753	-	1,021,753
Noncurrent Assets:			
Capital assets not being depreciated			
Land	-	29,059	29,059
Capital assets being depreciated			
Building and equipment, net of accumulated depreciation	-	440,093	440,093
Total Capital Assets, net	-	469,152	469,152
Total Noncurrent Assets	-	469,152	469,152
Total Assets	<u>\$ 1,021,753</u>	<u>469,152</u>	<u>1,490,905</u>
<b>Liabilities</b>			
Payroll liability	\$ 2	-	2
Compensated absences	-	19,129	19,129
Total Liabilities	<u>2</u>	<u>19,129</u>	<u>19,131</u>
<b>Deferred Inflows of Resources</b>			
Unavailable revenue - property taxes	17,804	(17,804)	-
Insurance proceeds	6,153	(6,153)	-
Total Deferred Inflows of Resources	<u>23,957</u>	<u>(23,957)</u>	<u>-</u>
<b>Fund Balance</b>			
Unassigned	<u>997,794</u>	<u>(997,794)</u>	<u>-</u>
Total Fund Balance	<u>997,794</u>	<u>(997,794)</u>	<u>-</u>
Total Liabilities, Deferred Inflows, and Fund Balance	<u>\$ 1,021,753</u>		
<b>Net Position</b>			
Unrestricted		1,002,622	1,002,622
Net investment in capital assets		<u>469,152</u>	<u>469,152</u>
Total Net Position		<u>\$ 1,471,774</u>	<u>\$ 1,471,774</u>

The accompanying notes are an integral part of these financial statements.

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT****Statement of Activities and Governmental Fund Revenues, Expenditures, and Changes in Fund Balance  
For the Year Ended September 30, 2022**

	<u>General Fund</u>	<u>Adjustments (Note 11)</u>	<u>Statement of Activities</u>
<b>Revenues</b>			
Property taxes	\$ 757,692	\$ 2,749	\$ 760,441
Permits and other fees	12,736	-	12,736
Interest and other income	8,542	-	8,542
Gain on sale of assets	50,000	(30,922)	19,078
	<u>828,970</u>	<u>(28,173)</u>	<u>800,797</u>
<b>Expenditures</b>			
Administrative	25,200	-	25,200
Clearwater studies	108,277	-	108,277
Compensation and benefits	302,898	1,712	304,610
Depreciation	-	30,218	30,218
Directors fees	7,050	-	7,050
Educational outreach	14,784	-	14,784
Facility costs	21,574	-	21,574
Legal and professional	75,656	-	75,656
Other operating expenses	117,523	-	117,523
Payroll taxes	20,156	-	20,156
Spring flow gauge system	15,900	-	15,900
Utilities	8,672	-	8,672
	<u>717,690</u>	<u>31,930</u>	<u>749,620</u>
Excess of revenues over expenditures	111,280	(111,280)	-
Change in net position	-	51,177	51,177
Fund balance/net position:			
Beginning of year	886,514	534,083	1,420,597
End of year	<u>\$ 997,794</u>	<u>\$ 473,980</u>	<u>\$ 1,471,774</u>

The accompanying notes are an integral part of these financial statements.

# CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

Notes to the Financial Statements

For the Year Ended September 30, 2022

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## 1. Nature of Activities

The Clearwater Underground Water Conservation District (the "District") was created in 1989 by the Texas State Legislature and resolution of the Commissioners Court of Bell County, Texas, in order to carry out groundwater management in Bell County. The purpose of the District is to develop and implement an efficient, economical and environmentally sound groundwater management program to protect and enhance the water resources of the District. The District is governed by a five member Board of Directors ("the Board") elected by the qualified voters within the boundaries of the District.

## 2. Summary of Significant Accounting Policies

The following is a summary of certain significant accounting policies followed in the preparation of the financial statements of Clearwater Underground Water Conservation District.

The District is a governmental entity with its principal office in Belton, Texas from which it oversees groundwater management in Bell County. Principal revenues are property taxes and permit fees. The board of directors constitutes an on-going entity and is the level of government which has governance responsibilities over all activities.

### *Reporting Entity*

The District has developed criteria to determine if the activities of any outside agencies or organizations should be included within its financial statements. The criteria includes the amount of oversight responsibility exercised by the District over the activities of an agency or organization, the scope of public service of an agency or organization, and the nature of any special financing relationships which may exist between the District and an agency or organization. Oversight responsibility includes financial interdependency, selection of the governing authority, designation of management, the ability to significantly influence operations, and accountability for fiscal matters. The District's financial statements include all funds over which the District exercises oversight responsibility. The District does not exercise oversight responsibility over any other reporting entity. Also, the District is not included as a part of any other reporting entity.

### *Government-wide and Fund Financial Statements*

The statement of net position and the statement of activities are government-wide financial statements. They report information on all of Clearwater Underground Water Conservation District. The fund financial statements provide reports on the financial condition and results of operations for one fund category - governmental.

### *Measurement Focus, Basis of Accounting, and Financial Statement Presentation*

The government-wide financial statements use the economic resources measurement focus and the accrual basis of accounting. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows.

## CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

Notes to the Financial Statements

For the Year Ended September 30, 2022

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### 2. Summary of Significant Accounting Policies (Continued)

#### *Measurement Focus, Basis of Accounting, and Financial Statement Presentation (Continued)*

Governmental fund financial statements use the current financial resources measurement focus and the modified accrual basis of accounting. With this measurement focus, only current assets, current liabilities and fund balances are included on the balance sheet. Operating statements of these funds present net increases and decreases in current assets (i.e., revenues and other financing sources and expenditures and other financing uses).

The modified accrual basis of accounting recognizes revenues in the accounting period in which they become both measurable and available, and it recognizes expenditures in the accounting period in which the fund liability is incurred, if measurable, except for unmatured interest and principal on long-term debt, which is recognized when due. The expenditures related to certain compensated absences and claims and judgments are recognized when the obligations are expected to be liquidated with expendable available financial resources. Clearwater Underground Water Conservation District considers all revenues available if they are collectible within 60 days after year end.

Revenues from local sources consist primarily of permit and other fees and property taxes. These revenues are recognized under the susceptible-to-accrual concept. Miscellaneous revenues are recorded as revenue when received in cash because they are generally not measurable until actually received. Investment earnings are recorded as earned, since they are both measurable and available.

#### *Cash and Cash Equivalents*

Cash and cash equivalents includes all short-term liquid investments convertible into cash and includes cash and money market accounts with an original maturity of less than three months.

#### *Taxes Receivable*

Taxes receivable are the amount of ad-valorem taxes which have been collected for the District by the various county tax assessor-collectors which were remitted to the District during the ensuing sixty day period. The assessment and collection of these taxes has been handled solely by the counties involved.

#### *Capital Assets*

Capital assets, which include office equipment and furniture, are reported in the government-wide financial statements. Assets are recorded at historical cost or estimated historical cost. Capital assets are being depreciated using the straight-line method over the following estimated useful lives:

Equipment	5-15 years
Building and Improvements	10 – 40 years



## CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

Notes to the Financial Statements

For the Year Ended September 30, 2022

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### 2. Summary of Significant Accounting Policies (Continued)

#### *Recently Adopted Accounting Pronouncements*

In June 2017, The Governmental Accounting Standards Board ("GASB") issued GASB Statement No. 87, *Leases*. The standard was effective for year-ends beginning after June 15, 2021. We adopted the requirements of the new statement effective October 1, 2021. Adoption of the new standard had no material impact on the financial statements for the year ended September 30, 2022.

#### *Budget*

The Board of Directors prepared and formally adopted an annual budget prior to the disbursement of funds.

#### *Estimates*

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates.

#### *Fund Accounting*

The District reports the following major governmental funds:

General Fund - This is the District's primary operating fund. It accounts for all financial resources of the District.

Clearwater Underground Water Conservation District does not have any long-term debt for the year ended September 30, 2022.

In June 1999, the Governmental Accounting Standards Board (GASB) issued Statement No. 34, Basic Financial Statements - and Management's Discussion and Analysis - for State and Local Governments. This statement, known as the "Reporting Model" statement, affects the way the District prepares and presents financial information in addition to requiring the presentation of the Clearwater Underground Water Conservation District's Management's Discussion and Analysis (MD&A). MD&A is considered to be required supplementary data and precedes the financial statements.

## CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

Notes to the Financial Statements

For the Year Ended September 30, 2022

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### 2. Summary of Significant Accounting Policies (Continued)

#### *Fund Accounting (Continued)*

To conform to the requirements of GASB 34, the following changes have been made to the Clearwater Underground Water Conservation District's financial statements:

- Fund balance has been reclassified into the following category of net position: Unrestricted and Net Investment in Capital Assets.
- The balance sheet has been modified to report a statement of net position.
- The balance sheet was adjusted for net capital assets of \$469,152 and compensated absences of \$19,129 on the statement of net position.
- The statement of revenues, expenditures, and changes in fund balance has been modified to report a statement of activities with operating and non-operating revenues and expenses.
- The statement of revenues, expenditures, and changes in fund balance was adjusted by \$30,218 for depreciation, \$1,712 for increases in compensated absences and \$2,749 for property taxes and \$30,922 for gain on sale of assets.

#### *Deferred Outflows/Inflows*

A deferred outflow of resources represents a consumption of net position that applies to a future period and will not be recognized as an outflow of resources (expense) until that future time. A deferred inflow of resources represents an acquisition of net position that applies to a future period and therefore will not be recognized as an inflow of resources (revenue) until that future time.

### 3. Deposits and Investments

The District is required by Government Code Chapter 2256, *The Public Funds Investment Act*, to adopt, implement, and publicize an investment policy. That policy must address the following areas: (1) safety of principal and liquidity, (2) portfolio diversification, (3) allowable investments, (4) acceptable risk levels, (5) expected rates of return, (6) maximum allowable stated maturity of portfolio investments, (7) maximum average dollar-weighted maturity allowed based on the stated maturity date for the portfolio, (8) investment staff quality and capabilities, and (9) bid solicitation preferences for certificates of deposit.

The Public Funds Investment Act ("the Act") requires an annual audit of investment policies. Audit procedures in this area conducted as a part of the audit of the financial statements disclosed that in the areas of investment practices, management reports and establishment of appropriate policies, the District adhered to the requirements of the Act. Additionally, investment practices of the District were in accordance with local policies.

## CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

Notes to the Financial Statements

For the Year Ended September 30, 2022

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### 3. Deposits and Investments (Continued)

The Act determines the types of investments which are allowable for the District. These include, with certain restrictions, (1) obligations of the U.S. Treasury, certain U.S. agencies, and the State of Texas, (2) certificates of deposit, (3) certain municipal securities, (4) money market savings accounts, (5) repurchase agreements, (6) bankers acceptances, (7) mutual funds, (8) investment pools, (9) guaranteed investment contracts, and (10) common trust funds.

Additional Contractual Provisions governing deposits and investments are as follows:

The funds of Clearwater Underground Water Conservation District must be deposited and invested under the terms of a contract, contents of which are set out in the Depository Contract Law. The depository bank places approved pledged securities for safekeeping and trust with the District's agent bank in an amount sufficient to protect District funds on a day-to-day basis during the period of the contract. The pledge of approved securities is waived only to the extent of the depository bank's dollar amount of Federal Deposit Insurance Corporation (FDIC) insurance.

At September 30, 2022, the bank balance of the District was \$80,263 with \$-0- of deposits in excess of FDIC coverage.

#### Analysis of Specific Deposit and Investment Risks

GASB Statement No. 40 requires a determination as to whether the District was exposed to the following specific investment risks at year end and, if so, the reporting of certain related disclosures:

- a. Credit Risk - Credit risk is the risk that an issuer or other counter party to an investment will not fulfill its obligations. The ratings of securities by nationally recognized rating agencies are designed to give an indication of credit risk. At year end, the District's investments, other than those which are obligations of or guaranteed by the U.S. Government, are related as to credit quality.

The Clearwater Underground Water Conservation District does not invest in debt securities.

The State Comptroller of Public Accounts exercises oversight responsibility over TexPool. Oversight includes the ability to significantly influence operations, designation of management and accountability for fiscal matters. TexPool is rated AAA by Standard and Poor's. As a requirement to maintain the rating, weekly portfolio information must be submitted to Standard & Poor's, as well as the office of the Comptroller of Public Accounts for review. TexPool operates in a manner consistent with the SEC's Rule 2a7 of the Investment Company Act of 1940. TexPool uses amortized cost rather than market value to report net position to compute share prices. Accordingly, the fair value of the position in TexPool is the same as the value of TexPool shares.

- b. Custodial Credit Risk - Deposits are exposed to custodial credit risk if they are not covered by depository insurance and the deposits are uncollateralized, collateralized with securities held by the pledging financial institution, or collateralized with securities held by the pledging financial institution's trust department or agent but not in the District's name.

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Notes to the Financial Statements

For the Year Ended September 30, 2022

**3. Deposits and Investments (Continued)**

Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the government, and are held by either the counterparty or the counterparty's trust department or agency but not in the District's name.

At year end, the District was not exposed to custodial credit risk.

- c. Concentration of Credit Risk - This risk is the risk of loss attributed to the magnitude of a government's investment in a single issuer. At year end, the District had no positions of 5% or more in the securities of a single issuer.

The District's undesignated temporary investments at September 30, 2022, are shown below:

	<u>Carrying Amount</u>	<u>Fair Value</u>
TexPool	<u>\$ 954,865</u>	<u>\$ 954,865</u>
	<u><u>\$ 954,865</u></u>	<u><u>\$ 954,865</u></u>

- d. Interest Rate Risk - This is the risk that changes in interest rates will adversely affect the fair value of an investment. At year end, the District has a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.
- e. Foreign Currency Risk - This is the risk that exchange rates will adversely affect the fair value of an instrument. At year end, the District was not exposed to foreign currency risk.

**4. Capital Assets**

Capital asset activity for the period ended September 30, 2022 was as follows:

	<u>Cost</u>	<u>Accumulated Depreciation</u>	<u>Net</u>
Balance - October 1, 2021	\$ 769,462	\$ (239,170)	\$ 530,292
Additions	-	(30,218)	(30,218)
Disposals	<u>(30,922)</u>	<u>-</u>	<u>(30,922)</u>
Balance - September 30, 2022	<u><u>\$ 738,540</u></u>	<u><u>\$ (269,388)</u></u>	<u><u>\$ 469,152</u></u>

## CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

Notes to the Financial Statements

For the Year Ended September 30, 2022

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### 5. Long-Term Debt

The District has no long-term debt.

### 6. Risk Management

The District is exposed to various risks of loss related to torts, thefts, damage or destruction of assets, errors and omissions, injuries to employees, and natural disasters. The District purchased commercial insurance to cover general liabilities. There were no significant reductions in coverage in the past year and there were no settlements exceeding insurance coverage.

### 7. Property Taxes

Clearwater Underground Water Conservation District has contracted with the Tax Appraisal District of Bell County for the assessment and collection of taxes. By September 1 of each year, the rate of taxation is set by the board of directors based upon the valuation of property within the District as of January 1. Taxes are due October 1, and become delinquent after January 31 of the following year.

### 8. Employee Benefits

#### a. Annual Leave

Annual leave (vacation) is a benefit provided to eligible, full-time, employees of the District. A full-time employee is one who is regularly scheduled to work thirty to forty hours per week. Annual leave is accrued at eight hours per pay period immediately upon employment but cannot be taken until the employee has reached the one hundred eighty (180) day probationary period. The accrual maximum is twelve days for an employee with up to five years of continuous service. After five years, an employee is entitled to accrue an additional three days for a total of fifteen days per year. An employee may carry-over leave up to a maximum of twenty-four days per fiscal year. Remaining accrued leave is payable up separation. Accrued compensated absences for September 30, 2022 was \$19,129.

#### b. Sick Leave

A full-time employee, as previously defined, is entitled to six days per year. Accrual of sick leave is at four hours prepay period and a full-time employee can accumulate up to twelve days with carry-over. Upon termination of employment, no accumulated sick leave will be paid and therefore, no accrual is recorded.

#### c. Retirement Plan

The District has established a Governmental 457 Deferred Compensation Plan as their retirement plan for full-time eligible employees. UMB Bank, N.A. is designated as trustee and Security Financial Resources, Inc. is the plan service provider. The District agrees to match employee contributions at 100% of the first 3% and 50% of the next 3% for a maximum match of up to 4.5% depending on the contribution of the employee. As of September 30, 2022, the employer match was \$10,335.

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Notes to the Financial Statements

For the Year Ended September 30, 2022

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**9. Litigation**

At September 30, 2022, the District was not involved in any litigation.

**10. Management Review of Subsequent Events**

Management has evaluated subsequent events through February 7, 2023, the date on which the financial statements were available to be issued.

**11. Reconciliation to Government-Wide Statements**

Total fund balance - total governmental funds	\$ 997,794
Amounts reported for governmental activities in the statement of net assets are different because:	
Capital assets used in government activities are not financial resources; therefore, they are not reported in the funds.	469,152
Compensated absences are not a current requirement of resources and therefore are not accrued in the general fund.	(19,129)
Deferred inflows of resources are potential revenue that do not meet the "measurable" and "available" criteria; therefore, it is reported in the funds.	<u>23,957</u>
Total net position	<u>\$ 1,471,774</u>

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Notes to the Financial Statements

For the Year Ended September 30, 2022

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**11. Reconciliation to Government-Wide Statements (Continued)**

Net change in fund balance - total governmental funds	\$ 111,280
Amounts reported for governmental activities in the statement are different because:	
Property tax revenues in the statement of activities that do not provide current financial resources are not reported as revenues in the fund.	2,749
Adjustment made to compensated absences	(1,712)
The net effect of various transactions involving capital assets (e.g. sales and disposals) is to decrease net position. See note 4.	(30,922)
Governmental funds report capital outlays as expenditures; however, in the statement of activities, the cost of those assets is allocated over their estimated useful lives and reported as depreciation expense. This is the amount by which depreciation of \$30,218 was more than capital outlays of \$-0-.	<u>(30,218)</u>
Change in net position	<u><u>\$ 51,177</u></u>

## **REQUIRED SUPPLEMENTARY INFORMATION**



## **BUDGETARY COMPARISON SCHEDULE**

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# CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

## Required Supplementary Information

### Budgetary Comparison Schedule - General Fund

For the Year Ended September 30, 2022

	Budgeted Amounts		Actual Amounts	Variance with Final Budget Favorable (Unfavorable)
	Original	Final		
<b>Revenues</b>				
Property taxes	\$ 787,106	\$ 787,106	\$ 757,692	\$ (29,414)
Permits and other fees	51,500	51,500	12,736	(38,764)
Interest and other income	1,000	1,000	8,542	7,542
Sale of assets	-	-	50,000	50,000
<b>Total Revenues</b>	<u>839,606</u>	<u>839,606</u>	<u>828,970</u>	<u>(10,636)</u>
<b>Expenditures</b>				
Administrative	132,764	46,012	25,200	20,812
Clearwater studies	92,500	139,629	108,277	31,352
Compensation and benefits	303,967	304,299	302,898	1,401
Director's fees	12,750	12,750	7,050	5,700
Educational outreach	19,500	18,393	14,784	3,609
Facility costs	22,375	23,545	21,574	1,971
Legal and professional	42,500	83,815	75,656	8,159
Other operating expenses	162,850	160,795	117,523	43,272
Payroll taxes	25,300	25,268	20,156	5,112
Spring flow gauge system	15,900	15,900	15,900	-
Utilities	9,200	9,200	8,672	528
<b>Total Expenditures</b>	<u>839,606</u>	<u>839,606</u>	<u>717,690</u>	<u>121,916</u>
<b>Excess Revenues Over (Under) Expenditures</b>	<u>-</u>	<u>-</u>	<u>111,280</u>	<u>111,280</u>
<b>Net Changes in Fund Balance</b>	<u>-</u>	<u>-</u>	<u>111,280</u>	<u>111,280</u>
<b>Fund Balance - Beginning of the Year</b>	<u>886,514</u>	<u>886,514</u>	<u>886,514</u>	<u>-</u>
<b>Fund Balance - End of the Year</b>	<u>\$ 886,514</u>	<u>\$ 886,514</u>	<u>\$ 997,794</u>	<u>\$ 111,280</u>

See independent auditors' report.

## TEXAS SUPPLEMENTARY INFORMATION

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TSI – 2

**CLEARWATER CONSERVATION UNDERGROUND WATER CONSERVATION DISTRICT**

TSI - 2: General Fund Expenditures

For the Year Ended September 30, 2022

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Personnel expenditures (including benefits)	\$ 302,898
Professional fees:	
Auditing	7,700
Legal	75,656
Utilities	8,672
Clearwater studies	108,277
Facility costs	21,574
Administrative expenditures	17,500
Directors fees	7,050
Educational outreach	14,784
Spring flow gauge system	15,900
Other expenditures	<u>137,679</u>
Total Expenditures	<u><u>\$ 717,690</u></u>

See independent auditors' report.

TSI – 3

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**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

**TSI - 3: Temporary Investments**

For the Year Ended September 30, 2022

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	<u>ID or Certificate Number</u>	<u>Interest Rate</u>	<u>Maturity Date</u>	<u>Balance at End of Year</u>	<u>Accrued Interest Receivable at End of Year</u>
<b>General Fund</b>					
Tex Pool - Investment Pool	449/793580001	2.8465%	-	\$ 474,328	\$ -
Tex Pool Prime - Investment Pool	590/793580001	3.1307%	-	<u>480,537</u>	<u>-</u>
Total - All Funds				<u>\$ 954,865</u>	<u>\$ -</u>

See independent auditors' report.

TSI – 4



# CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

## TSI - 4: Taxes Levied and Receivable

For the Year Ended September 30, 2022

	<u>Maintenance Taxes</u>
Taxes receivable, beginning of year	
2021 original tax levy	\$ 21,208
Less abatements	774,997
Total to be accounted for	<u>-</u>
Tax collections	796,205
Current year	771,883
Prior years	6,518
Total collections:	<u>778,401</u>
Taxes receivable, end of year	<u>\$ 17,804</u>
Taxes receivable, by year	
2021	\$ 7,235
2020	3,264
2019	2,313
2018	1,663
2017 and prior	3,329
Taxes receivable, end of year	<u>\$ 17,804</u>

	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>
Property valuations				
Property valuations, net taxable	\$ 24,999,251,580	\$ 22,630,374,553	\$ 20,531,428,738	\$ 18,670,513,065
Tax rates per \$100 valuation	\$0.00310	\$0.00327	\$0.00357	\$0.00383
Maintenance tax rates				
Total tax rates per \$100 valuation	\$0.00310	\$0.00327	\$0.00357	\$0.00383
Original tax levy:	774,997	740,538	732,972	715,081
Percent of taxes collected to taxes levied	99.60%	98.59%	96.60%	96.75%

See independent auditors' report.

TSI – 7

# CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

## TSI - 7: Comparative Schedule of Revenues and Expenditures

General Fund - Five Years Ended

For the Year Ended September 30, 2022

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	Amounts				
	2022	2021	2020	2019	2018
<b>General Fund</b>					
<b>Revenues</b>					
Property taxes	\$ 757,692	\$ 724,896	\$ 716,887	\$ 684,759	\$ 660,854
Permits and other fees	12,736	24,736	13,866	6,689	7,767
Interest and other income	58,542	807	11,935	15,580	13,964
<b>Total revenues</b>	<u>828,970</u>	<u>750,439</u>	<u>742,688</u>	<u>707,028</u>	<u>682,585</u>
<b>Expenditures</b>					
Personnel	323,054	280,788	278,509	264,480	233,264
Professional fees	75,656	69,403	41,025	41,330	62,950
Clearwater studies	108,277	171,082	287,509	123,472	84,620
Administrative expenditures	25,200	23,918	36,110	25,528	28,126
Other expenditures	185,503	148,555	141,412	170,707	315,528
<b>Total expenditures</b>	<u>717,690</u>	<u>693,746</u>	<u>784,565</u>	<u>625,517</u>	<u>724,488</u>
<b>Excess (Deficient) revenues over expenditures</b>	<u>\$ 111,280</u>	<u>\$ 56,693</u>	<u>\$ (41,877)</u>	<u>\$ 81,511</u>	<u>\$ (41,903)</u>

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Percent of Total Fund Revenues				
2022	2021	2020	2019	2018
91.4%	96.6%	96.5%	96.9%	96.8%
1.5%	3.3%	1.9%	0.9%	1.1%
7.1%	0.1%	1.6%	2.2%	2.0%
<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
39.0%	37.4%	37.5%	37.4%	34.2%
9.1%	9.2%	5.5%	5.8%	9.2%
13.1%	22.8%	38.7%	17.5%	12.4%
3.0%	3.2%	4.9%	3.6%	4.1%
22.4%	19.8%	19.0%	24.1%	46.2%
<u>86.6%</u>	<u>92.4%</u>	<u>105.6%</u>	<u>88.5%</u>	<u>106.1%</u>
<u>13.4%</u>	<u>7.6%</u>	<u>-5.6%</u>	<u>11.5%</u>	<u>-6.1%</u>

See independent auditors' report.

TSI - 8

# CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT

## TSI - 8: Board Members, Key Personnel, and Consultants

For the Year Ended September 30, 2022

Complete District Mailing Address:	<u>P.O. Box 1989, Belton, TX 76513</u>
District Business Telephone Number:	<u>(254) 933-0120</u>
Submission Date of the Most Recent District Registration Form: (TWC Sections 36.054 and 49.054)	<u>November 28, 2022</u>
Limit on Fees of Office That a Director may Receive During a Fiscal Year: (TWC Section 36.060)	<u>\$9,000</u>

<u>Names:</u>	<u>Term of Office (Elected or Appointed) or Date Hired</u>	<u>Fees of Office Paid for the Year Ended 9/30/2022</u>	<u>Title at Year End</u>
<b>Board Members</b>			
Leland Gersbach	Elected Nov. 2020-2024	\$ -	President
Gary Young	Elected Nov. 2018-2022	\$ 2,400	Secretary
Jody Williams	Elected Nov. 2020-2024	\$ 2,550	Director
Scott Brooks	Elected Nov. 2018-2022	\$ -	Director
David Cole	Elected Nov. 2018-2022	\$ 2,100	Vice President
<b>Key Administrative Personnel</b>			
Dirk Aaron	June 2011	\$ 100,000	General Manager
Shelly Chapman	October 2011	\$ 56,000	Office Manager
<b>Consultants</b>			
Ludwick, Montgomery, & Stapp, P.C.	July 14, 2021	\$ 7,700	Auditor
Lloyd Gosselink, Attorneys at law	2012	\$ 82,201	Attorney
Bell County Tax Appraisal District	1989	\$ 7,677	Tax appraiser/collector

See independent auditors' report.

**INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING  
AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL  
STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS***

To the Board of Directors  
Clearwater Underground Water Conservation District

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the governmental activities, each major fund, and the aggregate remaining fund information of Clearwater Underground Water Conservation District, as of and for the year ended September 30, 2022, and the related notes to the financial statements, which collectively comprise Clearwater Underground Water Conservation District's basic financial statements, and have issued our report thereon dated February 7, 2023.

**Report on Internal Control over Financial Reporting**

In planning and performing our audit of the financial statements, we considered Clearwater Underground Water Conservation District's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of Clearwater Underground Water Conservation District's internal control. Accordingly, we do not express an opinion on the effectiveness of Clearwater Underground Water Conservation District's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that have not been identified.

## Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether Clearwater Underground Water Conservation District's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

## Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

A handwritten signature in black ink, appearing to read "Ludwig, Montoya, & Smith, PC". The signature is written in a cursive style.

Temple, Texas  
February 7, 2023



**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**  
Schedule of Findings, Responses, and Corrective Action Plan  
For the Year Ended September 30, 2022

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**FINANCIAL STATEMENT FINDINGS**

There were no findings in the current year.

**CLEARWATER UNDERGROUND WATER CONSERVATION DISTRICT**

Schedule of Prior Year Findings and Corrective Action Plan

For the Year Ended September 30, 2022

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There were no prior year findings.

# *Appendix C*

## Well Registration Totals - December 2022

Year	Exempt Wells		Non-Exempt Wells			Monitor Wells		Total
	Grandfathered	New	Grandfathered	Class 1	Class 2	Water	Envr	
<b>2002 - 2021</b>	4446	1134	106	41	70	26	121	<b>5944</b>
<b>2022 - Jan</b>	0	5	0	0	0	0	0	<b>5</b>
<b>Feb</b>	2	10	0	0	3	0	0	<b>15</b>
<b>Mar</b>	0	9	0	0	0	0	0	<b>9</b>
<b>April</b>	2	3	0	1	0	0	0	<b>6</b>
<b>May</b>	8	6	0	0	0	0	0	<b>14</b>
<b>June</b>	5	0	0	0	0	0	0	<b>5</b>
<b>July</b>	2	3	0	0	0	0	0	<b>5</b>
<b>Aug</b>	2	11	0	0	0	0	0	<b>13</b>
<b>Sep</b>	0	1	0	0	0	0	0	<b>1</b>
<b>Oct</b>	6	15	0	0	0	0	0	<b>21</b>
<b>Nov</b>	4	11	0	0	1	0	0	<b>16</b>
<b>Dec</b>	2	4	0	0	0	0	0	<b>6</b>
<b>Total 2022</b>	<b>33</b>	<b>78</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>116</b>
<b>Grand Totals</b>	<b>4479</b>	<b>1212</b>	<b>106</b>	<b>42</b>	<b>74</b>	<b>26</b>	<b>121</b>	<b>6060</b>

# *Appendix D*

**Non-exempt Wells--Edwards BFZ**

File No	State #	Well Name	Acre-Feet			2022 Monthly Production (gallons)														YTD ac-ft	% Permit						
			Hist. Permit	Oper. Permit	Total Permit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD									
		<b>Chick Landscaping</b>	<b>0</b>	<b>2.29</b>	<b>2.29</b>																						
N2-06-002G	5804324	Chick Landscaping Well #2				2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	28,800	0.09	4%	
		<b>Jarrell-Schwertner WSC</b>	<b>301.20</b>	<b>153.00</b>	<b>454.20</b>																						
N2-02-041G	5804808	JSWSC (Prairie Dell 2)				10,296,716	10,292,137	11,671,669	12,549,253	14,350,853	17,254,754	17,897,940	18,502,487	14,798,712	15,566,621	7,656,136	7,828,962	158,666,240	486.93	107%							
N2-02-042G	5804811	JSWSC (Prairie Dell 5)				4,290,066	4,264,686	4,956,787	5,107,122	5,806,425	5,342,252	7,421,495	7,231,966	5,247,113	6,315,619	3,062,584	2,356,119	61,402,234	188.44	63%							
N2-02-042G	5804811	JSWSC (Prairie Dell 5)				3,283,167	3,267,896	3,620,475	4,107,421	4,693,612	5,618,569	5,169,249	5,578,294	4,696,097	5,008,125	2,474,597	3,313,437	50,830,939	155.99	52%							
N2-03-005P	5804818	JSWSC (Prairie Dell 8)				2,723,483	2,759,555	3,094,407	3,334,710	3,850,816	6,293,933	5,307,196	5,692,227	4,855,502	4,242,877	2,118,955	2,159,406	46,433,067	142.50	31%							
		<b>Salado WSC</b>	<b>1,472.30</b>	<b>36.99</b>	<b>1,509.29</b>																						
N2-02-003G	5804602	Salado WSC (#1)				17,299,000	16,782,000	23,281,000	32,469,000	29,314,606	48,341,000	53,527,000	48,762,000	36,424,000	35,549,000	21,678,000	19,566,000	382,992,606	1,175.36	78%							
N2-02-004G	5804604	Salado WSC (#2)				265,000	3,000	4,000	564,000	3,757,000	3,839,000	3,968,000	3,986,000	3,913,000	1,688,000	352,000	3,460,000	25,799,000	79.17	5%							
N2-02-005G	5804508	Salado WSC (#3)				6,845,000	5,699,000	4,361,000	2,752,000	4,240,000	5,240,000	6,607,000	5,651,000	4,137,000	4,326,000	2,412,000	1,784,000	54,054,000	165.89	11%							
N2-02-006G	5804621	Salado WSC (#4)				1,379,000	1,558,000	3,325,000	4,389,000	4,912,000	6,888,000	8,329,000	8,174,000	5,486,000	4,873,000	2,811,000	0	52,124,000	159.96	11%							
N2-02-007G	5804509	Salado WSC (#5)				948,000	1,027,000	4,594,000	4,466,000	7,606	9,377,000	9,351,000	8,152,000	6,591,000	8,295,000	3,635,000	2,186,000	58,629,606	179.93	12%							
N2-02-008G	5804510	Salado WSC (#6)				1,241,000	680,000	2,828,000	5,417,000	8,263,000	9,475,000	10,484,000	8,763,000	7,706,000	6,881,000	4,527,000	2,878,000	69,143,000	212.19	14%							
N2-02-009G	5804626	Salado WSC (#7)				1,581,000	2,386,000	2,682,000	3,580,000	6,577,000	8,843,000	9,269,000	8,804,000	6,667,000	7,712,000	3,932,000	3,563,000	65,596,000	201.31	13%							
N2-02-010G	5804512	7KX Ranch (#8)				0	0	32,000	9,561,000	1,558,000	4,679,000	5,519,000	5,052,000	1,924,000	1,774,000	122,000	0	30,221,000	92.74	6%							
N2-02-011G	5804513	7KX Ranch (#9)				5,040,000	5,429,000	5,455,000	1,740,000	0	0	0	180,000	0	0	3,887,000	5,695,000	27,426,000	84.17	6%							
		<b>Schwertner Farms</b>	<b>328.90</b>	<b>74.05</b>	<b>402.95</b>																						
N2-04-001G	5812302	Schwertner Farms CCL #1				7,504,095	7,225,308	7,474,176	7,656,662	9,101,897	9,340,976	9,747,441	9,620,281	7,987,303	8,589,613	7,221,768	7,533,641	99,003,161	303.83	75%							
N2-04-002G	5812303	Schwertner Farms CCL #2				1,663,017	1,670,457	1,664,204	1,745,387	2,187,248	2,273,656	2,423,651	2,423,651	1,895,169	2,108,091	1,627,003	1,680,748	23,362,282	71.70	18%							
N2-04-003G	5812304	Schwertner Farms CCL #3				1,663,017	1,670,457	1,664,204	1,745,387	2,187,248	2,273,656	2,423,651	2,423,651	1,895,169	2,108,091	1,627,003	1,680,748	23,362,282	71.70	18%							
N2-04-004G	5812206	Schwertner Farms Eastland W.				305,303	260,933	325,125	311,185	274,788	285,362	309,876	241,587	252,450	231,345	257,958	237,677	3,293,589	10.11	3%							
N2-04-005G	5812305	Schwertner Farms Blackwell				355,198	276,080	324,421	341,802	334,645	256,360	247,333	271,932	289,578	261,885	255,679	344,420	3,559,333	10.92	3%							
N2-04-006G	5812306	Schwertner Farms ES #1				106,399	84,452	95,944	102,574	107,130	110,530	120,305	125,915	83,500	86,050	83,500	103,730	1,210,029	3.71	1%							
N2-04-007G	5812307	Schwertner Farms ES #2				749,275	668,865	739,517	710,940	787,202	821,032	766,802	741,081	751,740	710,481	771,494	784,210	9,002,639	27.63	7%							
N2-04-008G	5812308	Schwertner Farms ES #3				701,369	578,422	606,152	576,810	659,651	670,650	635,902	584,290	557,328	589,305	572,730	612,493	7,345,102	22.54	6%							
N2-10-006P	5812604	Schwertner Farms Little D.				297,500	345,185	390,405	377,190	376,737	376,074	396,270	384,523	367,200	386,274	399,398	408,867	4,505,623	13.83	3%							
		<b>Stagecoach Inn</b>	<b>35.30</b>	<b>7.02</b>	<b>42.32</b>																						
N2-02-002G	5804623	Stagecoach (deep)				50,500	35,500	54,200	56,200	168,600	1,323,300	503,700	324,400	285,900	631,000	64,200	184,900	3,682,400	11.30	27%							
N2-02-037G		Stagecoach (spring)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	

**Non-exempt Wells--Edwards BFZ**

File No	State #	Well Name	Acre-Feet			2022 Monthly Production (gallons)												YTD	YTD ac-ft	% Permit			
			Hist. Permit	Oper. Permit	Total Permit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
		Not Aggregated																		0%			
N1-07-001P	4061802	James Schnitker	0	1.84	1.84	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	600,000	1.84	100%
N1-07-003P	5805405	Ronald Gravette	0	0.38	0.38	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	123,996	0.38	100%
N1-07-005P	5804817	Patricia Suarez	0	0.38	0.38	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	10,333	123,996	0.38	100%
N1-09-004P	5804322	Domingo Perez	0	0.53	0.53	14,416	14,416	14,416	14,416	14,416	14,416	14,416	14,416	14,416	14,416	14,416	14,416	14,416	14,416	14,416	172,992	0.53	100%
N1-10-001P	4061713	Kenneth Stone	0	0.57	0.57	15,445	15,445	15,445	15,445	15,445	15,445	15,445	15,445	15,445	15,445	15,445	15,445	15,445	15,445	15,445	185,340	0.57	100%
N1-13-002P	4061714	Janet Stone	0	0.34	0.34	9,233	9,233	9,233	9,233	9,233	9,233	9,233	9,233	9,233	9,233	9,233	9,233	9,233	9,233	9,233	110,796	0.34	100%
N1-14-001P	5805406	Karen Duerr	0	0.27	0.27	7,331	7,331	7,331	7,331	7,331	7,331	7,331	7,331	7,331	7,331	7,331	7,331	7,331	7,331	7,331	87,972	0.27	100%
N1-18-002P	5812203	Windy Meadows	0	0.47	0.47	12,762	12,762	12,762	12,762	12,762	12,762	12,762	12,762	12,762	12,762	12,762	12,762	12,762	12,762	12,762	153,144	0.47	100%
N1-20-001P	4061710	Dillman Trust	0	0.59	0.59	16,060	16,060	16,060	16,060	16,060	16,060	16,060	16,060	16,060	16,060	16,060	16,060	16,060	16,060	16,060	192,720	0.59	100%
N1-20-002P	4060913	Donald & Sheryl Rich	0	0.39	0.39	10,706	10,706	10,706	10,706	10,706	10,706	10,706	10,706	10,706	10,706	10,706	10,706	10,706	10,706	10,706	128,472	0.39	101%
N2-03-004G	5804627	Salado ISD (MS)	1.50	0	1.50	9,720	9,720	0	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	9,720	106,920	0.33	22%	
N2-04-017G	5804643	Sonic of Salado	0	0.86	0.86	1,980	2,080	2,180	2,680	2,270	2,880	2,660	2,340	2,260	2,060	1,980	1,880	1,880	1,880	27,250	0.08	10%	
N2-07-005G	5803808	RLF Salado Quarries (Office)	0	3.91	3.91																	0%	
N2-07-010G	5804637	Bloomer Mfg.	0	2.07	2.07	8,655	0	12,413	11,436	16,005	10,516	16,862	11,098	14,211	13,312	15,452	7,398	7,398	7,398	137,358	0.42	20%	
N2-08-004P	5804644	Lonnie Sherman	0	1.10	1.10	0	0	150	300	90	110	160	140	150	80	100	1,730	1,730	1,730	3,010	0.01	1%	
N2-09-002P	5804645	O. W. Lowery	0	1.84	1.84	45,830	42,140	51,910	29,270	61,920	83,530	108,790	63,190	58,820	65,600	9,530	23,660	23,660	23,660	644,190	1.98	107%	
N2-09-004G	5804646	Salado UMC	0	1.86	1.86	565	0	1,038	34,325	29,146	37,902	26,267	41,430	30,610	30,280	5,070	0	0	0	236,633	0.73	39%	
N2-11-004P	5804631	Charles Broecker	0	0.99	0.99	3,000	0	3,000	12,000	12,000	11,000	18,000	18,000	18,000	7,000	0	0	0	0	102,000	0.31	31%	
N2-11-005P	5805108	James & Terry Boston	0	1.66	1.66	2,282	1,059	1,589	1,213	1,477	1,532	1,085	857	1,746	966	1,557	1,372	1,372	1,372	16,735	0.05	3%	
N2-15-003P	5804325	Anthony Craft	0	0.60	0.60	2,050	2,390	2,390	1,000	890	890	500	930	640	585	585	1,125	1,125	1,125	13,975	0.04	7%	
N2-15-004P	5804633	Scott Law Well #1, Guthrie	0	0.60	0.60																	0%	
N2-15-005P	5804634	Scott Law Well #2, Guthrie	0	0.60	0.60	4,780	12,564	12,950	15,980	18,550	21,300	26,470	11,310	7,530	7,510	3,770	6,360	6,360	6,360	149,074	0.46	76%	
N2-15-006P		Scott Law Well #3	0	0.60	0.60																	0%	
N2-15-007P		Scott Law Well #4	0	0.60	0.60																	0%	
N2-15-008P		Scott Law Well #5	0	0.60	0.60																	0%	
N2-15-009P	5805110	Scott Law Well #6 - Reed	0	0.60	0.60																	0%	
N2-15-010P	5805109	Scott Law Well #7 - Brady Woods	0	0.75	0.75	5,410	5,410	22,900	33,200	20,980	20,980	71,310	15,170	15,170	15,170	478	411	411	411	226,589	0.70	93%	
N2-15-011P		Scott Law Well #8	0	0.60	0.60																	0%	
N2-15-012P	5804316	Scott Law Well #9 - Jana Lever	0	0.60	0.60																	0%	
N2-16-002G	5804647	Charles Dunifer	0	0.60	0.60	1,500	5,000	3,100	3,000	12,200	17,000	21,700	16,200	10,800	4,800	1,000	100	100	100	96,400	0.30	49%	
N2-17-001P	5804305	Heart of Texas Feed	0	0.14	0.14	800	560	740	510	1,670	1,860	2,590	520	400	910	500	650	650	650	11,710	0.04	26%	
N2-19-007P	5804640	Brazos Valley Equine Hospital	0	1.32	1.32	22,500	17,300	23,100	24,800	24,100	24,000	28,400	19,400	25,000	20,900	22,500	25,100	25,100	25,100	277,100	0.85	64%	
N2-20-001G	5804319	SDG Properties	0	0.67	0.67																	0%	
N2-20-006G	4061711	Reddylee LLC	0	9.97	9.97	63,180	47,440	48,070	68,680	87,380	222,560	256,560	217,480	133,950	133,300	420	105	105	105	1,279,125	3.93	39%	
N2-21-002G	5804320	R&A Hauling	0	2.15	2.15	163,510	21,155	31,419	35,808	42,278	45,859	51,461	56,514	59,074	64,478	14,270	32,060	32,060	32,060	617,886	1.90	88%	
N2-21-006P	5804321	Salado RV Park	0	2.98	2.98	5,600	7,600	14,900	8,200	22,200	10,100	14,600	14,000	14,300	14,600	13,500	15,100	15,100	15,100	154,700	0.47	16%	
N2-21-007P		Belton Partners LLC	0	2.50	2.50																	0%	
<b>Totals:</b>			<b>2,139.20</b>	<b>319.88</b>	<b>2,459.08</b>	<b>35,650,692</b>	<b>34,668,382</b>	<b>42,871,913</b>	<b>53,182,256</b>	<b>53,457,851</b>	<b>76,940,788</b>	<b>82,492,235</b>	<b>77,866,486</b>	<b>60,057,315</b>	<b>60,886,524</b>	<b>36,879,555</b>	<b>35,399,293</b>	<b>650,353,290</b>	<b>1,995.86</b>	<b>81%</b>			

Non-exempt Wells--Trinity

File No	State #	Well Name	Acre-Feet			2022 Monthly Production (gallons)													YTD ac-ft	% Permit
			Hist. Permit	Oper. Permit	Total Permit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD		
		Armstrong WSC	154.90	333.00	487.90	1,352,000	489,000	931,480	2,095,210	2,514,550	4,072,500	6,415,670	5,548,740	4,504,730	3,381,820	2,200,370	848,010	34,354,080	105.43	22%
N2-02-024G	5805202	Armstrong WSC #1				0	0	17,480	21,210	16,550	16,500	16,670	16,740	17,730	6,370	10	144,080	0.44	0%	
N2-10-001P	5805502	Armstrong WSC #2				1,352,000	489,000	914,000	2,074,000	2,498,000	4,056,000	6,399,000	5,532,000	4,487,000	3,367,000	2,194,000	848,000	34,210,000	104.99	22%
		Bell Milam Falls WSC	262.20	0	262.20	1,961,700	2,045,100	844,000	5,961,800	8,498,900	11,195,500	12,426,300	10,687,700	7,933,000	10,372,100	5,549,000	6,161,600	83,636,700	256.67	98%
N2-02-038G	5806601	Bell-Milam-Falls WSC (Rogers)				673,700	270,100	0	3,249,800	4,935,900	5,811,500	5,832,300	5,306,700	4,239,000	4,725,100	3,673,000	2,967,600	41,684,700	127.93	49%
N2-02-046G	5814402	Bell-Milam-Falls WSC (Bartlett)				1,288,000	1,775,000	844,000	2,712,000	3,563,000	5,384,000	6,594,000	5,381,000	3,694,000	5,647,000	1,876,000	3,194,000	41,952,000	128.75	49%
		Central Texas WSC	0	1,776.00	1,776.00	0	0	96,458,000	1,433,000	10,502,000	11,666,000	12,992,000	17,895,000	2,147,000	8,620,000	12,065,000	10,012,000	183,790,000	564.03	32%
N2-14-004P	5804203	CTWSC Doc Curb				0	0	0	743,000	1,544,000	411,000	1,808,000	70,000	0	0	0	0	4,576,000	14.04	1%
N2-14-005P	5806202	CTWSC System Split Well				0	0	96,458,000	690,000	8,958,000	11,255,000	11,184,000	17,825,000	2,147,000	8,620,000	12,065,000	10,012,000	179,214,000	549.99	31%
		City of Troy	119.90	350.60	470.50	8,000	35,400	9,300	56,700	453,900	24,500	200	555,100	1,042,900	1,645,100	1,061,700	332,400	5,225,200	16.04	3%
N2-02-036G	4054503	City of Troy #1				8,000	1,400	9,300	56,700	26,600	0	100	555,100	866,900	1,645,100	1,061,700	332,400	4,563,300	14.00	3%
N2-15-002P	4054201	City of Troy #2					34,000	0	0	427,300	24,500	100	0	176,000	0	0	0	661,900	2.03	0%
		East Bell WSC	69.70	114.85	184.55	785,000	884,000	1,129,000	1,156,000	833,000	5,170,000	4,939,360	6,645,260	4,124,610	5,404,730	2,635,060	1,060,190	34,766,210	106.69	71%
N2-02-034G	4063501	East Bell WSC #1				458,000	561,000	778,000	693,000	379,000	2,412,000	2,957,000	3,186,000	2,120,000	2,410,000	890,000	594,000	17,438,000	53.52	52%
N2-04-010P	5806301	East Bell WSC #2				327,000	323,000	351,000	463,000	454,000	2,758,000	1,982,360	3,459,260	2,004,610	2,994,730	1,745,060	466,190	17,328,210	53.18	35%
		Leon River Turkey Farms	60.90	0	60.90	15,900	14,100	17,100	18,300	19,500	23,700	23,500	25,600	24,600	23,200	21,700	20,800	248,000	0.76	1%
N2-02-043G	4053301	Leon River Turkey (East)				7,500	4,000	6,200	6,800	7,200	8,100	8,200	9,100	8,700	8,200	8,000	8,200	90,200	0.28	0%
N2-02-044G	4053302	Leon River Turkey (West)				1,000	900	1,100	1,200	1,300	1,600	1,500	2,400	2,100	1,600	1,400	1,100	17,200	0.05	0%
N2-02-045G	5805403	Leon River Turkey				7,400	9,200	9,800	10,300	11,000	14,000	13,800	14,100	13,800	13,400	12,300	11,500	140,600	0.43	1%
		Lhoist	40.00	0	40.00	22,728	23,402	27,097	25,010	27,736	29,235	28,833	29,120	29,783	29,868	23,744	19,316	315,872	0.97	2%
N2-03-002G	4060101	LHoist #1				22,728	23,402	27,097	25,010	27,736	29,235	28,833	29,120	29,783	29,868	23,744	19,316	315,872	0.97	2%
N2-03-003G	4060102	LHoist #2																		0%
		Moffat WSC	47.70	157.80	205.50	6,001,000	4,299,000	6,231,000	7,581,000	4,242,000	6,581,000	5,101,000	268,000	4,736,000	10,163,000	5,708,000	5,590,000	66,501,000	204.08	99%
N2-02-022G	4053406	Moffat WSC #1				824,000	923,000	1,271,000	1,488,000	2,176,000	2,209,000	1,778,000	229,000	1,112,000	2,256,000	761,000	1,056,000	16,083,000	49.36	24%
N2-13-001P	4053507	Moffat WSC #2				5,177,000	3,376,000	4,960,000	6,093,000	2,066,000	4,372,000	3,323,000	39,000	3,624,000	7,907,000	4,947,000	4,534,000	50,418,000	154.73	75%
		Pendleton WSC	75.30	36.90	112.20	1,522,400	660,200	1,946,500	2,949,500	3,483,500	4,708,000	6,008,600	4,850,700	3,892,700	2,505,200	2,295,200	2,840,800	37,663,300	115.58	103%
N2-02-047G	4054401	Pendleton WSC (#1)				1,425,400	660,200	695,500	1,571,200	1,860,800	2,486,400	3,157,800	2,720,700	2,043,400	2,236,600	1,338,200	1,425,800	21,622,000	66.36	59%
N2-02-048G	4054502	Pendleton WSC (#2)				97,000	0	1,251,000	1,378,300	1,622,700	2,221,600	2,850,800	2,130,000	1,849,300	268,600	957,000	1,415,000	16,041,300	49.23	44%



**Non-exempt Wells--Trinity**

File No	State #	Well Name	Acre-Foot			2022 Monthly Production (gallons)													YTD	YTD ac-ft	% Permit
			Hist. Permit	Oper. Permit	Total Permit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
		Not Aggregated																		0%	
N1-05-001P	4057907	John Kurzyniec	0	0.67	0.67	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	219,000	0.67	100%
N1-07-002P	4060405	Ingo Smith	0	1.57	1.57	42,766	42,766	42,766	42,766	42,766	42,766	42,766	42,766	42,766	42,766	42,766	42,766	42,766	513,192	1.57	100%
N1-08-001P	4057908	Yong Conway	0	1.59	1.59	43,120	43,120	43,120	43,120	43,120	43,120	43,120	43,120	43,120	43,120	43,120	43,120	43,120	517,440	1.59	100%
N1-09-003P	4053707	Laurie Gehring	0	0.34	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N1-11-002P	5803201	Andrew Robertson	0	0.59	0.59	16,021	16,021	16,021	16,021	16,021	16,021	16,021	16,021	16,021	16,021	16,021	16,021	16,021	192,252	0.59	100%
N1-16-001P	5803505	Richard Ross	0	0.70	0.70	19,008	19,008	19,008	19,008	19,008	19,008	19,008	19,008	19,008	19,008	19,008	19,008	19,008	228,096	0.70	100%
N1-16-004P	4059804	Michael Maples	0	0.39	0.39	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	127,080	0.39	100%
N1-16-005P	4059803	David Cole	0	0.39	0.39	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	10,590	127,080	0.39	100%
N1-16-006P	4057603	Ronald Ham	0	0.53	0.53	14,391	14,391	14,391	14,391	14,391	14,391	14,391	14,391	14,391	14,391	14,391	14,391	14,391	172,692	0.53	100%
N1-17-002P	5802506	Advanced Electrical Systems	0	0.88	0.88	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	288,000	0.88	100%
N1-18-001P	5803506	William Lutz	0	0.36	0.36	9,672	9,672	9,672	9,672	9,672	9,672	9,672	9,672	9,672	9,672	9,672	9,672	9,672	116,064	0.36	99%
N1-18-003P	4059302	Myers	0	1.98	1.98	53,765	53,765	53,765	53,765	53,765	53,765	53,765	53,765	53,765	53,765	53,765	53,765	53,765	645,180	1.98	100%
N1-18-004P	5803404	Justin Scott	0	0.22	0.22	6,083	6,083	6,083	6,083	6,083	6,083	6,083	6,083	6,083	6,083	6,083	6,083	6,083	72,996	0.22	102%
N1-19-003P	5802505	Gary Kelley	0	0.20	0.20	5,353	5,353	5,353	5,353	5,353	5,353	5,353	5,353	5,353	5,353	5,353	5,353	5,353	64,236	0.20	100%
N1-19-007P	4057906	Cristy & Larry Bickel	0	0.60	0.60	16,292	16,292	16,292	16,292	16,292	16,292	16,292	16,292	16,292	16,292	16,292	16,292	16,292	195,504	0.60	100%
N1-19-008P		Cristy & Larry Bickel	0	0.60	0.60																0%
N2-02-001G	5806102	Bell Co. WCID #2	184.20	21.60	205.80	2,470,000	2,358,000	2,636,000	2,806,000	2,830,000	3,700,000	4,851,000	5,019,000	3,325,000	2,324,000	2,388,000	2,286,000	36,993,000	113.53	55%	
N2-02-012G	5807701	City of Rogers	139.40	0	139.40																0%
N2-02-013G	5805901	City of Holland	158.40	0	158.40																0%
N2-02-017G	4055701	Oenaville / Belfalls WSC	16.20	20.79	36.99	22,852	28,850	60,780	70,844	85,920	578,188	328,433	418,180	166,400	0	182,528	35,760	1,978,735	6.07	16%	
N2-02-035G	5804642	Mill Creek Country Club, LLC	61.90	60.00	121.90	0	0	0	0	0	2,160,000	2,160,000	1,080,000	0	0	0	0	5,400,000	16.57	14%	
N2-02-039G	4054801	Little Elm Valley WSC	91.20	0	91.20	1,250,700	514,600	1,164,700	3,793,000	4,645,000	2,795,300	3,791,000	3,024,800	2,655,900	2,681,600	1,892,900	2,414,200	30,623,700	93.98	103%	
N2-02-040G	4062801	Bell Co. WCID #5	20.70	8.00	28.70	0	0	300	107,500	439,600	563,300	751,500	728,600	543,300	522,800	314,800	494,000	4,465,700	13.70	48%	
N2-03-001G	4062401	Cen. TX Vet. Hospital	0	60.00	60.00	0	0	0	0	118,600	338,900	0	0	119,500	0	0	0	577,000	1.77	3%	
N2-04-011P	4061407	BellTec	0	1.30	1.30	0	0	100	0	0	0	0	140	130	0	0	0	370	0.00	0%	
N2-05-003P	40589	Texas Veterans Land Board	0	36.80	36.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-05-004P	5804323	Salado B.P. / Ronnie Tynes	0	11.05	11.05																0%
N2-06-008P	4053709	VillasDelSol / John Henderson	0	3.13	3.13	17,500	25,000	42,000	57,000	59,000	105,000	90,530	69,500	79,000	60,000	14,000	16,000	634,530	1.95	62%	
N2-07-003G	5803503	Killeen Crushed Stone	0	36.00	36.00	1,338,100	100	312,600	852,300	675,400	987,900	1,369,600	821,500	0	891,300	145,600	0	7,394,400	22.69	63%	
N2-07-006G	5802101	Maxdale Cowboy Church	0	0.16	0.16																0%
N2-07-007G	5803303	Garden of Hope of Central Texas	0	0.01	0.01	270	270	270	270	270	270	270	270	270	270	270	270	3,240	0.01	99%	
N2-07-008G	5803809	Apache Stone	0	22.66	22.66	63,038	61,879	72,633	53,323	67,402	65,680	69,390	64,306	58,140	58,451	61,287	62,700	758,229	2.33	10%	
N2-07-009G	4058701	Parrie Haynes Ranch	0	13.80	13.80	44,443	68,463	73,549	81,115	71,847	82,186	66,685	58,294	54,456	64,425	66,749	73,816	806,028	2.47	18%	
N2-07-011G	5804624	Stagecoach (Spa)	0	0.05	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-07-012G	4053710	Temple Park Estates	0	9.50	9.50	41,590	30,420	39,790	94,280	96,240	224,040	293,580	66,410	162,190	179,770	49,670	40,550	1,318,530	4.05	43%	
N2-08-001P	5803912	5 Womans Materials	0	16.03	16.03	80,500	27,510	160,070	80,110	140,590	140,000	497,050	132,800	280,560	41,830	44,980	42,480	1,668,480	5.12	32%	
N2-08-002P	5804314	Salado ISD (HS)	0	21.41	21.41	49,000	100	0	139,000	127,800	986,800	425,500	667,900	547,000	194,500	100	0	3,137,700	9.63	45%	
N2-08-003G	4059601	City of Harker Heights	0	1.16	1.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-09-001P	4053508	Kimberly Langston	0	12.32	12.32	340	180	140	3,210	204	3,111	22,365	1,150	169	623	381	88	31,961	0.10	1%	
N2-09-005G	5803707	R S Materials Group	0	16.67	16.67	337,292	741,223	606,582		488,183	319,612	424,758	291,038	249,664	641,193	277,427	363,766	4,740,738	14.55	87%	
N2-11-003G	4061408	UMHB	0	7.50	7.50	1,397	0	6,255	5,831	12,309	28,022	30,286	1,293	401	954	546	127	87,421	0.27	4%	
N2-13-002P	5806201	Trinity Oasis LLC (Jack Hilliard Dozer and Ma	0	279.00	279.00	6,818,300	4,738,700	8,248,800	5,162,500	10,045,200	6,819,800	8,385,700	7,193,000	5,356,899	6,060,800	5,477,800	4,278,800	78,586,299	241.17	86%	
N2-19-001P	5804705	CenTex Acres 1 (Winterowd)	0	0.61	0.61	1,110		8,581	1,570	1,320	1,630	2,026	3,210	1,872	3,210	52	78	24,659	0.08	12%	
N2-19-002P	5804706	CenTex Acres 2 (Penney)	0	0.61	0.61	4,970	4,660	5,010	6,860	7,320	9,790	27,340	10,010	6,580	4,980	4,200	4,090	95,810	0.29	48%	
N2-19-003P	4053708	Eveans	0	0.50	0.50	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,730	9,730	9,730	115,077	0.35	71%	
N2-20-002P	5803406	Hines Texas, LLC #1	0	4.14	4.14	44,355	44,355	44,355	44,355	44,355	44,355	44,355	44,355	44,355	15,150	45,983	45,983	506,311	1.55	38%	
N2-20-003P	5803407	Hines Texas, LLC #2	0	4.14	4.14	4,809	4,809	4,809	4,809	4,809	4,809	4,809	4,809	4,809	0	0	0	43,281	0.13	3%	
N2-20-004P	5803408	Hines Texas, LLC #3	0	4.14	4.14	8,260	8,260	8,260	8,260	8,260	8,260	8,260	8,260	8,260	71,770	135,313	135,313	416,736	1.28	31%	
N2-20-005P		Hines Texas, LLC #4	0	4.14	4.14																0%
N2-21-001P		Victory Rock LLC	0	30.00	30.00																0%
N2-21-003P		David & Denea Reaves	0	0.54	0.54																0%
N2-21-005P	5802601	Nathan & Danielle McNeal	0	0.40	0.40	5,900	2,400	4,000	2,500	2,500	4,500	3,000	3,000	3,000				30,800	0.09	24%	
N2-22-002P		Scott Gillman	0	0.39	0.39	0	0	0	0												

**Non-exempt Wells--Other**

File No	State #	Well Name	Acre-Feet			2022 Monthly Production (gallons)												YTD ac-ft	% Permit	
			Hist. Permit	Oper. Permit	Total Permit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			YTD
		Bradley Ware	0	160.00	160.00	2,346,129	2,769,736	2,313,544	3,095,587	2,900,077	4,464,163	7,168,730	10,133,978	6,517,028	2,965,247	1,922,523	1,368,575	47,965,317	147.20	92%
N2-11-001G	5802106	Bradley B. Ware				1,759,597	1,987,693	1,694,427	2,248,374	1,889,938	2,020,278	4,529,334	6,810,294	4,627,090	2,215,789	1,368,576	1,075,309	32,226,699	98.90	62%
N2-11-002G	5802107	Bradley B. Ware				586,532	782,043	619,117	847,213	1,010,139	2,443,885	2,639,396	3,323,684	1,889,938	749,458	553,947	293,266	15,738,618	48.30	30%
		Strasburger Farms	271.80	33.84	305.64	0	0	0	3,888,000	25,680,000	35,817,000	15,850,000	6,926,000	0	0	0	0	88,161,000	270.56	89%
N2-02-026G		DO NOT USE - Strasburger Farms (#2)																		0%
N2-02-027G	5806801	Strasburger Farms (#4)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-02-028G		DO NOT USE-Strasburger Farms (#5)																		0%
N2-02-029G	5806802	Strasburger Farms (#6)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-02-030G	5806901	Strasburger Farms (#10)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-02-031G	5806902	Strasburger Farms (#11)				0	0	0	0	7,536,000	11,184,000	5,645,000	2,576,000	0	0	0	0	26,941,000	82.68	27%
N2-02-032G	5806803	Strasburger Farms (#15)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-02-033G	5806804	Strasburger Farms (#16)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-12-002P	5806805	Strasburger Farms (#5)				0	0	0	3,888,000	4,590,000	10,080,000	4,125,000	0	0	0	0	0	22,683,000	69.61	23%
N2-18-001P	5806501	Strasburger Farms (#2)				0	0	0	0	13,554,000	14,553,000	6,080,000	4,350,000	0	0	0	0	38,537,000	118.27	39%
		Not Aggregated																		0%
N1-04-001P	5806701	Stephen Spinn	0	0.56	0.56	15,207	15,207	15,207	15,207	15,207	15,207	15,207	15,207	15,207	15,207	15,207	15,207	182,484	0.56	100%
N1-11-001P	4060603	Roy Rodriguez	0	0.55	0.55	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	180,000	0.55	100%
N1-16-007P	5805903	Wells Fargo Bank	0	0.79	0.79	21,390	21,390	21,390	21,390	21,390	21,390	21,390	21,390	21,390	21,390	21,390	21,390	256,680	0.79	100%
N1-21-001P	5814101	Kelly Carter	0	0.87	0.87	23,664	23,664	23,664	23,664	23,664	23,664	23,664	23,664	23,664	23,664	23,664	23,664	283,968	0.87	100%
N2-06-007G	4061903	Misty Creek HOA	0	6.45	6.45	14,200	12,000	14,500	14,700	15,200	15,500	17,050	17,050	15,000	15,800	15,000	14,300	180,300	0.55	9%
N2-07-013G	5806104	D.R. Dorsey Properties	0	2.47	2.47	40	35	45	31	32	22	21	7	14	45	14	9	315	0.00	0%
N2-07-014P	4061607	Barking Oaks	0	0.62	0.62	5,260	5,430	6,050	6,280	5,860	6,370	6,160	5,760	5,360	5,210	5,870	6,190	69,800	0.21	35%
N2-08-005G	4061511	Lone Star Paving	0	1.07	1.07	46	88	59	60	142	141	50	59	123	102	55	168	1,093	0.00	0%
N2-08-007G	4061512	Trio Investments	0	0.18	0.18	100	200	100	100	100	400	200	300	200	100	100	100	2,000	0.01	3%
N2-10-007P	4061715	Goode Towing	0	0.05	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
N2-14-001G	5806806	Mikeska	0	100.00	100.00	0	0	0	6,734,262	6,734,262	6,734,262	3,860,000	1,955,108	922,159	0	0	0	26,940,053	82.68	83%
N2-16-001P	4061410	Strike 3 Bail Bonds	0	0.12	0.12	300	310	300	280	320	380	290	310	270	300	320	360	3,740	0.01	10%
<b>Totals:</b>			<b>271.80</b>	<b>307.57</b>	<b>579.37</b>	<b>2,441,336</b>	<b>2,863,060</b>	<b>2,409,859</b>	<b>13,814,561</b>	<b>35,411,254</b>	<b>47,113,499</b>	<b>26,977,762</b>	<b>19,113,833</b>	<b>7,535,415</b>	<b>3,062,065</b>	<b>2,019,143</b>	<b>1,464,963</b>	<b>164,226,750</b>	<b>503.99</b>	<b>87%</b>

# *Appendix E*



# CUWCD Exempt Well Use Summary

As of: 2/9/2023

Aquifer	Total Active Registered Exempt Wells <sup>3</sup>	Registered Domestic Wells	Estimated Domestic Use Gallons/Day <sup>1,2</sup>	Estimated Domestic Use Ac-ft/Year <sup>1,2</sup>	Registered Stock Wells	Estimated Stock Use Gallons/Day <sup>4</sup>	Estimated Stock Use Ac-ft/Year <sup>4</sup>	Total Estimated Use Gallons/Day <sup>7</sup>	Total Estimated Exempt Well Use Ac-ft/Year <sup>7</sup>	MAG Reserved Exempt Well Use
Glen Rose (Upper Trinity)	426	349	102,103	114	77	66,528	75	168,631	189	
Hensell (Middle Trinity)	972	911	417,446	468	61	52,704	59	470,150	527	
Hosston (Lower Trinity)	159	148	43,299	49	11	9,504	11	52,803	59	
Trinity (Total) <sup>6</sup>	1,557	1,408	562,848	630	149	128,736	144	691,584	775	1,419
Edwards BFZ	846	715	209,180	234	131	113,184	127	322,364	361	825
Edwards Equivalent	485	386	112,928	126	99	85,536	96	198,464	222	
Buda	28	15	4,388	5	13	11,232	13	15,620	17	
Lake Waco	8	3	878	1	5	4,320	5	5,198	6	
Austin Chalk	226	141	41,251	46	85	73,440	82	114,691	128	
Ozan	161	114	33,352	37	47	40,608	45	73,960	83	
Pecan Gap	67	44	12,873	14	23	19,872	22	32,745	37	
Kemp	15	11	3,218	4	4	3,456	4	6,674	7	
Alluvium	584	377	110,295	124	207	178,848	200	289,143	324	
Other <sup>5</sup>	1,574	1,091	319,183	358	483	417,312	467	736,495	825	
<b>CUWCD Total Active</b>	<b>3,977</b>	<b>3,214</b>	<b>1,091,212</b>	<b>1,222</b>	<b>763</b>	<b>659,232</b>	<b>738</b>	<b>1,750,444</b>	<b>1,961</b>	

- Domestic use estimate assumes 106 gallons/person per day (USGS estimate of domestic use outside of a municipal water system) and 2.76 persons/household (U.S. Census Bureau, Population Estimates Program (PEP) July 1, 2019)
- Benjamin G. Wherley, Ph.D. Associate Professor- Turfgrass Science & Ecology Dept. of Soil and Crop Sciences Texas A&M University estimate of 2,000ft<sup>2</sup> warm season turfgrass requires 38,855gal/yr/lawn or 106gal/day/lawn; "Ranchette" Avg. lawn size is 13,042ft<sup>2</sup>, 6.5X larger; 6.5 X 106gal/day/lawn= 689gal/day/lawn; ~217 "Ranchette" Middle Trinity Wells; 689 X 217=an additional 150,924gal/day/lawn; **490ac-ft/yr or an 89% increase in Middle Trinity exempt well use from the 2018 estimate of 258ac-ft/yr.**
- Exempt well use estimate factors out all plugged, capped, monitor and inactive wells in the database.
- Source of stock water estimates is Texas Agrilife Extension @ 18 gallons water per day per cow. Livestock water use estimates are based on the 2017 Census of Agriculture, USDA National Agricultural Statistics Service. 36,868 cows / 771 stock wells= 48 cows/stock well; 48\* 18gpd= 846 gal/day/stock well, **747ac-ft/yr or a 34% increase in annual stock use from the 2018 estimate of 556ac-ft/yr.**
- The "Other" designation is the total of minor aquifer and alluvium source designation of the exempt wells.
- Trinity Aquifer wells registered with unknown depth are assigned to the Middle Trinity per Board decision.
- All estimates of groundwater use by exempt well owners is based on assumptions and scientific data, but by no means are they to be interpreted as recommended practices by CUWCD.

# *Appendix F*

# Edwards (BFZ) Aquifer Status Report – December 2022

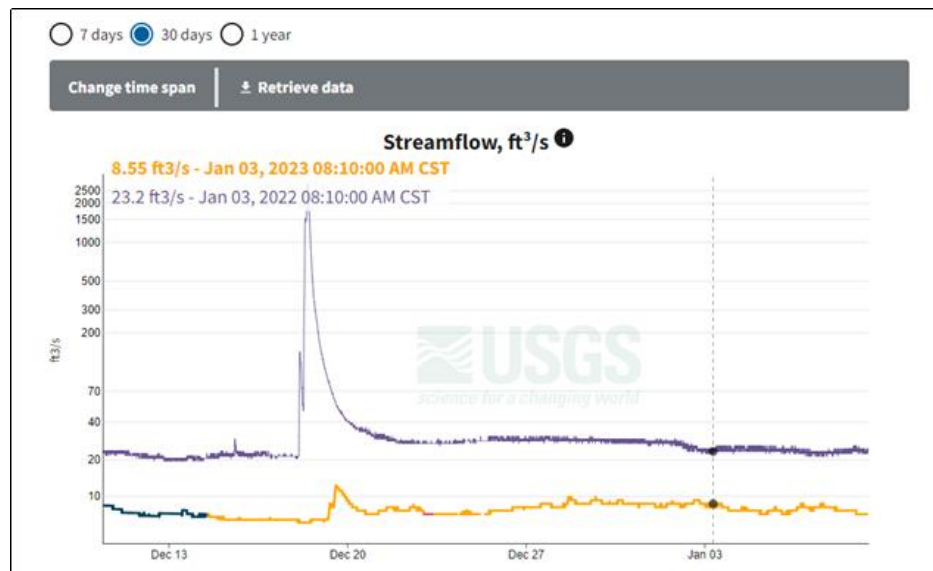
<u>DFC Analysis Over Time</u> (2000-Present) <i>Modeled Available Groundwater</i>			<u>HEUP and OP Permit Analysis</u> <i>Relative to the Modeled Available Groundwater</i>			<u>2022 YTD Prod.</u> Jan - Dec <b>1995.86 Ac-ft</b> <b>81.16%</b>	<u>Pending Applications</u>		<u>Exempt Well Reservations</u>			
Edwards (BFZ) Aquifer	<b>DFC Adopted *</b> Minimum Spring Flow	<b>Status of DFC **</b> Current / Low	<b>MAG ***</b> Ac-ft	HEUP Ac-ft	OP Ac-ft	Total Permitted Ac-ft	2021 Actual Production	Available for Permitting Ac-ft	Pending Applications Ac-ft	Exempt Well Reservation Ac-ft	Exempt Well Use Estimation Ac-ft	Available Exempt Use Ac-ft
	<b>100 Ac-ft</b> per month or <b>1.68 cfs</b>	<b>530.18 Ac-ft</b> 1/3/2023 vs <b>220 Ac-ft</b> 08/20/2014	6469	2139.20	319.73	<b>2458.93</b>	<b>1751.57 Ac-ft</b> <b>69.62%</b>	<b>3185.07</b>	<b>521.92</b>	825	357	468

*\*Desired Future Conditions (DFC) established by Clearwater UWCD and approved by GMA8 and TWBD, is the description of how the aquifer should look in the future (50 years based on maintaining the Salado Spring Complex discharge during a repeat of drought conditions similar to the drought of record in the 1950's, under drought of record, a five-day average of discharge amounting to 200 ac-ft-month is preferred and 100 ac-ft/month is the minimum acceptable spring flow. Spring flow is measured and estimated by the USGS Gage in Salado Creek located below the Salado Creek Spring Complex.*

*\*\*Status of the DFC is the estimated spring flow over a five-day average from the springs releasing artesian pressure from the Edwards BFZ Aquifer expressed as acre feet per month of spring flow into Salado Creek.*

*\*\*\*The Modeled Available Groundwater (MAG) is the estimated amount of water available for permitting assigned to Clearwater UWCD by the Executive Administrator of TWDB, based on the desired future conditions.*

- 7KX Investments N2-19-005P (500 ac-ft/yr)
- Aria Prairie N2-22-001P + 7 wells (2.72 ac-ft/yr)
- Salado Sanctuary N3-22-001P (19.2 ac-ft/yr)



*CFS is measured continuously at the downstream gage with USGS developing the rating curve according to industry standards and maintaining the information for public access on the USGS website.*

*5 - day average for December 8<sup>th</sup> – January 3<sup>rd</sup> was 8.91 CFS = 530.18 ac-ft/month*

*5 - day average for December 8<sup>th</sup> – December 12<sup>th</sup> was 10.528 CFS = 626.46 ac-ft/month*

## Trinity Aquifer Status Report – December 2022

<u>DFC Analysis Over Time</u> (2000-Present) <i>Modeled Available Groundwater</i>			<u>HEUP and OP Permit Analysis</u> <i>Relative to the Modeled Available Groundwater</i>			<u>2022 YTD</u> <u>Total Prod.</u> Jan - Dec <b>40.77%</b>		<u>Pending Applications</u>		<u>Exempt Well Reservations</u>		
<b>Trinity Aquifer</b> (by layer)	<b>DFC Adopted *</b> Average Drawdown (by layer)	<b>MAG **</b> Ac-ft	<b>HEUP</b> Ac-ft (by layer)	<b>OP</b> Ac-ft (by layer)	<b>Total Permitted</b> Ac-ft (by layer)	<b>2021 YTD Prod.</b> (by layer)	<b>2022 YTD Prod.</b> (by layer)	<b>Available for Permitting</b> Ac-ft (by layer)	<b>Pending Applications</b> Ac-ft (by layer)	<b>Exempt Well Reserve</b> Ac-ft (by layer)	<b>2021 Exempt Well Use Estimate</b> Ac-ft (by layer)	<b>Available Exempt Use</b> Ac-ft (by layer)
	Current											
Pawluxy	NA	0	0	0	0	0	0	0	0			0
Glen Rose (upper)	<b>-1.38 ft/yr</b> -83 ft/60 yrs	974	61.9	72.73	<b>134.63</b>	18.70	23.79	<b>146.37</b>	0	693	221	472
Hensell (middle)	<b>-2.28 ft/yr</b> -137 ft/60 yrs	1099	259.3	207.77	<b>467.07</b>	67.37	67.06	<b>83.93</b>	***28.00	548	516	32
Hosston (lower)	<b>-5.50 ft/yr</b> -330 ft/60 yrs	7193	1181.4	2959.21	<b>4140.61</b>	1619.53	1842.71	<b>2874.39</b>	0	178	56	122
<b>Total</b>		<b>9266</b>	1502.6	3240.06	<b>4742.66</b>	1705.6 (35.95%)	1933.56 (40.77%)	<b>3104.69</b>	<b>28.00</b>	1419	793	626

\*Desired Future Conditions (DFC) is the description of how the aquifer should look in the future (60 years).

\*\*The Modeled Available Groundwater (MAG) is the estimated amount of water available for permitting assigned to Clearwater UWCD by the Executive Administrator of TWDB.

\*\*\*Pending applications

Rancho Vista Phase 2 N2-21-008P (5.00 ac-ft/yr)

Big Elm RV Resort N2-22-003P (23.00 ac-ft/yr)

# *Appendix G*



<http://www.cuwcd.org/>



***Clearwater Underground Water Conservation District Quarterly Newsletter***

The Clearwater Underground Water Conservation District (CUWCD) approved the [2021 Annual Report](#) on Wednesday, April 13, 2022.

# 2021 ANNUAL REPORT



**Clearwater UWCD**  
Belton, Texas  
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**CLEARWATER UNDERGROUND WATER CONSERVATION  
DISTRICT**

Audited Financial Statements

For the Year Ended September 30, 2021

and Independent Auditors' Report

STRENGTH IN NUMBERS



LUDWICK, MONTGOMERY & STAPP, P.C.  
CERTIFIED PUBLIC ACCOUNTANTS

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P.O. Box 1989  
Belton, Texas 76513

**Telephone Number:**

254-933-0120

**Fax Number:**

254-933-8396

**Hours:**

Monday – Friday 8:00 am to 5:00 pm  
Closed from 12:00 to 1:00 pm for lunch

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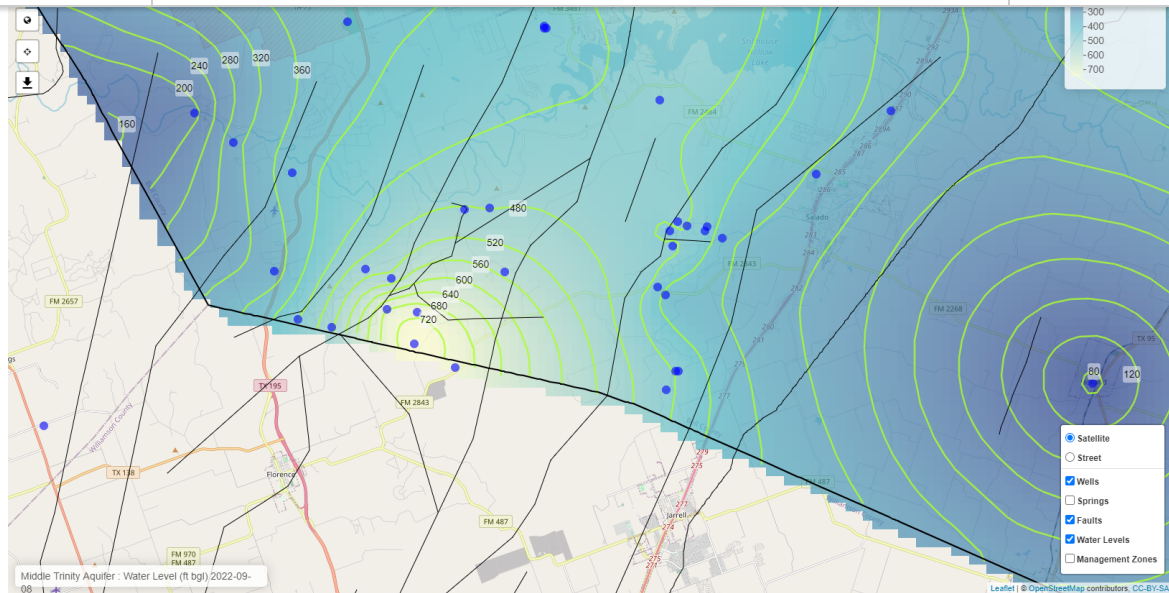
Clearwater Underground Water Conservation District · 700 Kennedy Court · P.O. Box 1989 · Belton, Texas 76513 · USA





The poster for the 21st Annual Bell County Water Symposium has a blue background. At the top, "Save The Date!" is written in large, bold, red letters with a white outline. Below this, "21ST ANNUAL BELL COUNTY WATER SYMPOSIUM" is written in large, bold, blue letters. A large, stylized blue water drop is on the left side. In the center, a map of Bell County, Texas, is shown with a green area representing the Trinity Aquifer. Below the map, the date "NOVEMBER 16, 2022" and time "8:30 a.m. - 4:00 p.m." are listed, followed by "(Pre-registration Required)" in red. At the bottom right, the location is given: "Location: Bell County Expo Center - Assembly Hall, 301 W Loop 121, Belton, TX". The Clearwater logo is in the bottom left corner of the poster.

Water Levels in the Hensell Layer of the Trinity Aquifer continue to decline because of over pumping, aquifer structure, and characteristics of the system. More specifics to be taught at the upcoming Bell County Water Symposium.



Clearwater UWCD again sets tax rate at the no-new revenue rate for the 11<sup>th</sup> consecutive year. The rate for FY23 is .002802/\$100 valuation of the property. Please visit our website to view the [District Budget](#) for FY23.

**WATER**  
**for** **TEXAS**  
**2023 conference**  
**CONNECTING H<sub>2</sub> OPPORTUNITIES**

**JANUARY 23-25, 2023**  
**AUSTIN, TEXAS**  
**#WaterforTX2023**  
Hosted by the Texas Water Development Board

[Water for Texas 2023](#)

**Opening Keynote, *The State of Texas Water: Planning for More***

As the Texas population and economy continue to grow, it is increasingly critical to expand infrastructure to help manage and improve our water supply statewide. Texas Comptroller Glenn Hegar will discuss the important economic impact of water development projects and the potential effects of water shortages on Texas' economy.

***Global Water Innovations: International Ideas and Accomplishments***

The need for innovative water solutions and technology spans far beyond Texas. Learn about some impactful and inspiring breakthroughs happening abroad.

***Movers and Shakers: Lessons from Leaders at Large Water Utilities***

Big cities, big water, big challenges. Hear from influential water utility leaders from around the country as they discuss the ins and outs of managing large systems that serve millions of customers.

***Working for Texans: Policy Issues for the 88th Legislative Session***

### **[One month left for early registration!](#)**

Please visit the [Water for Texas 2023 website](#) to register early and view the preliminary agenda and complete list of session descriptions. Prices increase October 4.

### **[Room Block Open](#)** **[Reserve today!](#)**

A limited number of rooms in the "Water for Texas 2023" conference room block at the AT&T Hotel and Conference Center are available at a discounted rate. Book online through the [group reservation page](#) to secure your room while available.

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## **[Water News Around Texas](#)**

[Texas+Water New Issue provides up to date information and relevant interviews with Texas's best and most prominent voices in the state](#)

[Edwards Aquifer Authority warns that Stage 4 may be needed in August](#)

[Edwards Aquifer Authority Enacts Stage 4 Water Restrictions](#)

[DRIED UP: Texas cities in fear of running out of water](#)

[Report from the Texas Produced Water Consortium](#)

[Jacob's Well Goes Dry](#)

[Water Levels Down in Williamson County](#)

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## Big Elm Creek Watershed Protection Plan Upcoming Events

- **Septic System Class for Homeowners coming October 5, 2022 from 1-3pm** - This FREE 2 hour class will cover the treatment processes, health and safety considerations, and system inspection and maintenance. The class will also provide answers to the most frequently asked questions, including when to pump a tank and what can or cannot go down the drain. [Click here](#) to reserve your spot, as seating is limited. The class will be held at the Blackland Research & Extension Center, 720 East Blackland Road, Temple.
- **[Private Water Well Workshop](#) coming Spring 2022** - Do you have a water well? When was the last time you tested your water? This free workshop will be for private well owners who want to become familiar with groundwater resources, septic system maintenance, we maintenance, water conservation, water quality, and water treatment.
- **[Riparian Workshop](#) coming Spring 2022** - This workshop will focus on the nature and function of stream and riparian zones and the benefits and direct impacts from healthy riparian zones.

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**Fax Number:**  
254-933-8396

**Hours:**  
Monday – Friday 8:00 am to 5:00 pm  
Closed from 12:00 to 1:00 pm for lunch

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Clearwater Underground Water Conservation District (CUWCD) is a political subdivision of the State of Texas and underground water conservation district created and operating under and by virtue of Article XVI, Section 59, the Texas Constitution; Texas Water Code Chapter 36; the District's enabling act, Act of May 27, 1989, 71st Legislature, Regular Session, Chapter 524 (House Bill 3172), as amended by Act of April 25, 2001, 77th Legislature Regular Session, Chapter 22 (Senate Bill 404), Act of May 7, 2009, 81st Legislature, Regular Session, Chapter 64 (Senate Bill 1755), and Act of May 27, 2015, 84th Legislature, Regular Session, Chapter 1196, Section 2 (Senate Bill 1336)(omnibus districts bill); and the applicable general laws of the State of Texas; and confirmed by voters of Bell County on August 21, 1999.

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## 2023, A Year for Changes and Challenges

The Board of Directors of Clearwater UWCD have officially amended the District Rules (effective November 1, 2022) after investing approximately \$1.5 million (since 2014) in advanced scientific endeavors and with this new understanding has made significant changes to our permitting process and protection of landowner rights. Clearwater Directors amended the rules in both a legal and scientific manner. Due to our enhanced understanding, we have been able to address the many complex questions but in general, we have established management zones, limited column pipe sizes depending on the zone, enhanced exempt well spacings and enhanced tract size limits on non-exempt wells. In addition, we have added remedies for exceptions, waivers, and tract size encumbrances.

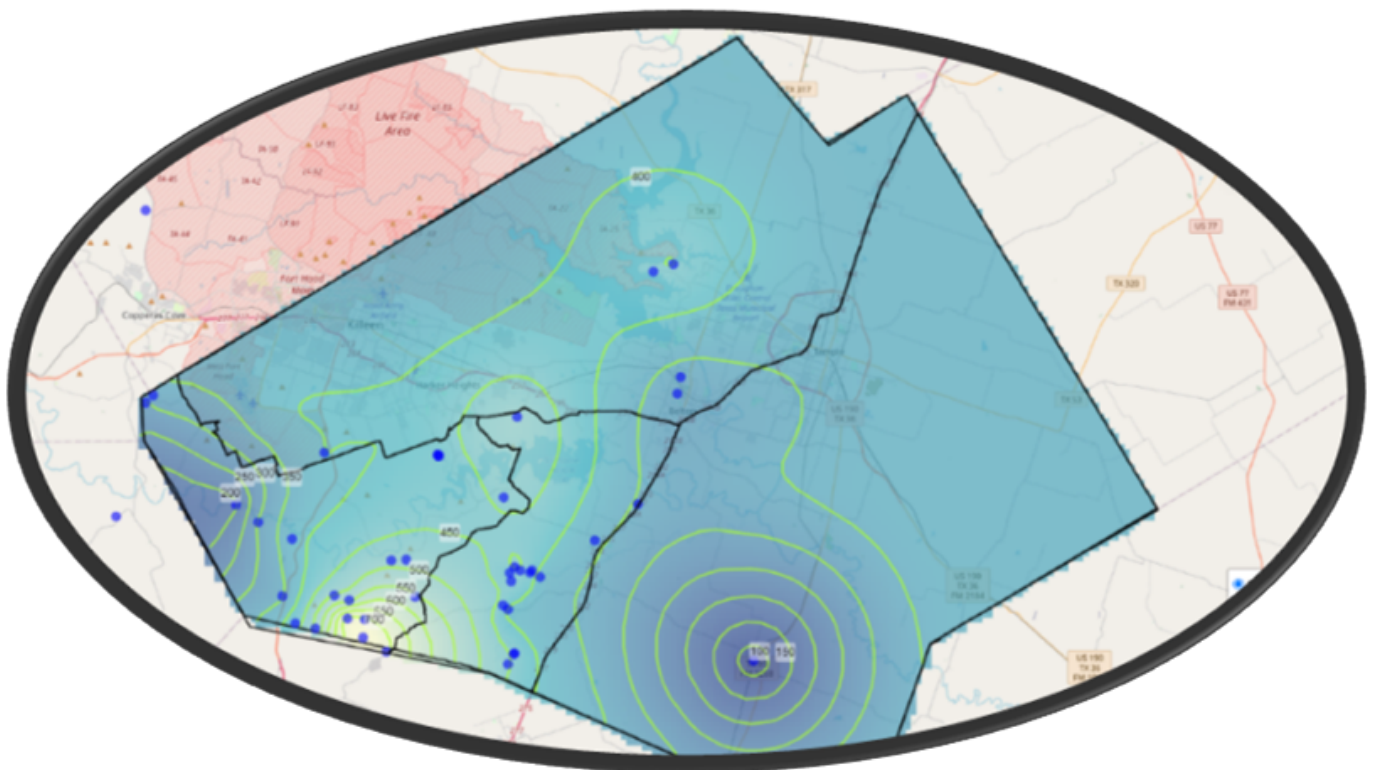


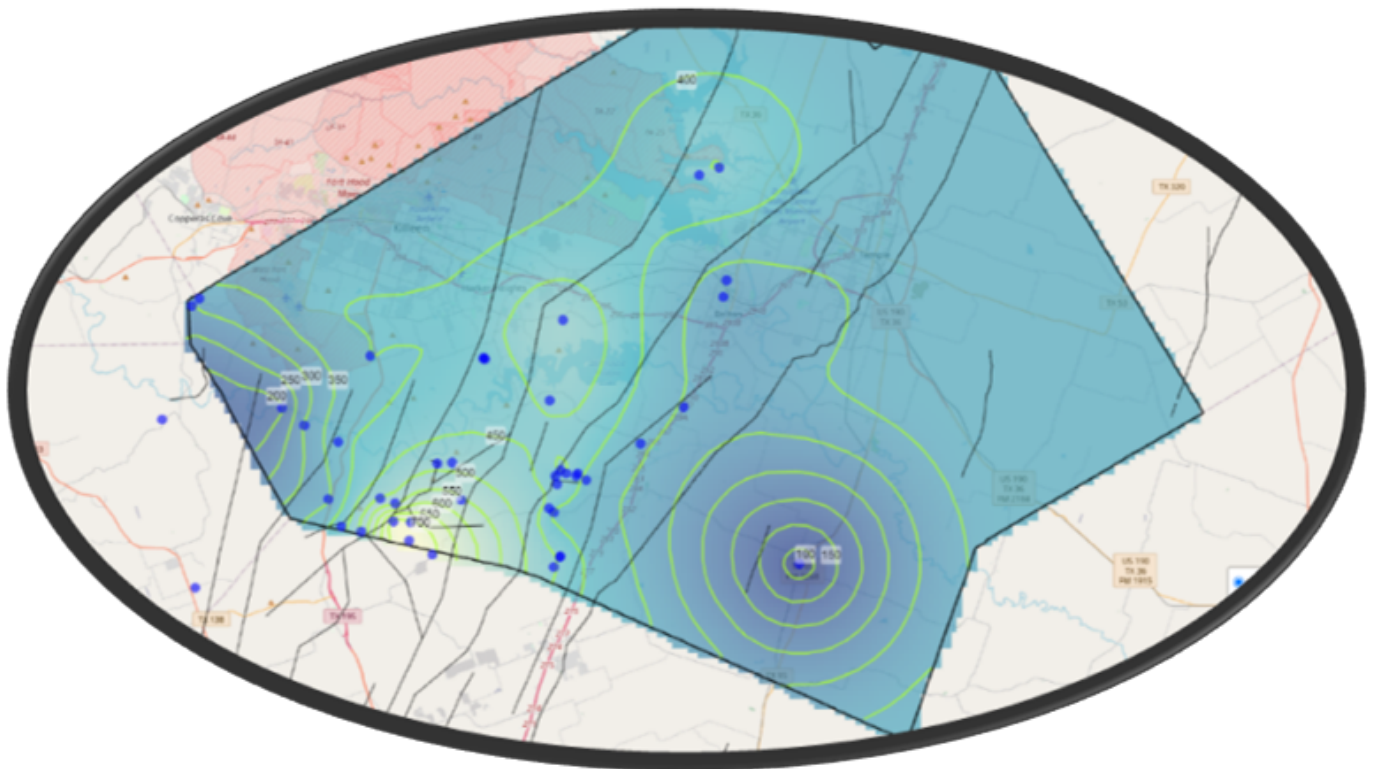
Figure 1: Map above Illustrates the Middle Trinity Aquifer Drawdowns in the Southern and Southern portions of the region west of IH35.

wells on tracts of land with 10 acres or more. Specific changes will also impact non-exempt wells necessitating a drilling permit and/or operating permit for beneficial use other than domestic needs. These are often times:

public water supply wells, commercial or industrial wells, quarry wells, aggregate mining wells, or small business wells.

You will find the new application forms that are required effective November 1, 2022 on the District website. New application guidelines for non-exempt wells, general maps of the five different management zones and the limits to each zone for minimum tract size and limits to column pipe sizes and enhanced spacing between other wells completed to the same layer of the Trinity, the Edwards BFZ and all the minor aquifer systems within the district.

**Figure 2:** Map below Illustrates and visualizes the new understanding and 3D modeling of the faults across the western half of the County.



The following link ([https://cuwcd.org/1001/2022\\_CUWD-Rules-.pdf](https://cuwcd.org/1001/2022_CUWD-Rules-.pdf)) provides viewers with a pdf version of our amended rules. Citizens may view the district database system by clicking here: <https://clearwater.IRE/GISmap> to view the public site of all well locations, Bell Cad Properties, the source aquifers, beneficial use, management zone locations, and all other

We can provide the following by email as pdfs if drillers and/or property owners reach out to Tristin Smith at [tsmith@cuwcd.org](mailto:tsmith@cuwcd.org) or call us at 254-933-0120:

- District Rules Amended November 1, 2022
- Exempt well application form (We will not accept old forms after November 1, 2022)
- Non-Exempt well application form (Effective November 1, 2022)
- Non-Exempt well permit application instructions.
- Maps of the new Management Zones (Edwards, Southwest, Stillhouse, Belton Lake, East Bell)

For clarity, Clearwater approached these changes by working with drillers, permit holders, and identified stakeholders in a manner to share our science and apply that to specific limitations of the geology (especially in western Bell County) in order to extend protections to existing well owners and future well owners.

The approved amendments to the existing rules are summarized as follows:

- The amendments framed up how the District is to issue operating permits according to Aquifer Management Zones with site-specific rules;
- Revised the Standard Provisions incorporated into permits issued by the District;
- Revised the process for submitting meter readings to the District;
- Require that meters be installed in accordance with the manufacturer's specifications;
- Refined permitting requirements for exploratory wells;
- Refined the spacing requirements for certain exempt wells;
- Clarified language regarding historic and existing use permits;
- Clarified drilling and/or operating permits requirements;
- Incorporate a process for complying with Bell County Subdivision Regulations;
- Require Well Completion Reports for certain operating permit applications;
- Established five Management Zones within the boundaries of the District;
- Clarified rules regarding the commingling of injurious water and fresh water and the re-completion of wells pursuant to 16 Texas Administrative Code Chapter 76;
- Establish minimum spacing, column pipe size, tract size, and property line setback requirements by Aquifer Management Zone;
- Provided criteria for granting exceptions to the minimum spacing, column pipe size, tract size, and property line setback requirements for each respective Aquifer Management Zone;
- Define additional terms in the definition section of the rules;
- Clarified methods for filing and serving documents with the District; and

The following chart illustrates the specific setback and column pipe restrictions for Exempt Domestic Wells in the amended rules. This chart further defines what constitutes an “Exempt Well” for Domestic and/or Livestock & Poultry needs and what they are limited to such as maximum column pipe size, maximum gallons per minute, and minimum setbacks from property lines and from other wells.

After November 1, 2022, a Well qualifying for exemption under this subsection must observe a minimum distance of 75 feet from the property line (exception may be made if the property line is adjacent to a public road then the center of the road may be the measuring point used to determine the minimum setback of 75 feet per Rule 9.5.5(b) and 150 feet from other Wells if producing from the same Aquifer. Refer to Section 9.5.3 for spacing requirements between Wells producing from different Aquifers.

Rules exempting Domestic Use on 10-acres or more effective November 1, 2022.

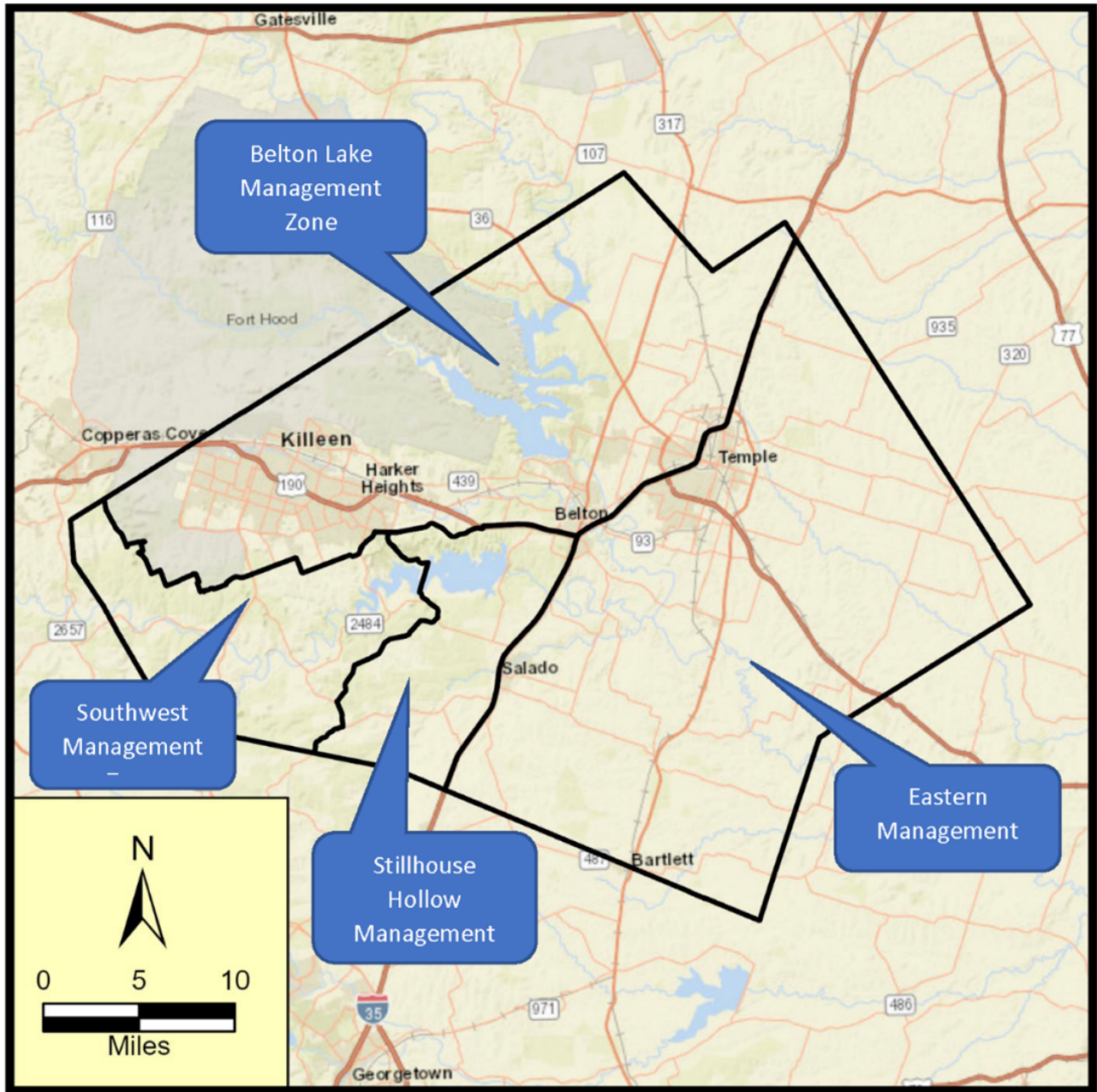
** Management Zone	*Max CPS	Max GPM	Spacing Wells	Spacing Property
SW	1 ½ inch	17.36 gpm	150 feet	75 feet
SH	1 ½ inch	17.36 gpm	150 feet	75 feet
BL	1 ½ inch	17.36 gpm	150 feet	75 feet
E	1 ½ inch	17.36 gpm	150 feet	75 feet
E-BFZ	1 ½ inch	17.36 gpm	150 feet	75 feet

\*Windmill Wells may use a 2-inch casing to accommodate the sucker rod assembly.

\*\*Management Zones designations effective November 1, 2022.

The following map is of the new “**Trinity Aquifer Management Zones**” across Bell County. Specific GIS map to your property showing the management zone can be viewed at:

<https://clearwater.lre-up.com/map>



**Figure A:** Clearwater Underground Water Conservation District Management Zone Map for: Southwest Management Zone; Stillhouse Hollow Management Zone; Belton Lake Management Zone; and Eastern Management Zone.

Management Zones	Well Spacing	Well Spacing	Well Spacing	Well Spacing	Well Spacing	Well Spacing
	Min Tract Size	Min Tract Size	Min Tract Size	Min Tract Size	Min Tract Size	Min Tract Size
Column Pipe **Size	1 1/4-inch	1 1/2-inch	2-inch	>2-4 inch	>6-8 inch	>8 inch
Southwest	150 ft 2-acres	330 ft 5-acres	660 ft 10-acres	1320 ft 20-acres	2640 ft 40-acres	5280 ft 50-acres
Stillhouse Hollow	150 ft 2-acres	330 ft 5-acres	660 ft 10-acres	1320 ft 20-acres	2640 ft 40-acres	5280 ft 50-acres
Belton Lake	150 ft 2-acres	330 ft 5-acres	660 ft 10-acres	1320 ft 20-acres	2640 ft 40-acres	5280 ft 50-acres
Eastern IH35	150 ft 2-acres	330 ft 5-acres	660 ft 10-acres	1320 ft 20-acres	2640 ft 40-acres	5280 ft 50-acres

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Eastern IH35	150 ft 2-acres	330 ft 5-acres	660 ft 10-acres	660 ft 20-acres	1320 ft 30-acres	2640 ft 40-acres	5280 ft 50-acres

Note: The above are exempted from the minimum tract size requirements: (1) a Retail Public Water Utility's Non-exempt New Well if the Well is located within the prescribed boundaries of the utility's retail water service area that is certificated by the Public Utility Commission of Texas by the issuance of a Certificate of Convenience and Necessity; and (2) Water Wells powered by windmills if Drilled and completed with sucker rod column pipe, which shall not exceed 2 inches in diameter.

# Groundwater 101





**TAGD**  
TEXAS ALLIANCE OF  
GROUNDWATER DISTRICTS

## 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 Texas 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 used by regional water planning groups.

[texasgroundwater.org](https://texasgroundwater.org)



**TAGD**  
TEXAS ALLIANCE OF  
GROUNDWATER DISTRICTS

## GROUNDWATER VOCABULARY

**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 the 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.

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 a searchable, interactive online information bank with data on GCDs across the state.

[texasgroundwater.org](http://texasgroundwater.org)



# TAGD

TEXAS ALLIANCE OF  
GROUNDWATER DISTRICTS

## TAGD's GUIDE TO TEXAS GCDs

### **CHAPTER 36, TEXAS WATER CODE**

All GCDs are governed by the laws defined in Chapter 36 of the Texas Water Code. Chapter 36 provides specific instruction on operational, permitting, procedural, and planning requirements.

### **ACCOUNTABILITY & OVERSIGHT**

As political subdivisions, GCDs are subject to special purpose district laws. Additionally, GCDs are subject to local accountability through local boards and public input, as well as state agency and judicial oversight. GCDs are also accountable to each other through the GMA process and development of DFCs.

## **CONSERVATION & PROTECTION**

The fundamental mandate of a GCD is to balance the protection of the resource with a landowners' right to produce water. GCD rules protect groundwater by ensuring fair access to and long term management of the resource.

## **COOPERATIVE MANAGEMENT**

All GCDs are required to set cooperative management goals within their GMAs through the adoption of a DFC. This requires GCDs to coordinate their groundwater usage and manage cooperatively within an aquifer.



**TAGD**  
TEXAS ALLIANCE OF  
GROUNDWATER DISTRICTS

## TAGD'S GUIDE TO TEXAS GCDs

### **NOT ALL AQUIFERS ARE CREATED EQUAL**

Texas has 9 major and 21 minor aquifers, and each operates differently. GCD rules are designed to address the different hydrogeologic characteristics of each aquifer. GCD rules must allow for differences in hydrology between and within aquifers.

### **LOCAL CONDITIONS**

Different groundwater uses require different management. The type, frequency, and volume of groundwater usage can affect the aquifer. For example, groundwater produced for agriculture in a rural area may allow different spacing than groundwater produced for a public water supply in an urban area. Chapter 36 allows GCDs to address local conditions in their rules.

### **ENABLING LEGISLATION MATTERS**

Most GCDs are locally created by legislative action. A GCD's individual enabling legislation defines the districts characteristics, including its financing and exemptions. A GCD's enabling legislation and its

## **PROPERTY RIGHTS & MARKET TRANSACTIONS**

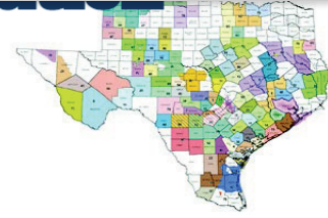
GCDs ensure equal protection of all property rights and investment-backed expectations. GCDs also provide regulatory certainty for market transactions through permitting and by managing to the DFC.

[texasgroundwater.org](https://texasgroundwater.org)



# Districts

# FAQs



## What is a Groundwater Conservation District?

GCDs are political subdivisions of the state created to protect and balance private groundwater interests with the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and the control of subsidence caused by withdrawal.

## What does a GCD do?

- Establish rules for the spacing and drilling of all water wells
- Consider and permit non-exempt water wells
- Maintain records of non-exempt wells in a district
- Submit management plans to Texas Water Development Board for approval
- Collaborate regionally in joint planning for the establishment of DFCs
- Collect water level and water quality data on aquifers
- Educate stakeholders on water conservation
- Work to prevent harm to the aquifer due to pumping or contamination



## How do GCDs allocate their budgets?



Education & Outreach



Science & Research



Operations



Conservation



Regional Planning

## How many GCDs are there in Texas?

Currently, there are **98** GCDs plus 2 subsidence districts.

## What rules must a GCD follow?

GCDs are governed by Chapter 36 of the Texas Water Code. As political subdivisions of the state, they are also subject to Chapter 49 of the Texas Administrative Code. Based on the rules established by the State, each GCD creates policies to accomplish the goals of their District.

## Do I have to register my well with my GCD?



Yes, state law requires all wells to be registered with the GCD. This does not mean that all wells require a permit. All domestic wells and livestock wells that produce less than 25,000 gallons per day are exempt from permits. A GCD has the ability to exempt others in their rules.

## What is a management plan?

A management plan outlines a GCD's goals and course of action to achieve those goals. The management plan is submitted to TWDB for approval, and rules necessary to implement the management plan are adopted by each district.

## What is a Desired Future Condition?

The desired future condition is a metric that is established during the joint planning process by GCDs in a common Groundwater Management Area (GMA). The DFCs provide for consistency in groundwater management in the GMA and a balance between groundwater protection and production.

## How are GCDs funded?

GCDs are funded through property taxes, permitting fees and/or usage fees.

## Groundwater Terms

### Aquifer

An underground geological formation able to store and yield water in useable amounts. Aquifers in Texas can consist of sand, gravel, limestone, granite, and many other rock types that have pores or spaces for water to pass through.

### Aquitard

An aquitard, or confining layer, is a zone within the earth that restricts the flow of groundwater.

### Total Dissolved Solids (TDS)

TDS refers to the total concentration of dissolved constituents in solution. A TDS level of less than 1000 ppm is often considered freshwater, although many Texans' drinking water has a higher TDS.

### Cone of Depression

A cone of depression is a conically shaped area of decreased water level (or pressure) that occurs when water is withdrawn from an aquifer. If wells are too close to each other, these cones may overlap and cause interference resulting in abnormally low water levels in those wells. In areas that withdraw more water than is recharged or flows to that area, a semi-permanent regional cone of depression may occur.

## Abandoned Wells & Water Quality

There is a high environmental risk associated with abandoned or deteriorated wells, as they are a direct conduit from the surface to our groundwater resources. Because of this risk, it is highly recommended to have abandoned or deteriorated wells plugged. Some GCDs have established programs to assist landowners in plugging abandoned wells.



### How often should I have my well water tested?

It is recommended that well owners have their water professionally tested annually or when an observed change in water quality occurs.

### Who can disinfect my well water?

It is recommended to contact a licensed water well driller or a pump installer to professionally disinfect your well.



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**Our mailing address is:**

P.O. Box 1989  
Belton, Texas 76513

**Telephone Number:**

254-933-0120

**Fax Number:**

254-933-8396

**Hours:**

Monday – Friday 8:00 am to 5:00 pm  
Closed from 12:00 to 1:00 pm for lunch

---

Clearwater Underground Water Conservation District (CUWCD) is a political subdivision of the State of Texas and underground water conservation district created and operating under and by virtue of Article XVI, Section 59, of the Texas Constitution; Texas Water Code Chapter 36; the District's enabling act, Act of May 27, 1989, 71st Legislature, Regular Session, Chapter 524 (House Bill 3172), as amended by Act of April 25, 2001, 77th Legislature, Regular Session, Chapter 22 (Senate Bill 404), Act of May 7, 2009, 81st Legislature, Regular Session, Chapter 64 (Senate Bill 1755), and Act of May 27, 2015, 84th Legislature, Regular Session, Chapter 1196, Section 2 (Senate Bill 1336)(omnibus districts bill); and the applicable general laws of the State of Texas; and confirmed by voters of Bell County on August 21, 1999.

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# Clearwater Source

Clearwater Underground Water Conservation District

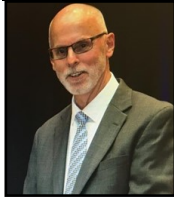
www.cuwcd.org

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December 2022

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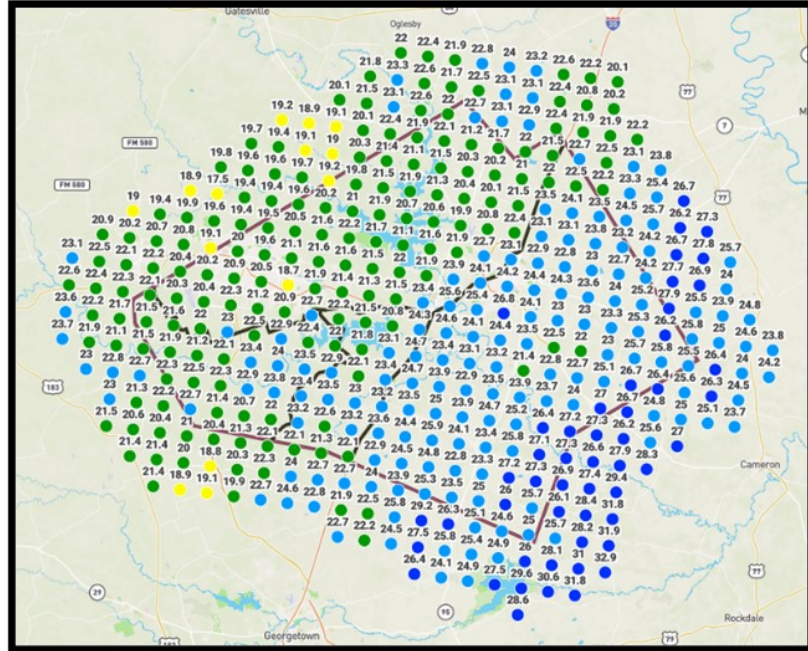
## POPULATION GROWTH IS UPON US IN BELL COUNTY



2022 is the tenth year I have served as the General Manager of Clearwater and continue to be amazed at the growth in our County that did not exist or was contemplated less than 15 years ago and considered to be very rural. Those days are passed as we see all of the new homes and new people moving to the IH35 corridor. This is our annual newsletter mailed to all well owners and published on our website. The articles you will find in this edition are designed to update citizens in Bell County who have groundwater resources. Our goal is to be transparent on the current status of the groundwater system and our onslaught of dry conditions which will continue until March or April 2023. In all our hope is to focus on and understand the nature and challenges in Texas due to increase population growth and the nature of our limited water resources.

The map to the right illustrates the lack of rainfall in our County which should be 33 inches or more per year. The fact remains, Texas lives in a perpetual drought with intermittent floods. We are definitely in a very dry cycle as are many counties along the IH35 corridor.

**Dirk Aaron**, General Manager  
Clearwater UWCD



## 2023 A YEAR FOR CHANGES AND CHALLENGES

The Board of Directors of Clearwater UWCD have officially amended the District Rules (effective November 1, 2022) after investing approximately \$1.5 million (since 2014) in advanced scientific endeavors. With this new understanding, CUWCD has made significant changes to the permitting process and protection of landowner rights. Clearwater Directors amended the rules in both a legal and scientific manner. Due to our enhanced understanding, we have been able to address many complex questions. CUWCD has established management zones, limited column pipe sizes depending on the zone, enhance exempt well spacings and enhance tract size limits on non-exempt wells. Remedies have been added for exceptions, waivers, and tract size encumbrances.

Many of the rule changes will impact property owners who are applying for exempt domestic wells on tracts of land with 10 acres or more. Specific changes will also impact non-exempt wells necessitating a drilling permit and/or operating permit for beneficial use other than domestic needs such as public water supply wells, commercial or industrial wells, quarry wells, aggregate mining wells, or small business wells.

On the District website ([www.cuwcd.org](http://www.cuwcd.org)), you will find the new application forms that are required effective November 1, 2022 along with the new application guidelines for non-exempt wells, general maps of the five different management zones and the limits to each zone for minimum tract size and limits to column pipe sizes and enhanced spacing between other wells completed to the same layer of the Trinity, the Edwards BFZ and all the minor aquifer systems within the District.

Clearwater approached these changes by working with drillers, permit holders, and identified stakeholders in a manner to share our science and apply that to specific limitations of the geology (especially in western Bell County) in order to extend protections to existing well owners and future well owners.

The approved amendments to the existing rules are summarized as follows:

- The amendments framed up how the District is to issue operating permits according to Aquifer Management Zones with site-specific rules;
- Revised the Standard Provisions incorporated into permits issued by the District;
- Revised the process for submitting meter readings to the District;
- Require that meters be installed in accordance with the manufacturer's specifications;
- Refined permitting requirements for exploratory wells;
- Refined the spacing requirements for certain exempt wells;
- Clarified language regarding historic and existing use permits;
- Clarified drilling and/or operating permits requirements;
- Incorporate a process for complying with Bell County Subdivision Regulations;

(continued on page 6)

### BOARD OF DIRECTORS

**Leland Gersbach** - Precinct 1  
2013-Present (President)

**Jody Williams** - Precinct 3  
2018-Present (Director)

**Gary Young** - Precinct 2  
2014-Present (Secretary)

**Scott Brooks** - Precinct 4  
2018-Present (Director)

**David Cole** - At large  
2013-Present (Vice-President)

### 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.

# UPDATE TO ESTIMATED GROUNDWATER PUMPING IN TRAVIS AND WILLIAMSON COUNTIES

(This article is a summary of a recent report to Clearwater by Michael R. Keester, PG – R. W. Harden & Associates, Inc.)

The recent technical memorandum provided to Clearwater UWCD is an update to the evaluation of pumping estimates in Travis and Williamson counties discussed in the May 5, 2020 technical memorandum. The methods developed for the initial evaluation were also applied for this update. To prepare the update, we obtained additional well data for the years 2020 and 2021 from the Texas Water Development Board (“TWDB”) and Texas Commission on Environmental Quality (“TCEQ”) databases (TCEQ, 2022; TWDB, 2022a; TWDB, 2022b; TWDB, 2022c). We then input the additional data into our analyses to extend the update of pumping estimates through the year 2021.

As discussed in the 2020 Technical Memorandum, the evaluation is based on the number of wells completed in each aquifer, the size of the well, and the identified use of water from the well. A limitation of the approach is that changes in pumping is correlated with the number of wells with the assumption that more wells results in more groundwater pumping. While our analysis does account for wells being plugged, it does not consider the transition from groundwater to alternate water supplies. This and other limitations of the approach are addressed in the 2020 Technical Memorandum. Despite the identified limitations, we believe the approach provides a reasonable estimate of long-term trends in groundwater pumping.

In 2020 and 2021 a total of 654 new wells were completed in Travis and Williamson counties based on records from the available databases. Of these new wells, 311 were constructed in Travis County with 343 new wells in Williamson County. In both counties most of the new wells were for domestic use though 55 irrigation wells were completed for irrigation use in Travis County in 2020. In general, irrigation and municipal supply wells are constructed for higher production capacities. In the two counties in 2020 and 2021, there were a total of 95 irrigation wells and 13 municipal wells completed.

With the additional wells, the estimated pumping in 2021 from all aquifers in both counties was 44,325 acre-feet. The 2021 estimated pumping represents an increase of 848 acre-feet from the 2019 estimate of 43,477 acre-feet. Figure 1 below illustrates the estimated pumping values along with the TWDB estimated groundwater pumping.

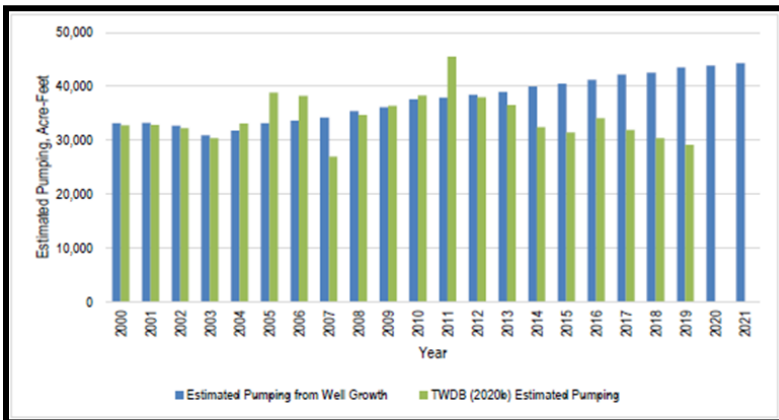


Figure 1. Estimated groundwater pumping from all aquifers in Travis and Williamson counties.

A diverging trend between the TWDB estimated pumping and estimated pumping based on well growth continued during the additional two years. However, in the 2020 Technical Memorandum we observed that pumping estimates from the two sources were diverging in Williamson County but were similar in Travis County. For 2018 and 2019 the pattern switched. As shown in Figure 2, TWDB estimated pumping for Travis County declined from 19,001 acre-feet in 2017 to 12,064 acre-feet in 2019 despite the addition of 93 irrigation wells and 10 municipal wells during the two-year period (2018 and 2019).

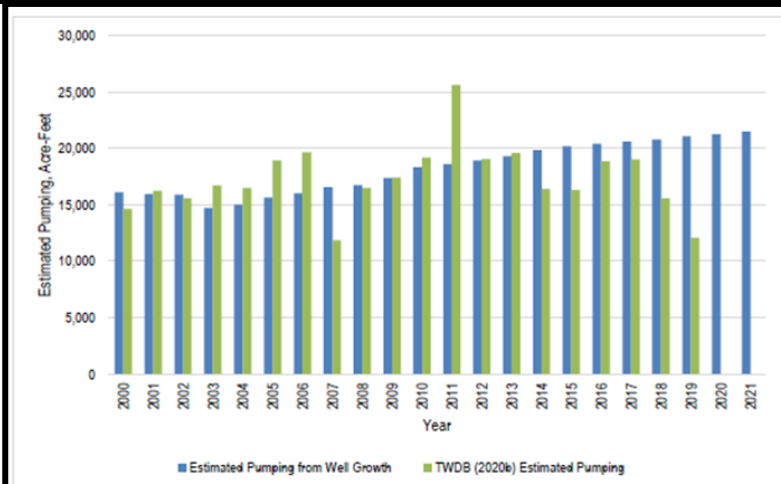


Figure 2. Estimated groundwater pumping from all aquifers in Travis County.

For Williamson County, the TWDB pumping estimate increased over the two-year period from 12,904 acre-feet in 2017 to 17,009 acre-feet in 2019 (Figure 3).

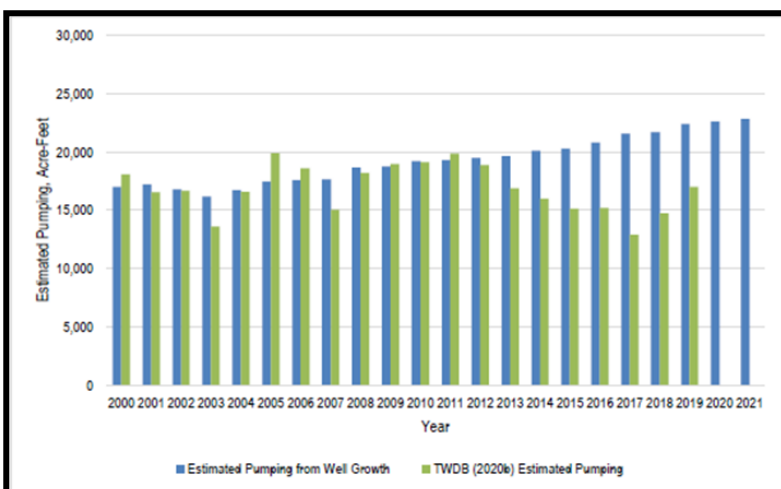


Figure 3. Estimated groundwater pumping from all aquifers in Williamson County.

TWDB estimated total pumping in Travis and Williamson counties has steadily declined since 2011 despite an increase in the number of wells. While TWDB estimated pumping in Williamson County increased from 2017 through 2019, the increase was offset by greater declines in Travis County. Like the TWDB total estimated pumping, TWDB estimated pumping from the Trinity Aquifer declined in both counties.

Estimated pumping based on the growth in the number of wells suggests an increase in total pumping of less than 1,000 acre-feet from 2019 through 2021. Most of the new wells completed during 2020 and 2021 were for domestic use. However, there were also several wells which are generally designed for higher production (95 new irrigation wells and 13 new municipal use wells).

A conclusion discussed in the 2020 Technical Memorandum remains accurate; namely, most of the new wells in Travis and Williamson counties are being completed in the Trinity Aquifer. In addition, most of these new wells are for domestic purposes. For these wells, we would not expect annual production to decline significantly unless it becomes too difficult to pump groundwater due to insufficient available drawdown associated with declining water levels. We are aware that such water-level declines in the Trinity Aquifer are occurring, which suggests that pumping is continuing to occur and likely increasing with the growth in the number of wells.

## Understanding Groundwater Vocabulary



### GROUNDWATER VOCABULARY

**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 the 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 a searchable, interactive online information bank with data on GCDs across the state.

[texasgroundwater.org](http://texasgroundwater.org)



### 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 Texas 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 used by regional water planning groups.

[texasgroundwater.org](http://texasgroundwater.org)

## TAGD's Guide to Texas Groundwater Districts



**TAGD**  
TEXAS ALLIANCE OF  
GROUNDWATER DISTRICTS

## TAGD's GUIDE TO TEXAS GCDs

**CHAPTER 36, TEXAS WATER CODE**

All GCDs are governed by the laws defined in Chapter 36 of the Texas Water Code. Chapter 36 provides specific instruction on operational, permitting, procedural, and planning requirements.

**ACCOUNTABILITY & OVERSIGHT**

As political subdivisions, GCDs are subject to special purpose district laws. Additionally, GCDs are subject to local accountability through local boards and public input, as well as state agency and judicial oversight. GCDs are also accountable to each other through the GMA process and development of DFCs.

**CONSERVATION & PROTECTION**

The fundamental mandate of a GCD is to balance the protection of the resource with a landowners' right to produce water. GCD rules protect groundwater by ensuring fair access to and long term management of the resource.

**COOPERATIVE MANAGEMENT**

All GCDs are required to set cooperative management goals within their GMAs through the adoption of a DFC. This requires GCDs to coordinate their groundwater usage and manage cooperatively within an aquifer.

texasgroundwater.org



**TAGD**  
TEXAS ALLIANCE OF  
GROUNDWATER DISTRICTS

## TAGD's GUIDE TO TEXAS GCDs

**NOT ALL AQUIFERS ARE CREATED EQUAL**

Texas has 9 major and 21 minor aquifers, and each operates differently. GCD rules are designed to address the different hydrogeologic characteristics of each aquifer. GCD rules must allow for differences in hydrology between and within aquifers.

**LOCAL CONDITIONS**

Different groundwater uses require different management. The type, frequency, and volume of groundwater usage can affect the aquifer. For example, groundwater produced for agriculture in a rural area may allow different spacing than groundwater produced for a public water supply in an urban area. Chapter 36 allows GCDs to address local conditions in their rules.

**ENABLING LEGISLATION MATTERS**

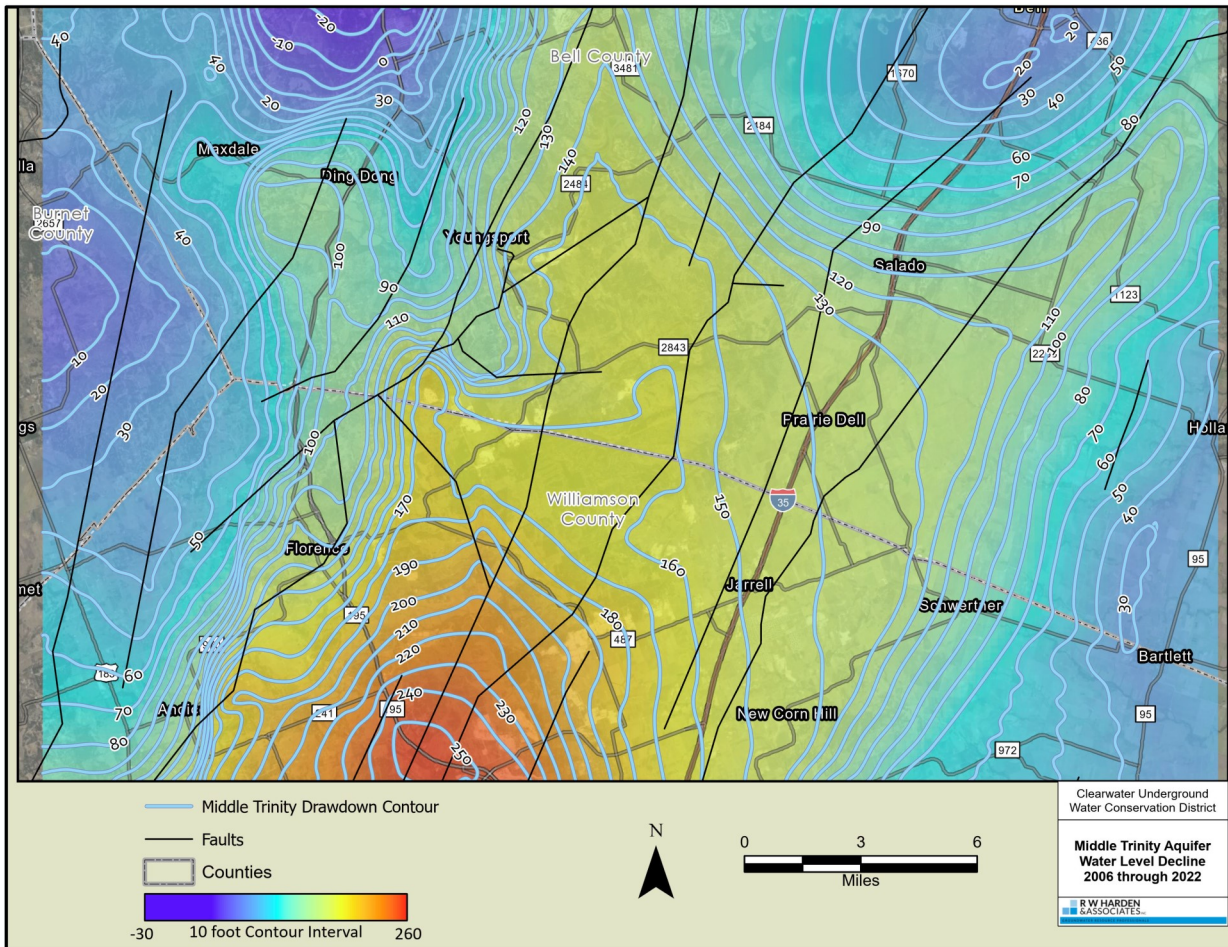
Most GCDs are locally created by legislative action. A GCD's individual enabling legislation defines the districts characteristics, including its financing and exemptions. A GCD's enabling legislation and its subsequent rules affect its management.

**PROPERTY RIGHTS & MARKET TRANSACTIONS**

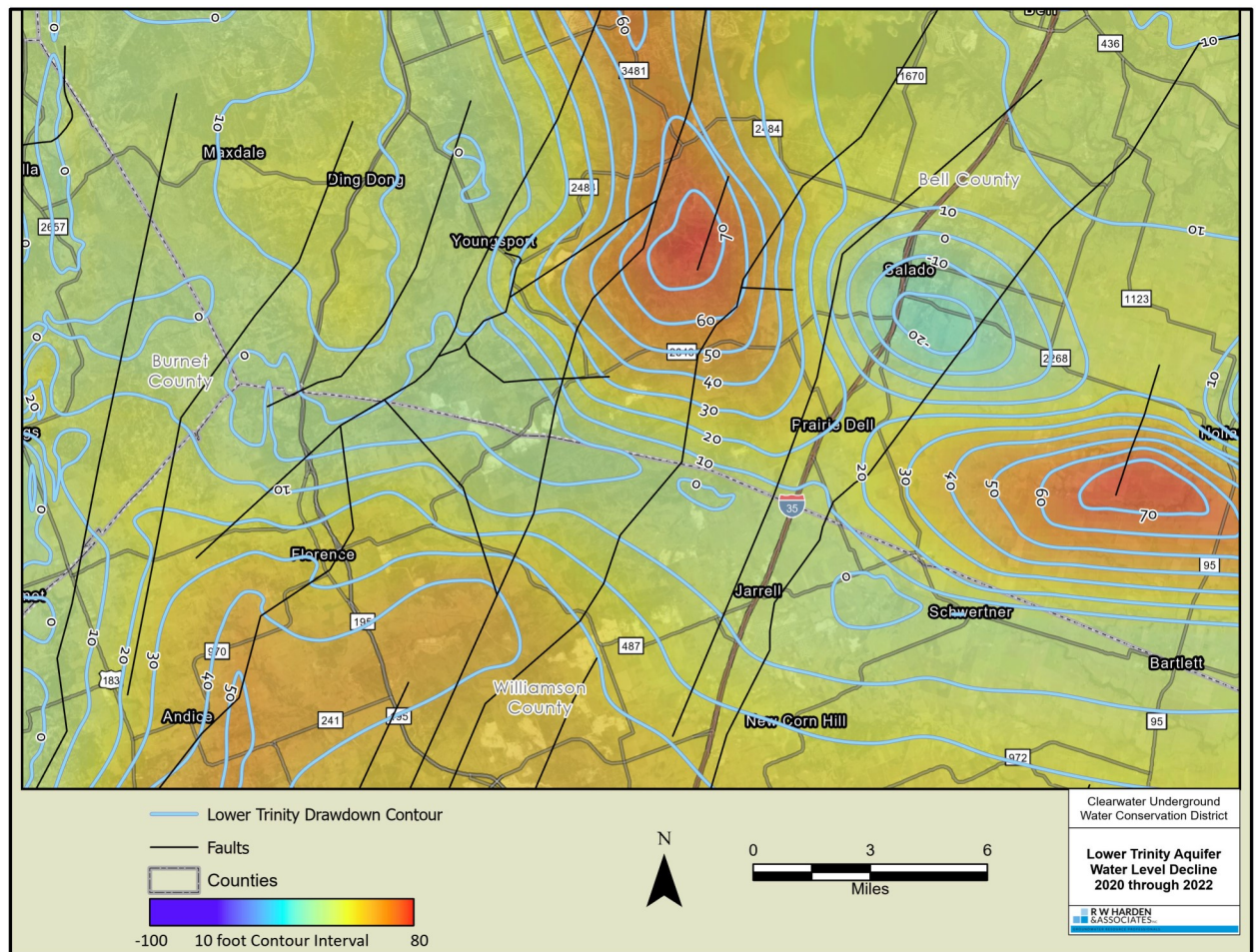
GCDs ensure equal protection of all property rights and investment-backed expectations. GCDs also provide regulatory certainty for market transactions through permitting and by managing to the DFC.

texasgroundwater.org





The map to the left illustrates the declining water levels in the Middle Trinity Aquifer from 2006 through 2022.



The map to the right illustrates the declining water levels in the Lower Trinity Aquifer from 2006 through 2022.



P.O. Box 1989  
Belton, TX 76513

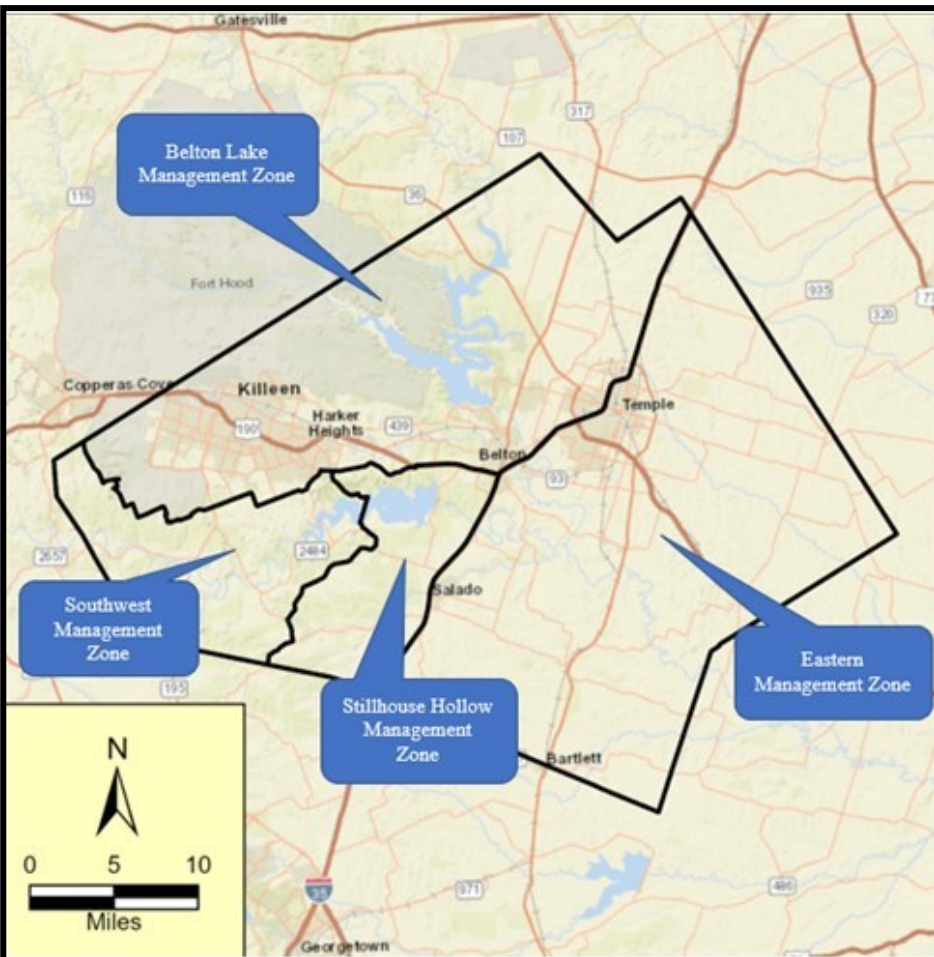


(continued from page 1)

- Require Well Completion Reports for certain operating permit applications;
- Established five Management Zones within the boundaries of the District;
- Clarified rules regarding the commingling of injurious water and fresh water and the re-completion of wells pursuant to 16 Texas Administrative Code Chapter 76;
- Establish minimum spacing, column pipe size, tract size, and property line setback requirements by Aquifer Management Zone;
- Provided criteria for granting exceptions to the minimum spacing, column pipe size, tract size, and property line setback requirements for each respective Aquifer Management Zone;
- Define additional terms in the definition section of the rules;
- Clarified methods for filing and serving documents with the District;
- Made other non-substantive formatting and grammatical revisions to the old rules.

The following chart illustrates the specific setback and column pipe restrictions for Exempt Domestic Wells in the amended rules. This chart further defines what constitutes an “Exempt Well” for Domestic and/or Livestock & Poultry needs and what they are limited to such as maximum column pipe size, maximum gallons per minute, and minimum setbacks from property lines and from other wells.

** Management Zone	*Max CPS	Max GPM	Spacing Wells	Spacing Property
SW	1 ½	17.36 gpm	150 feet	75 feet
SH	1 ½	17.36 gpm	150 feet	75 feet
BL	1 ½	17.36 gpm	150 feet	75 feet
E	1 ½	17.36 gpm	150 feet	75 feet
E-BFZ	1 ½	17.36 gpm	150 feet	75 feet



The map to the left is of the new “**Trinity Aquifer Management Zones**” across Bell County. Specific GIS map to your property showing the management zone can be viewed at: <https://clearwater.lre-up.com/map>.



### Contact Us

www.cuwcd.org

Phone: 254-933-0120

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.

# *Appendix H*

## ***CUWCD 2022 Education and Outreach Events***

<b>Date</b>	<b>People</b>	<b>Event Information</b>	<b>Presentation</b>	<b>Booth</b>
1/18/22	105	Bell County Crops Conference		X
2/15/22	47	Leadership Temple	X	
4/14/22	100	Local Public Works Departments	X	
5/13/22	20	Homeschool Presentation	X	X
4/28/21	50	Temple Lion's Club	X	
7/6/22	19	Texas A&M University – Central Texas STEM Camp	X	X
7/21/22	13	Leadership Central Texas	X	
9/12/22	32	Legislative and Groundwater Update Belton Chamber of Commerce	X	
9/19/22	26	Legislative and Groundwater Update Harker Heights Chamber of Commerce	X	
9/22/22	44	Bell County Conservation Expo	X	X
9/24/22	60	Bell County Master Gardener Plant Sale		X
10/1/22 – 10/2/22	650	Salado Sirena Fest		X
10/18/22	21	Homeschool Presentation	X	X
10/25/22	70	TACERA Professional Engineers Conference	X	
11/2/22	60	County Judge & Commissioners Conference	X	
11/16/22	187	Bell County Water Symposium	X	X
<b>Total reached</b>	<b>1,504</b>			

# *Appendix I*

**Results of Groundwater Samples in CUWCD Lab**

Test Date	District Well #	Latitude	Longitude	Elevation	Depth (ft)	Aquifer <sup>2</sup>	Coliform Bacteria <sup>3</sup>	Ecoli	Conductivity (µs/cm)	Total Dissolved Solids (mg/L)	Salinity (mg/L)	pH	Alkalinity (mg/L)	Hardness (mg/L)	Nitrite (mg/L)	Nitrate (mg/L)	Phosphate (mg/L)	Sulfate <sup>4</sup> (mg/L)	Fluoride <sup>4</sup> (mg/L)
<b>FY22</b>																			
10/1/2021	E-02-377G			556.86	20	Ozan	Not Tested	Not Tested	395	190		8.63	140	160	0.012	2.9	1.95	20	0.29
10/5/2021	E-20-108P			847.31	575	Middle Trinity	Not Tested	Not Tested	2310	1165		8.47	320	240	0.014	0.3	0.38	633	6.6
10/5/2021	E-21-024P			885.827	845	Lower Trinity	Not Tested	Not Tested	2144	1082		8.87	420	40	0.002	4.4	0.52	1	4.5
10/6/2021	E-21-046P			885.827	630	Middle Trinity	Not Tested	Not Tested	2350	1190		8.41	340	200	0.033	0.762	0.48	505	5
10/15/2021	E-12-017G			971.59	840	Middle Trinity	Present	Absent	1570	785		7.95	340	360	0.007	4.06	0.46	364	6.06
10/18/2021	E-21-039P			885.827	540	Middle Trinity	Not Tested	Not Tested	2220	1124		8.46	320	240	0.008	0.216	0.69	513	4.5
10/18/2021	E-21-069P			787.402	590	Middle Trinity	Not Tested	Not Tested	1230	612		8.86	320	60	0.003	0.264	0.44	152	3.4
10/18/2021	E-21-070P			763.01	880	Middle Trinity	Not Tested	Not Tested	1507	744		8.42	320	140	0.007	4.5	0.08	304	3.4
10/20/2021	E-17-053P			590.551	200	Edwards (BFZ)	Not Tested	Not Tested	1867	939		8.48	320	140	0.001	0	0.5	281	5.8
10/20/2021	N2-15-009P			524.934	150	Edwards (BFZ)	Not Tested	Not Tested	1644	820		8.79	320	20	0.051	0.8	0.18	227	5.7
10/22/2021	E-21-065P			945.87	790	Lower Trinity	Not Tested	Not Tested	2029	1024		9	400	40	0.006	0.135	0.75	30	3.8
10/27/2021	E-05-055P			860.72	560	Middle Trinity	Not Tested	Not Tested	2440	1238		8.28	340	300	0.003	1.79	0.76	672	6.5
11/9/2021	E-21-077P			656.168	850	Middle Trinity	Not Tested	Not Tested	1781	893		9.9	280	80	0.009	0.188	1.28	288	3
11/16/2021	E-17-003P			590.551	160	Edwards (BFZ)	Present	Absent	871	430		8	340	380	0.002	0.158	0.82	52	1.02
12/7/2021	E-03-349G			492.126	110	Edwards (BFZ)	Not Tested	Not Tested	683	333		8.14	280	340	0.004	2.6	0.12	57	1.04
12/7/2021	E-21-063P			721.785	300	Edwards (BFZ)	Not Tested	Not Tested	850	416		8.52	280	240	0.006	0.8	0.25	53	2.01
12/20/2021	E-21-021P			918.635	830	Middle Trinity	Not Tested	Not Tested	797	390		8.69	240	160	0.064	1	0.12	68	0.79
12/20/2021	E-21-076P			885.827	560	Middle Trinity	Not Tested	Not Tested	2138	1081		8.55	260	160	1.008	1.6	0.03	582	5.45
12/20/2021	E-21-087P			853.018	795	Middle Trinity	Not Tested	Not Tested	1377	686		10.29	220	100	0.02	0	0	287	2.5
1/13/2022	E-21-086P			688.976	870	Middle Trinity	Not Tested	Not Tested	1624	812		8.7	320	80	0.004	0.2	0.05	244	2.6
1/13/2022	E-21-064P			688.976	815	Middle Trinity	Not Tested	Not Tested	1349	666		8.74	320	100	0.003	0.6	0.13	154	2.4
1/25/2022	E-22-006P			754.593	800	Lower Trinity	Not Tested	Not Tested	2460	1248		8.72	400	60	0.011	0.152	0.04	16	5.8
1/26/2022	E-21-062P			721.785	930	Middle Trinity	Not Tested	Not Tested	1664	863		8.73	320	120	0.003	0.148	0.01	224	2.1
2/2/2022	E-22-006P			754.593	800	Lower Trinity	Not Tested	Not Tested	2200	1116		8.85	40	400	0.003	0.152	0.29	16	6.25
2/2/2022	E-22-007P			754.593	780	Lower Trinity	Not Tested	Not Tested	2200	1116		8.85	40	400	0.003	0.152	0.29	16	6.25
2/3/2022	E-21-084P			820.21	795	Middle Trinity	Not Tested	Not Tested	1130	565		9.18	240	100	0	0	0.11	158	2
2/10/2022	E-21-055P			1017.06	850	Middle Trinity	Not Tested	Not Tested	1755	887		8.7	380	120	0.007	0.5	0.13	325	5.7
2/11/2022	E-21-053P			656.168	860	Middle Trinity	Not Tested	Not Tested	1256	2470		8.69	360	140	0.001	0.9	0.14	543	3.3
2/11/2022	E-21-059P			599.66	150	Edwards (BFZ)	Not Tested	Not Tested	924	454		8.29	260	160	0.004	0.8	0.14	86	4.1
2/23/2022	E-05-079P			731.7	910	Middle Trinity	Not Tested	Not Tested	1369	679		8.88	340	100	0.002	0.062	0.1	155	2.5
2/23/2022	E-02-1104G			459.318	30.5	Alluvium	Not Tested	Not Tested	1008	496		8.03	260	360	0.008	37.8	0.09	51	0.84
3/16/2022	E-13-029P			656.168	930	Middle Trinity	Not Tested	Not Tested	3320	1708		8.57	360	240	0.006	2.53	2.39	864	7.85
3/31/2022	E-20-102P			820.21	830	Lower Trinity	Not Tested	Not Tested	2410	1228		8.6	380	180	0.006	0.3	0.22	387	5.7
3/31/2022	E-20-102P			820.21	830	Lower Trinity	Not Tested	Not Tested	2440	1240		8.5	380	120	0.006	1.7	0.12	321	6.85
3/31/2022	E-20-102P			820.21	830	Lower Trinity	Not Tested	Not Tested	2440	1239		8.45	420	80	0.012	0	0.26	288	5.7
4/1/2022	E-19-001P			688.976	410	Edwards (BFZ)	Not Tested	Not Tested	1384	691		8.72	300	160	0.002	0.056	0.2	197	4.85
4/20/2022	E-03-109G			955.21	490	Upper Trinity	Not Tested	Not Tested	1947	980		8.23	360	120	0	0.1	0	277	5.45
4/20/2022	E-03-113G			787.402	500	Lower Trinity	Not Tested	Not Tested	1038	515		8	340	200	0.006	0	0.3	154	0.8
4/20/2022	E-16-033G			879.25	490	Upper Trinity	Not Tested	Not Tested	845	414		7.93	340	300	0.003	0.2	0.1	110	0.35
4/20/2022	E-16-033G			879.25	490	Upper Trinity	Not Tested	Not Tested	845	414		7.93	340	300	0.003	0.2	0.1	110	0.35
4/20/2022	N2-07-009G			820.21	441	Middle Trinity	Not Tested	Not Tested	2250	1141		8.28	300	80	0.006	0.3	0.28	186	3.9
4/27/2022	N2-14-004P			721.785	1243	Lower Trinity	Not Tested	Not Tested		2240		7.9	392			0.03		288	2.83
4/27/2022	N2-14-004P			721.785	1243	Lower Trinity	Not Tested	Not Tested		2240		7.9	392			0.03		288	2.83
4/27/2022	E-21-071P			688.976	80	Edwards (BFZ)	Not Tested	Not Tested	803	299		7.96	340	380	0.027	1.5	0.24	15	0.25
4/27/2022	E-22-011P			688.976	900	Middle Trinity	Not Tested	Not Tested	1675	841		8.27	320	180	0	0.1	0.1	312	2.5
4/28/2022	E-22-012P			885.827	830	Middle Trinity	Not Tested	Not Tested	1179	584		9.8	220	80	0.003	0.122	0.29	255	2.55
5/17/2022	N2-14-005P			426.509	2850	Lower Trinity	Not Tested	Not Tested	2067	1043		8.96	360	40	0.003	0.7	0.27	281	2.4
5/17/2022	E-21-078P			721.785	890	Middle Trinity	Not Tested	Not Tested	1787	897		8.72	340	100	0.019	0.8	0.06	328	3.45
5/18/2022	E-22-038GU			853.018	550	Middle Trinity	Not Tested	Not Tested	1725	862		8.62	640	160	0.004	0.97	2.64	361	2.5
6/2/2022	E-22-039G			557.743	155	Edwards Equivalent	Not Tested	Not Tested	1005	488		8.43	320	280	0.005	0.2	0.18	83	1.72
6/2/2022	E-22-040GU			524.934	100	Edwards (BFZ)	Not Tested	Not Tested	1005	488		8.43	320	280	0.005	0.2	0.18	83	1.72
6/3/2022	E-22-039G			557.743	155	Edwards Equivalent	Not Tested	Not Tested	790	386		8.06	300	320	0.004	1.9	0.04	29	0.34

6/3/2022	E-02-799G			735.37	180	Edwards (BFZ)	Not Tested	Not Tested	635	307		8.16	280	280	0.001	1.6	0.11	6	0.55
6/3/2022	E-21-042P			524.934	960	Middle Trinity	Not Tested	Not Tested	1696	850		8.92	280	120	0.001	0	0.06	280	2.7
6/6/2022	E-21-085P			951.444	380	Upper Trinity	Not Tested	Not Tested	3610	1864		8.47	340	280	0.003	1.2	0.04	784	6.05
6/6/2022	E-21-089P			754.593	350	Middle Trinity	Not Tested	Not Tested	1859	936		8.77	400	60	0.061	0.5	0.1	108	8.2
6/15/2022	E-18-021P			590.551	160	Edwards (BFZ)	Not Tested	Not Tested	1675	839		8.55	320	120	0.009	0.9	0.49	297	5.5
6/15/2022	E-21-057P			754.593	560	Middle Trinity	Not Tested	Not Tested	2820	1445		8.27	360	240	0.046	0	0.27	914	4.5
6/15/2022	E-21-072P			688.976	890	Middle Trinity	Not Tested	Not Tested	1402	693		8.97	360	100	0.003	0.5	0.56	218	2.5
6/15/2022	E-22-001P			951.444	840	Middle Trinity	Not Tested	Not Tested	937	461		8.31	320	160	0.001	0.2	0.07	78	1
6/21/2022	E-22-005P			459.318	18	Alluvium	Not Tested	Not Tested	819	401		7.41	200	220	0.008	0.944	0.22	37	0.53
6/23/2022	E-21-006P			721.785	170	Edwards (BFZ)	Not Tested	Not Tested	1601	802		8.06	280	520	0.099	3.48	0.62	349	0.47
6/23/2022	E-21-007P			688.976	160	Edwards (BFZ)	Not Tested	Not Tested	619	301		8.13	260	280	0.004	2.6	0.1	17	0.29
6/28/2022	E-02-2829G			734.59	650	Middle Trinity	Absent	Absent	1872	941		8.8	360	100	0.02	0	0.49	415	2.84
7/1/2022	N2-07-012G			656.168	380	Upper Trinity	Not Tested	Not Tested	2040	1030		8.92	380	80	0	0.6	0.28	248	2.05
7/1/2022	E-20-040GU			688.976	165	Edwards (BFZ)	Not Tested	Not Tested	618	301		8.06	260	280	0.017	3.7	0.13	15	0.35
7/7/2022	E-18-058G			853.018	790	Middle Trinity	Not Tested	Not Tested	2950	1509		8.53	280	280	0.294	0	0.9	896	6.35
7/7/2022	E-17-023G			510.17	35	Alluvium	Absent	Present	556	270		8.37	280	120	0.007	0	0.25	5	0.6
7/14/2022	E-17-039P			656.168	400	Edwards (BFZ)	Absent	Absent	1928	964		8.79	360	120	0	0.084	0.64	294	6.25
7/18/2022	E-21-073P			820.21	436	Middle Trinity	Not Tested	Not Tested	1260	625		9.13	340	60	0.038	0.186	0.36	133	3.9
8/11/2022	E-22-034P			853.018	570	Lower Trinity	Not Tested	Not Tested	2086	1057		8.81	420	80	0.003	0	0.15	107	5.75
8/11/2022	E-16-002P			723.96	870	Middle Trinity	Absent	Absent	1552	766		8.9	360	80	0.001	0.131	0.49	191	2.25
8/11/2022	E-22-025P			754.593	400	Middle Trinity	Not Tested	Not Tested	1920	966		8.94	420	80	0.028	0.3	0.2	98	5.9
8/12/2022	E-22-033P			820.21	535	Middle Trinity	Not Tested	Not Tested	1730	869		8.61	380	160	0.168	0.144	0.15	324	5.5
8/24/2022	E-22-018P			951.444	450	Middle Trinity	Not Tested	Not Tested	3290	1697		8.45	340	340	0.049	1.2	0.14	762	4.4
8/24/2022	E-22-024P			754.593	560	Middle Trinity	Not Tested	Not Tested	2800	1445		8.42	380	220	0.001	0.9	0.07	805	6.65
8/25/2022	E-05-045P			594.57	220	Edwards (BFZ)	Not Tested	Not Tested	1177	582		8.29	360	260	0.004	0.9	0.12	121	2.3
8/25/2022	E-22-066P			754.593	880	Middle Trinity	Not Tested	Not Tested	1067	526		8.03	320	260	0.004	0	0.8	90	1.15
8/31/2022	E-22-036P			656.168	730	Middle Trinity	Not Tested	Not Tested	2810	1439		8.84	500	120	0.031	0.765	1.02	580	8.5
9/1/2022	E-21-017P			918.635	380	Upper Trinity	Not Tested	Not Tested	3770	1954		8.44	380	260	0	0.159	0.01	638	3.65
9/8/2022	E-05-010P			705.9	140	Edwards (BFZ)	Not Tested	Not Tested	672	327		8.15	300	280	0.005	2.7	0.08	15	0.22
9/8/2022	E-22-057P			721.785	98	Edwards (BFZ)	Not Tested	Not Tested	738	365		8.11	360	320	0.027	0.2	0.11	24	0.64
9/15/2022	E-22-003P			754.593	610	Middle Trinity	Not Tested	Not Tested	1145	563		8.44	340	140	0.008	0.8	0.14	140	2.4
9/15/2022	E-22-032P			820.21	638	Lower Trinity	Not Tested	Not Tested	2790	1428		8.75	520	100	0.003	0.3	0.17	114	4.95
9/15/2022	E-22-035P			984.252	750	Lower Trinity	Not Tested	Not Tested	1145	563		8.44	340	140	0.008	0.8	0.14	140	2.4

# *Appendix J*



## Salado Spring Samples

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
Big Boiling -97.536574 30.943783	21-Sep-16	156	48	7.96	284	584	4.26	0.003	0.315			
	16-Feb-17	119	46	7.57	355	727	4.28	0.007	0.341			
	21-Feb-17	208	120	7.69	293	602	2.9	0.002	0.31			
	25-May-17	150	32	8.02	286	587	1.8	0.006	0.3			
	30-May-17	2:50	30	7.65	287	592	4.5	0.000	0.01			
	29-Jun-17	925	28	7.58	286	587	2.1	0.001	0.3			
	5-Jul-17	10:56	25	7.94	293	602	4.02	0.003	0.26			
	11-Aug-17	1245	21	7.84	294	602	1.8	0.004	0.2			
	14-Aug-17	1102	16	7.64	295	606	2.1	0.002	0.3			
	12-Mar-18	200	12	8.02	290	600		0.002	0.3			
	19-Mar-18	301	22	7.83	291	597		0	0.3			
	23-Mar-18	216	12	7.93	292	601		0.003	NT			
	26-Mar-18	944	12	8.02	290	596		0.003	NT			
	11-Sep-18	1028	23	8.05	297	612		0	0.2			
	29-May-19	1120	122	8.2	320	667		0.005	0.5			
	22-Jun-20	942	11	8.06	287	590		0.008	NT			
	13-Jul-20	215	10	8.06	282	583	4.29	0.002	NT			
	28-Jul-20	1042	10	7.84	296	609	4.48	0.016	NT			
	31-Aug-20	926	6	8.2	290	595	3.8	0.024	NT	7.38	85.2	
	10-Sep-20	1017	18	7.98	298	612	3.1	0.022	NT	7.65	86.5	
3-Dec-20	830	12	8.02	293	604	4.1	0.003	NT	7.49	84.7		
2-Jun-21	113	116	7.99	300	616	3.3	0.004	NT	6.37	73.1	0.45	
22-Jun-21	203	547	8.09	295	605	4.7	0.006	NT	7.48	85.3	0.39	
23-Sep-21	1015	18	7.97	296	609	2.8	0.002	NT	7.56	85.7	0.13	
18-Oct-21	1007	14	7.98	298	615	2.9	0	NT	7.26	85.2	0.04	
20-Jun-22	913	11	7.92	298	614	2.4	0.001	NT	7.32	85.5	0.03	

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
Side Spring -97.536704 30.943861	21-Sep-16	214	48	7.77	284	584	4.34	0.003	0.346			
	16-Feb-17	122	46	7.57	295	608	4.29	0.004	0.296			
	21-Feb-17	210	120	7.66	293	602	2.3	0.004	0.38			
	25-May-17	153	32	7.96	286	593	2.8	0.001	0.2			
	30-May-17	2:52	30	7.81	279	575	2.1	0.000	0.01			
	29-Jun-17	928	28	7.63	284	582	1.8	0	0.3			
	5-Jul-17	10:57	25	7.89	291	599	3.96	0.005	0.22			
	11-Aug-17	1247	21	7.77	290	595	2.9	0.002	0.2			
	14-Aug-17	1105	16	7.63	294	603	2.2	0.004	0.3			
	12-Mar-18	203	12	8.07	294	605		0.006	0.3			
	19-Mar-18	303	22	7.87	291	597		0.002	0.3			
	23-Mar-18	218	12	8.03	293	603		0	NT			
	26-Mar-18	946	12	8.07	290	598		0.005	NT			
	11-Sep-18	1030	23	8.1	299	616		0.002	0.3			
	29-May-19	1122	122	8.04	297	611		0.004	0			
	22-Jun-20	941	11	8.11	285	587		0.003	NT			
	13-Jul-20	217	10	8.07	283	582	4.31	0.001	NT			
	28-Jul-20	1043	10	7.95	296	608	4.62	0.019	NT			
	31-Aug-20	928	6	8.29	287	592	4.3	0.016	NT	7.47	86.7	
	10-Sep-20	1020	18	7.92	297	611	3.9	0.018	NT	7.07	80.3	
	3-Dec-20	828	12	8.07	293	603	4.6	0.009	NT	7.54	83.6	
	2-Jun-21	116	116	8.09	301	621	1.5	0.008	NT	6.07	69.2	0.32
	22-Jun-21	207	547	8.14	293	604	3.4	0.005	NT	7.08	80.7	0.67
23-Sep-21	1018	18	7.94	296	610	4.5	0.004	NT	8.5	96.4	0.06	
18-Oct-21	1008	14	7.96	299	614	2.4	0.004		7.65	81.2	0	
20-Jun-22	916	11	7.92	299	616	2.9	0	NT	7.25	84.5	0.15	

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
Critchfield	21-Sep-16	244	48	7.73	285	586	4.18	0.003	0.368			
	16-Feb-17	136	46	7.56	295	607	4.3	0.005	0.262			
-97.534881 30.943319	21-Feb-17	222	120	7.63	293	601	3.1	0.005	0.21			
	25-May-17	200	32	7.89	289	593	1.9	0.005	0.3			
	30-May-17	2:57	30	7.68	293	602	2.5	0.002	0.27			
	29-Jun-17	935	28	7.6	290	597	2.1	0.002	0.2			
	5-Jul-17	11:03	25	7.83	292	600	3.93	0.004	0.23			
	11-Aug-17	1257	21	7.75	295	608	3.4	0.002	0.2			
	14-Aug-17	1110	16	7.6	293	604	3.4	0.003	0.2			
	12-Mar-18	215	12	7.94	287	587		0.002	0.3			
	19-Mar-18	305	22	8.08	278	573		0.007	0.2			
	23-Mar-18	223	12	7.89	286	589		0.007	NT			
	26-Mar-18	950	12	7.98	290	598		0.009	NT			
	11-Sep-18	1038	23	8.06	287	592		0.011	0.3			
	29-May-19	1131	122	8	297	611		0.004	0			
	22-Jun-20	953	11	7.89	298	616		0.005	NT			
	13-Jul-20	224	10	7.83	296	608	4.16	0.002	NT			
	28-Jul-20	214	10	7.84	297	611	4.31	0.024	NT			
	31-Aug-20	940	6	8.13	289	593	4	0.016	NT	3.09	36.7	
	10-Sep-20	1030	18	7.86	297	612	2.3	0.017	NT	5.53	61.1	
	3-Dec-20	852	12	7.96	294	606	4.5	0.027	NT	7.64	75.2	
	2-Jun-21	125	116	7.9	307	637	2.8	0.002	NT	6.21	71.2	0.25
22-Jun-21	218	547	8.05	302	623	3.1	0	NT	6.45	73.9	0.58	
23-Sep-21	1027	18	7.93	297	611	3.4	0	NT	8.5	96	0.06	
18-Oct-21	1015	14	7.96	298	614	3.5	0	NT	6.18	71.5	0.03	
20-Jun-22	926	11	7.9	303	622	2.7	0.007	NT	4.22	65.3	1.75	

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
Doc Benedict -97.534948 30.943967	21-Sep-16	251	48	7.92	288	598	4.08	0.003	0.273			
	16-Feb-17	142	46	7.55	295	608	3.99	0.005	0.345			
	21-Feb-17	245	120	7.62	297	602	2.3	0.004	0.39			
	25-May-17	205	32	7.82	296	611	2.3	0.006	0.3			
	30-May-17	3:06	30	8.09	288	592	2.3	0.002	0.42			
	29-Jun-17	940	28	7.55	271	558	2.1	0.008	0.2			
	5-Jul-17	11:07	25	7.81	293	603	3.85	0.004	0.26			
	11-Aug-17	100	21	7.71	295	602	3.5	0.001	0.2			
	14-Aug-17	1115	16	7.58	293	602	2.1	0.002	0.3			
	12-Mar-18	219	12	7.95	290	599		0	0.3			
	19-Mar-18	315	22	8.01	286	590		0.012	0.3			
	23-Feb-18	228	12	7.89	294	604		0	NT			
	26-Mar-18	953	12	7.96	290	596		0.001	NT			
	11-Sep-18	1045	23	7.92	294	604		0	0.3			
	29-May-19	1140	122	7.96	305	628		0.001	0.5			
	22-Jun-20	955	11	7.89	395	607		0.006	NT			
	13-Jul-20	227	10	7.95	287	592	4.31	0.001	NT			
	28-Jul-20	158	10	7.82	297	612	4.47	0.02	NT			
	31-Aug-20	945	6	8.09	292	601	3.9	0.027	NT	8.23	95.1	
	10-Aug-20	1037	18	7.79	297	611	2.7	0.017	NT	7.42	83.9	
	3-Dec-20	858	12	7.95	294	604	4.7	0.003	NT	7.49	83.4	
2-Jun-21	134	116	7.88	303	624	2.2	0.007	NT	6.22	71.7	0.61	
22-Jun-21	225	547	8.03	303	620	1.1	0.004	NT	6.08	70.5	0.69	
23-Sep-21	1032	18	7.93	298	613	3.2	0.005	NT	8.49	96.1	0.14	
18-Oct-21	1018	14	7.94	299	615	1.9	0.006	NT	7.24	81.3	0.16	
20-Jun-22	930	11	7.92	303	623	2.8	0.005	NT	6.82	77.4	0.6	

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
Anderson	21-Sep-16	300	48	7.87	284	584	4.18	0.005	0.354			
	16-Feb-17	152	46	7.72	297	612	3.99	0.008	0.473			
-97.534503	21-Feb-17	251	120	7.58	295	608	2.4	0.002	0.44			
30.944111	25-May-17	210	32	7.78	295	606	0.9	0.006	0.3			
	30-May-17	3:13	30	7.86	294	604	3.9	0.000	0.27			
	29-Jun-17	945	28	7.59	291	599	2.5	0	0.3			
	5-Jul-17	11:11	25	7.79	292	602	3.88	0.004	0.26			
	11-Aug-17	105	21	7.59	292	600	1.7	0.11	0.1			
	14-Aug-17	1120	16	7.66	291	598	1.9	0.006	0.3			
	12-Mar-18	222	12	7.84	288	596		0.009	0.3			
	19-Mar-18	318	22	7.96	287	589		0.004	0.3			
	23-Mar-18	232	12	7.86	288	594		0.002	NT			
	26-Mar-18	956	12	7.91	290	598		0.001	NT			
	11-Sep-18	1052	23	7.93	291	599		0.003	0.3			
	29-May-19	1146	122	7.93	298	616		0.003	0.5			
	22-Jun-20	1000	11	7.84	298	614		0.01	NT			
	13-Jul-20	231	10	7.88	296	609	4.1	0.022	NT			
	28-Jul-20	202	10	7.74	297	612	4.47	0.023	NT			
	31-Aug-20	953	6	7.98	299	614	3.3	0.34	NT	7.79	89.8	
	10-Sep-20	1042	18	7.81	297	611	3	0.021	NT	7.18	81.1	
	3-Dec-20	906	12	7.91	294	606	3.1	0.006	NT	7.3	81	
	2-Jun-21	140	116	7.8	309	627	1.5	0.006	NT	7.83	95.2	0.45
	22-Jun-21	237	547	8.02	290	596	3.8	0.002	NT	7	81.2	4.97
	23-Sep-21	1040	18	7.92	298	612	2.3	0.004	NT	8.73	98.5	0.29
	18-Oct-21	1022	14	7.93	298	612	3	0.007	NT	7.42	85.6	0.02
	20-Jun-22	936	11	7.92	301	620	2.9	0.002	NT	7.35	81.4	0.2

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
Upstream	21-Sep-16	224	48	8.05	241	499	2.58	0.008	0.235			
	16-Feb-17	124	48	7.59	242	500	2.05	0.017	0.326			
-97.536988	21-Feb-17	212	120	7.73	201	417	0.1	0.002	0.3			
30.943897	25-May-17	156	32	8.22	240	493	1.9	0.003	0.3			
	30-May-17	2:55	30	7.9	232	479	2.4	0.005	0.26			
	29-Jun-17	930	28	7.61	250	514	2.3	0.008	0.3			
	5-Jul-17	10:58	25	7.83	265	546	3.1	0.012	0.23			
	11-Aug-17	1250	21	7.66	235	487	2.1	0.014	0.1			
	14-Aug-17	1107	16	7.71	254	524	1.2	0.013	0.3			
	12-Mar-18	205	12	8.32	242	499		0.007	0.2			
	19-Mar-18	305	22	7.93	224	463		0.008	0.2			
	23-Mar-18	220	12	8.23	242	603		0.006	NT			
	26-Mar-18	948	12	8.15	241	498		0.008	NT			
	11-Sep-18	1032	23	8.38	162	338		0.013	0			
	22-Jun-20	939	11	8.25	259	534		0.003	NT			
	13-Jul-20	205	10	8.38	262	540	3.48	0.019	NT			
	28-Jul-20	1032	10	8.44	275	575	3.33	0.044	NT			
	31-Aug-20	912	6	7.98	267	551	2.9	0.052	NT	7.7	96.4	
	10-Sep-20	950	18	8.56	274	562	2.5	0.032	NT	5.83	65	
	3-Dec-20	1110	12	8.67	262	543	1.4	0.016	NT	9.94	96.7	
	2-Jun-21	100	116	8.32	207	430	0.3	0.006	NT	6.94	79.2	12.73
	22-Jun-21	153	547	8.61	109	229	0	0.02	NT	6.46	79.9	257
	23-Sep-21	1000	18	8	295	606	2	0.006	NT	8.73	98.1	0.81
	18-Oct-21	955	14	8.02	278	574	2.4	0.006	NT	8.14	93.1	1.02
	20-Jun-22	900	11	8.2	290	595	1.7	0.025	NT	7.86	91.3	3.77

	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
<u>Location</u>	21-Sep-16	315	48	7.99	253	523	2.99	0.005	0.312			
	16-Feb-17	156	46	7.81	253	522	2.43	0.014	0.159			
Down stream	21-Feb-17	254	120	7.81	211	438	1.20	0.008	0.260			
	25-May-17	215	32	7.78	257	529	2.00	0.005	0.200			
-97.533989	30-May-17	3:17	30	7.86	257	530	2.60	0.003	0.290			
39.944543	29-Jun-17	950	28	7.61	292	601	2.4	0.004	0.2			
	5-Jul-17	11:13	25	7.8	278	573	3.56	0.006	0.22			
	11-Aug-17	110	21	7.69	263	542	2.4	0.005	0.2			
	14-Aug-17	1125	16	7.73	272	563	2.2	0.01	0.2			
	12-Mar-18	230	12	7.83	270	557		0.002	0.3			
	19-Mar-18	322	22	8.35	260	529		0.003	0.3			
	23-Mar-18	235	12	7.89	270	557		0.005	NT			
	26-Mar-18	1000	12	7.94	269	554		0.006	NT			
	11-Sep-18	1056	23	8.02	191	396		0.012	0.1			
	22-Jun-20	1005	11	7.86	283	581		0.009	NT			
	13-Jul-20	234	10	7.87	291	599	3.91	0.024	NT			
	28-Jul-20	207	10	7.84	277	570	3.84	0.017	NT			
	31-Aug-20	1002	6	7.92	291	603	3.8	0.035	NT	8.34	101.1	
	10-Sep-20	1051	18	7.8	269	556	3	0.033	NT	8.13	91.5	
	3-Dec-20	912	12	7.91	281	578	4	0.17	NT	8.91	91.2	
	2-Jun-21	149	116	7.92	220	456	1.6	0.005	NT	8.09	92.3	8.69
	22-Jun-21	241	547	8.24	130	291	0	0.023	NT	6.52	80.4	208
	23-Sep-21	1050	18	7.91	293	605	3.4	0.004	NT	8.85	99.8	1.01
	18-Oct-21	1028	14	7.97	274	564	1.4	0.008	NT	8.54	90.8	0.7
	20-Jun-22	942	11	7.92	290	600	2.1	0.006	NT	8.45	88.7	0.77

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
Cave Well -97.53777 30.942044	13-Nov-15	unk	unk	unk	279	575	4.00	0.002	0.200			
	22-Sep-16	400	48	7.69	285	588	4.32	0.004	0.341			
	16-Feb-17	214	46	7.65	294	608	4.31	0.005	0.293			
	21-Feb-17	308	120	7.75	293	603	4.20	0.000	0.400			
	25-May-17	225	32	7.77	292	601	2.20	0.003	0.300			
	30-May-17	3:29	30	7.66	292	602	1.30	0.003	0.020			
	11-Aug-17	140	21	7.6	293	603	3	0.003	0.1			
	19-Mar-18	333	22	7.9	284	582		0.001	0.3			
	23-Mar-18	242	12	7.87	292	601		0.002	NT			
	26-Mar-18	1009	12	7.89	290	599		0.002	NT			
	11-Sep-18	1110	23	7.93	289	594		0.004	0.3			
	22-Jun-20	1027	11	7.83	296	609		0.005	NT			
	13-Jul-20	242	10	7.85	297	610	4.41	0.019	NT			
	28-Jul-20	222	10	7.81	296	611	4.63	0.026	NT			
	31-Aug-20	1015	6	7.9	296	609	4	0.028	NT	7.38	85.2	
	10-Sep-20	1100	18	7.79	295	602	4.2	0.029	NT	6.89	78	
	3-Dec-20	1120	12	7.93	293	605	4.7	0.015	NT	7.67	85.6	
	2-Jun-21	215	116	7.87	298	614	3.6	0.003	NT	8.4	97.7	0.14
	22-Jun-21	258	547	8	294	605	3.7	0.008	NT	7.57	86.5	0.8
	23-Sep-21	1104	18	7.9	298	611	3.4	0.002	NT	8.56	97	0
18-Oct-21	1037	14	7.95	298	612	3.2	0.004	NT	8.23	95.2	0.02	
20-Jun-22	956	11	7.92	302	622	2.7	0.004	NT	7.89	87.5	0.2	

<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>CFS</u>	<u>PH</u>	<u>TDS</u>	<u>Cond.</u>	<u>Nitrates</u>	<u>Nitrites</u>	<u>Fluoride</u>	<u>DO mg/L</u>	<u>DO %</u>	<u>Turbidity</u>
Robertson -97.540273 30.944542	12-Mar-18	145	12	8.58	297	617	7.3	0	0			
	19-Mar-18	254	22	7.89	285	589	5.7	.11	0.3			
	23-Mar-18	210	12	8.56	294	615		0.001	NT			
	26-Mar-18	935	12	8.53	311	653		0.003	NT			
	11-Sep-18	1017	23	8.5	205	424		0.027	0			
	22-Jun-20	932	11	8.48	284	592		0.003	NT			
	13-Jul-20	250	10	8.02	301	617	4.29	0.001	NT			
	28-Jul-20	235	10	8.03	297	611	4.61	0.021	NT			
	10-Sep-20	950	18	8.56	274	562	2.5	0.007	NT	7.71	86	
	3-Dec-20	1130	12	8.26	291	599	2.9	0.025	NT	8.87	97	
	2-Jun-21	230	116	8.2	299	612	2.4	0.004	NT	7.04	85.5	1.75
	22-Jun-21	315	547	8.22	284	583	2.1	0.01	NT	7.54	86.3	0.38
	23-Sep-21	1113	18	8.08	297	612	4.7	0.005	NT	8.83	99.6	1.21
	18-Oct-21	1046	14	8.12	278	609	3.5	0.005	NT			0.35



# *Appendix K*

# Salado Salamander Monitoring Final Report 2022



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## **Executive Summary**

Monitoring of the Salado salamander (*Eurycea chisholmensis*) concluded in January of 2023 finalizing the eighth year of monitoring by the Texas Fish and Wildlife Conservation Office (TXFWCO) at the Salado Downtown Spring Complex (DSC) and at Robertson Springs in Bell County (Figure 1). A total of three Salado salamanders were detected this year at Robertson and the DSC. A single salamander was collected at Anderson, Big Boiling, and from Middle Spring on the Robertson Ranch. Robertson Springs ceased flow by August and did not begin to flow again for the remainder of the year. Flow at Side Spring in the DSC continued to decrease until the flow began from below the orifice through the alluvial sediments. All salamanders were captured during active searches. This was the second lowest average year for discharge on Salado Creek during our monitoring period since 2015.

Monitoring continued at Solana Ranch Spring #1 (SR1), providing a fourth year of quarterly data. A total of 114 detections, made up of 58 individual salamanders (determined through photographic analysis) were documented over the seasonal monitoring period. Over 90% of the of salamanders captured at SR1 were adults.

An additional spring site known as Kings Garden on the Tres Palacios Tract was added to the overall monitoring program for the Salado salamander. This site was visited three times during 2022 and during each visit salamanders were detected (n=31). No recaptures were documented. Sampling protocols followed the TXFWCO Salado salamander monitoring protocol.

Over eight years of monitoring by the TXWFCO, we have added one new Salado salamander location at Anderson Spring in the DSC. At the time there were only a few sites where the salamander had been documented. There have been three peer reviewed publications relating to the Salado salamander (Diaz et al. 2020; Nice et al. 2021; Diaz et al. 2023 in press). In addition, four peer reviewed publications describing the aquifer community and species present in this northern section of the Edwards Aquifer have come from the Salado salamander work ([Okan Klkylođlu et al. 2017](#); Gibson et al. 2020; Alvear, Dominique et al. 2020a; Alvear, Dominique et al. 2020b). This information will be valuable and aid in management decisions as the Village of Salado, Bell County and the northern portion of Williamson County continue to expand their conservation into the future.

## Introduction

The Salado salamander (*Eurycea chisholmensis*) was first described as a species in 2000 (Chippindale et al. 2000). Although the salamander had been discovered earlier and was in a collection kept at Baylor University by B.C. Brown, no formal description had been made. In addition, collecting individuals from this population proved to be difficult (Chippindale et al. 2000). Due to the limited knowledge about the species (population density, life history patterns), potential threats (dewatering and urbanization), and limited geographical range, this species was listed as threatened by the U.S. Fish and Wildlife Service (USFWS) on February 21, 2014. Critical habitat was designated in 2021 and more information can be found at <http://www.fws.gov/southwest/es/austintexas>.

The Salado salamander is the most northern population of fully aquatic *Eurycea* in Texas. The species is highly restricted geographically and is hypothesized to have a very low population within Central Texas (Norris et al. 2012). Nice et al. (2021) presented an analysis on the effective population size, showing that the northern populations (i.e. DSC, Robertson, Solana) have a lower effective population size compared to sampled populations in the southern group of Salado salamanders (Cowan Creek Spring and Twin Springs).

Before monitoring by TXFWCO, there was no active research or monitoring program in place for this species. In addition, the known community structure of aquifer dwelling species in the northern segment of the aquifer was not well studied. Due to these gaps in scientific knowledge of the species and the aquifer, the TXFWCO has been collecting data on habitat associations, reproduction, seasonality, surface densities, and the aquifer community with the intent of creating a long term data set for the species within its known geographical range.

## Methods

Sampling was conducted quarterly this year at the DSC, Robertson Springs, and SR1 (Figure 1). The DSC consists of Big Boiling, Side Spring, and Anderson Spring. Sampling at Kings Garden Spring was done when time was available, but followed the same methods as Solana listed below. Timed searches were used at Robertson, while Side and Anderson spring were searched entirely due to the small area of the springs. Solana Ranch Spring #1 was sampled from the spring orifice to a location where the spring run fans out and enters the main channel. Areas where the water emerged from under the gravel and cobble pile were searched. Another smaller spring adjacent to the main spring was also entirely searched (from spring run to spring

orifice) each visit. Sampling at Kings Garden was done from the spring orifice to a pool. The pool creates a shift from a cobble and gravel run to silt substrates, which appear to be present due to the slower flowing water in the pool.

All springs were actively searched by uniformly turning over rocks, sifting through vegetation, and debris. During timed searches all mesohabitats were searched for salamanders. Salamanders were captured using small aquarium nets. Captured salamanders were placed into mesh bags and kept in the spring run for processing.

Drift nets with 250  $\mu\text{m}$  mesh were used for passive sampling at Robertson and SR1 when spring flow was available. Nets were left in place for seven days to passively collect organisms as part of the monitoring regime. Aquatic invertebrates captured during this sampling were taken back to the lab, sorted, identified, and enumerated. Most taxa were photographed using a dissecting scope with certain taxa sent to experts for identification.

If a salamander was captured during any survey the primary substrate and vegetation were documented. If a salamander was captured in the drift net placed over an orifice, a designation of cave conduit was applied for substrate. All captured salamanders had two sets of photographs taken. First, photographs alongside a ruler were taken to determine total length of the salamander (mm) using the program ImageJ (Schneider et al. 2012). Following that, a close-up photograph of the head was taken and analyzed with the program WildID (Bolger et al. 2012) to determine if any individuals were recaptures (Bendik et al. 2013).

Due to low surface densities encountered at the sites over the years, the data have been collapsed and examined cumulatively. As in previous reports the overall dataset has been updated to include the 2022 collections. Data was grouped into seasonal blocks for a size distribution analysis. The relative abundance of salamanders was calculated for each season separated into size classes. Size classes are from 0-19, 20-29, 30-39, 40-49, 50-59, 60-69 mm; 1, 2, 3, etc. respectively. Associated substrate and vegetation percentages were updated to reflect the new collections.

Solana Ranch Spring #1 statistical analysis included probability of capture from quarterly data collected from 2020 – 2022 (n=553). The probability calculations marked each time a salamander was captured and identified as “1”, therefore the capture history of a salamander for 2019 may resemble 101001 (six number places for six events, 0 = not detected, 1 = detected). For this example, the probability is the sum of the captures divided by the number of events,

therefore, 0.5. Examining the average probabilities of capture history provides some insight into the effort of sampling between years.

Water level and flow data was collected from the Cemetery Well (Monitor well #5804628) and from the USGS gauge on the Salado Creek (USGS #08104300) from 2014 to 2022. This data was plotted with the total collection of salamanders from each year of sampling since 2015. This analysis was conducted to determine if there is an indicator for the issuance of spring flow at Robertson, and to identify preliminary trends associated with the salamander collections.

## Results

### *Robertson and Downtown Spring Complex*

A total of three salamanders were detected at Robertson and the DSC (Table 1). Of these three, two were juveniles (< 25 mm total length; Bowles et al 2006) and one was marginally an adult, 25.58 mm, well within the margin of error from photographs. Two were captured from the DSC, at Big Boiling Spring (n = 1) and Anderson Spring (n = 1). Robertson Springs produced one salamander from Middle Spring (Figure 2). By August of 2022 Robertson Springs complex was completely dry to the confluence of Salado Creek. Spring flows at Robertson had still not returned by the last sampling event in January of 2023. Drift netting captured zero salamanders at Robertson Springs. Drift net sampling was not used at the DSC in 2022.

A total of 179 Salado salamanders have been captured since 2015. Three salamanders do not have associated substrate or vegetation data, leaving 176 salamanders to examine with substrate and vegetation associations. A total of 67 (38%) salamanders were captured in drift nets, presumably leaving the aquifer. Of the remaining 109 salamanders caught on the surface, 73 (66%) were caught in gravel as the primary substrate, and 28 (25%) were caught in cobble as the primary substrate (Table 2). Other substrates included boulder, sand and silt. Data from past habitat sampling at Robertson Springs has shown around 50% of the substrate to be silt (Diaz et al. 2016). Salamanders have been captured different types of vegetation, but 47 (43%) were associated with watercress (*Nasturtium* sp.), and 43 (39%) were captured in areas with no vegetation.

From the 179 total individuals detected, 172 were used to examine the temporal shift in size for surface populations at the DSC and Robertson Springs. The updated temporal shift in

surface population size classes displays a classic progression from smaller to larger, over the course of the year (Figure 3). In spring, the majority of salamanders captured were in the smallest size class ranging from 10 to 19 mm. The spring trend line shows (dashed blue line) a minimal bimodal hump, with a smaller hump in the fifth size class. In summer (solid green line), the smallest size class is still prevalent by one salamander, however, the second hump in the third size class is comparable. During fall (dot and dash purple line), the community is dominated by the fourth size class. The winter trend line (dotted red) is similar to the fall line except the initial hump of the line is in the first size class rather than the second size class as in fall. Overall, more salamanders have been detected in spring, with the fewest detected in winter.

### *Solana Ranch Spring #1*

A total of 116 salamanders were captured at SR1 during 2022 monitoring. After removing recaptures of individual adult salamanders, the capture history shows that 58 individual adult salamanders were detected and photographed during 2022. The number of recaptures from the previous year were similar to 2021. However the actual number of new individuals was lower compared to previous years (Table 3). Probabilities for recapture are listed in Table 3 and are similar between sampling events from the last three years.

Five of the 116 salamanders were considered juveniles (<25 mm). Reviewing salamanders capture data dating back to 2017, the majority of the surface captures were adults (92%). The size average, based on the 558 salamanders detected since 2017, is 52.22 mm. The largest Salado salamander (87 mm) captured to date was in October 2020.

The temporal shifts in size class follow the same trends as the DSC and Robertson data, but the overall population exhibits larger salamanders on the surface year-round (Figure 4). During the fall there have been no documented occurrences of salamanders in the first or second size class. This type of graph when compared to individual graphs from the other springs in the monitoring area highlight the permanence of the spring at Solana Ranch by exhibiting most of the salamander community at size classes 4 – 6 throughout the year (Figure 5).

### *Stream Flow and Well Height Data*

This analysis shows the tracking of the Cemetery Well with the capture of salamanders (Figure 6). The Cemetery Well has an inverse relationship with salamander abundance at Robertson Springs (Figure 7). Salamanders were captured at Robertson Spring when levels at the Cemetery Well ranged from 12 to 75 feet below the surface. Although there have been varying



levels of effort over the years, if the springs are dry no salamanders will be surfacing. Once the springs on the Robertson property go dry a large percentage of salamanders are removed from the overall potential total at year end. Only when flows return to the springs at the Robertson property do the probabilities of capturing a salamander return. This year, the flows did not return at the end of the year as they have in the past and flows from the productive spring zones at Robertson began to noticeably recede in early June.

## **Discussion**

The low number of encounters with Salado salamanders in 2022 was due to the lack of rain and an ongoing drought beginning around the end of 2019. The lack of rain has caused the dewatering of Robertson Springs. During the last drought in 2014, a pool of water remained from Ludwigia Spring down to the confluence of Salado Creek. In comparison, as of January 2023 no springs were flowing at Robertson and the run was dry to the confluence of Salado Creek. The Cemetery Well water level was examined to determine if it correlated to Robertson Spring flow reductions or ceasing of flows. Salamander data from Robertson was shown to have a negative correlation with the “feet below the surface” data collected from the well. Although a relationship was shown it is not predictive enough with the salamander data to be useful at this time. Effects of time spent underground for surface species has been documented and was shown to have loss of tail width during long periods without surface interaction (Bendik and Gluesenkamp 2013).

The temporal shifts in size class for the Salado salamander appear to echo other research for the northern group of *Eurycea* sp. indicating a season for breeding (Pierce et al. 2014). This pulse in the northern salamander group appears unique and could be facilitated by the shallowing of the aquifer as the limestone generally decreases in depth as the aquifer moves north. This type of shallowing of the limestone could cause the influx of recharge water into inhabited areas more quickly than in deeper portions of the aquifer.

Other research by Bendik et al. (2017) on the Jollyville Plateau salamander (*E. tonkawae*) and Pierce et al. (2014) on the Georgetown salamander (*E. naufragia*) showed a peak time for gravidity in December, with Pierce et al. (2014) showing an additional peak in February or March for the Georgetown salamander. Gravidity has not been observed in the Salado salamander in the number of observations necessary to elucidate any trends. What would be expected is to see a lag time between gravid females observed by the two mentioned authors and

the observation of salamanders in the first size class. Growth curves in captive San Marcos salamanders show that it takes about 60 days to reach around 15 mm. Therefore, if there was a peak in Salado salamander gravidity in December, the juveniles would be on the spring surface and measure up to about 15 mm at the earliest in late February. The Salado salamander seasonal dynamics graph shows the largest percentages of juveniles occur during spring, which runs from March to May. In other words, we might hypothesize that there is some peak in gravidity for the Salado salamander sometime in December or January, although undetected.

Habitat associations, given the smaller data set collected for the Salado salamander, compared to the other species to the south, are consistent with their reports of habitat associations taken from larger sample sizes with more robust surface populations present (Bowles et al. 2006; Diaz et al. 2015). Due to the small surface populations at the monitoring sites, examining the data is statistically challenging, however, thinking about observed versus expected may be one way to look at the overall Salado salamander data set. Observed would be the data set for the Salado salamander (e.g. habitat associations). Expected would be the larger established and published data sets with more years of data collection and then anecdotally examining the congruence of the patterns within the two data sets to provide evidence for observations collected in the Salado. For example, substrate and diet data collected from 2015 to 2018 mentioned in the results is congruent with what is known and published about other southern salamander species (Bowles et al. 2006; Diaz et al. 2015). This published evidence does provide some further validity to the Salado data despite the smaller sample size of salamanders.

Insights into why the surface densities of these salamanders are historically small (Norris et al. 2012), with estimates by the author that surface populations are around 10 salamanders at the DSC and Robertson Springs sites, could be based on eight years of monitoring observations. The hydroperiod of the springs (i.e. the duration of discharge over time) and proximity to larger order streams, (i.e. ecological disturbance) may play a large part of influencing surface densities at historic Salado salamander sites (Robertson Springs and DSC). Salado Creek's hydroperiod includes large pulses of water after large rain events in the watershed. These pulses cause Salado Creek to rise high enough that it floods the spring outlets at the DSC and at Robertson Springs. The flood waters also bring or remove sediment, gravel and cobble changing the habitat substrate and even depth over the spring orifices as seen at Side Spring (DSC).

The spring flows in the DSC appear to be stable except for Little Bubbly Springs which has been intermittent during the study. However, Robertson Springs has a large fluctuation in hydroperiod and was not flowing in 2015, and resumed discharging at many of the orifices in 2016. In 2017, the discharge began to decline again and ceased to flow in 2018. Flow returned to the springs at the beginning of 2019. In 2020 the flows began to subside in May and by August no salamander producing mapped spring zones were flowing. In addition, Robertson and the DSC springs are at the known northern fringe of *Eurycea* distribution in Texas and the Edwards Aquifer. In comparison, the surface population present at SR1, just south of Salado, over the last eight years have always been detectable and consistent with regards to count data. Solana Ranch Spring #1 has had a consistent hydroperiod, is not near a larger order stream or river, and is south of the known northern locations for these salamanders.

These factors may be a large part of why the surface densities are low at the historic Salado salamander sites. In addition, the small surface recruitment of salamanders seen at Robertson and Anderson springs, based on the drift net sampling data, suggest that the populations at these sites may be slow to recover from natural disturbances like a flood or cessation in flows. Given that surface densities are low but appear to be consistent given the flows over the last eight years (2015- 2022), it has been suggested that a large proportion of the Salado salamander population is below the surface within the aquifer (Nice et al. 2021). The first genetic analysis for the Salado salamander was completed in 2021, and a second round of genetic collections begin in 2023 with the goal to estimate an effective population density at the sites previously assessed. Additionally, new sites will be included in the genetic analysis. This type of analysis can be woven into part of the monitoring program for the Habitat Conservation Plan in development for the area.

**The views expressed in this paper are the authors and do not necessarily reflect the view of the U.S. Fish and Wildlife Service or Texas Parks and Wildlife Department.**

Table 1. Number of Salado salamanders collected during quarterly monitoring using active and passive sampling techniques 2022. (NS = not sampled)

Season	Robertson	Downtown Spring Complex	Solana Ranch Spring #1	Kings Garden
Spring	1	2	47	11
Summer	0	0	26	20
Fall	0	0	28	NS
Winter	0	0	20	NS

Table 2. Habitat associations of the Salado salamander determined by 177 salamanders collected from 2015 to 2022 at the Downtown Springs Complex (DSC) and Robertson Springs.

	#	%
<b>Cave Conduit</b>	67	37.85
<b>Substrate</b>		
Silt	3	2.73
Sand	2	1.82
Gravel	73	66.36
Cobble	28	25.45
Boulder	4	3.64
<b>Vegetation</b>		
<i>Sagittaria</i> sp.	1	0.93
<i>Nasturtium</i> sp.	47	43.52
Filamentous Algae	4	3.70
<i>Ludwigia</i> sp.	3	2.78
<i>Amblystegium</i> sp.	5	4.63
<i>Hydrocotyle</i> sp.	2	1.85
none	43	39.81
Organic Debris	2	1.85
Grass	1	0.93

Table 3. History of quarterly monitoring data from Solana Spring Ranch #1 (SR1). “Recaps Previous Years” are individuals that were captured more than once between sampling years.

	2020	2021	2022
<b>Recaps Previous Years</b>	15	33	34
<b>Recaps for Year</b>	18	11	14
<b>New Individuals</b>	83	75	58
<b>Adult Totals</b>	116	119	106
<b>Probability of recap</b>	23	29	30

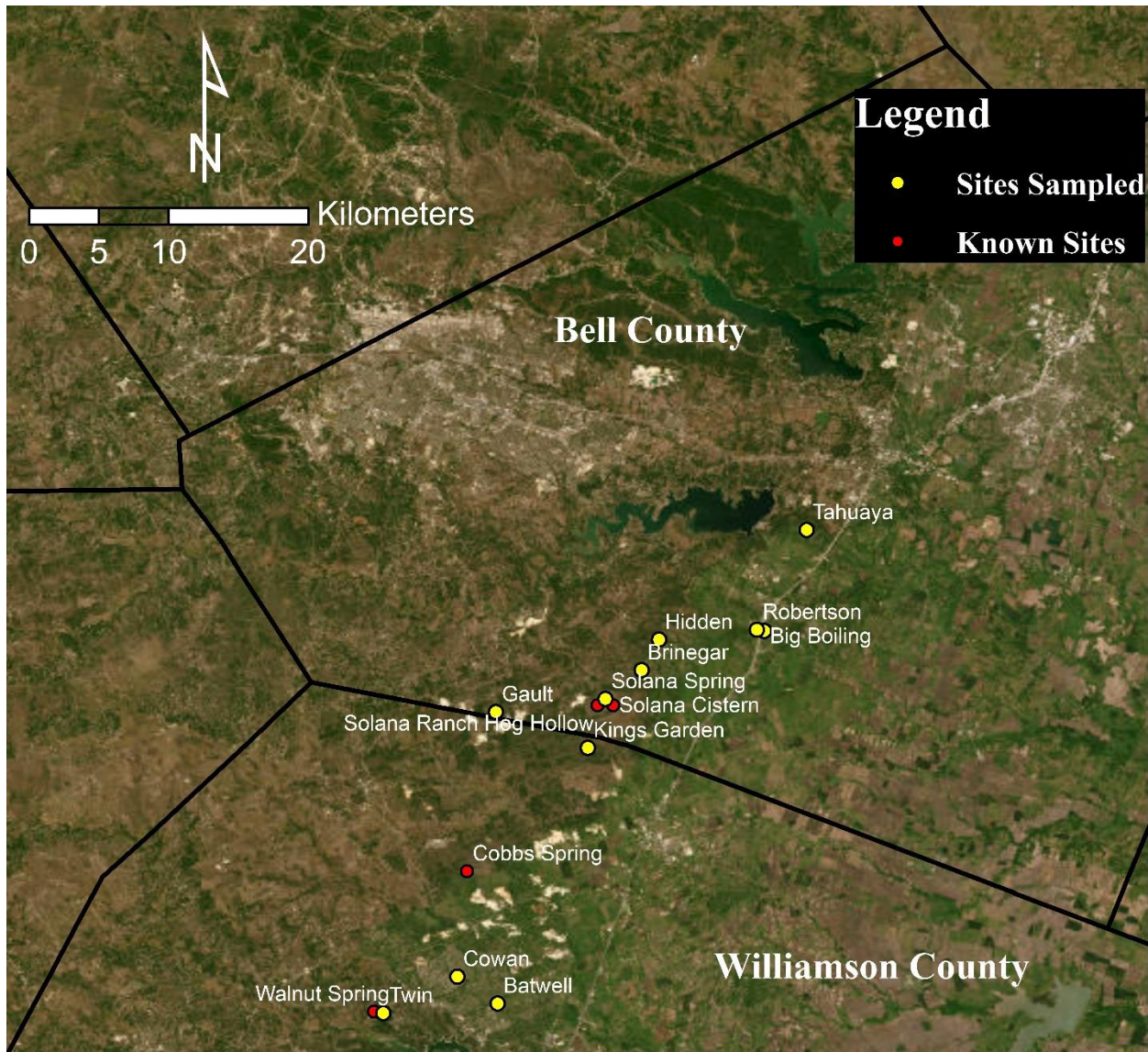


Figure 1. Study area for Salado salamander monitoring or searches conducted from 2015 to 2020.

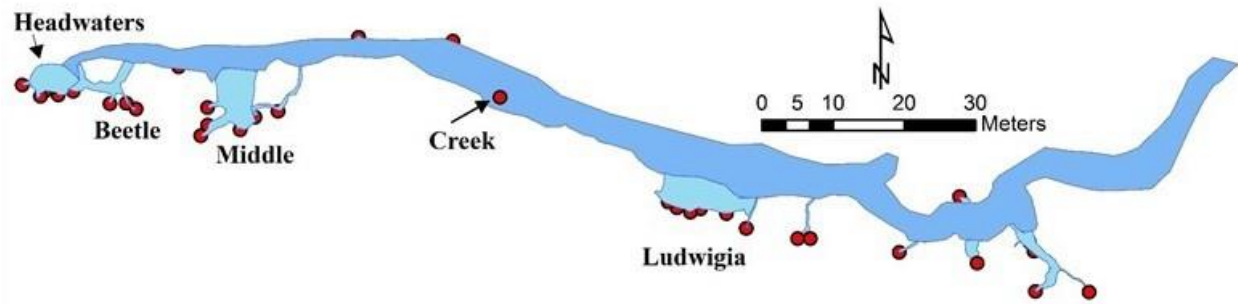


Figure 2. Map of Robertson Springs showing spring zones mapped in 2016 during optimal flow conditions at the site. Light blue zones are spring zones, red dots are orifice, and the blue is the spring run terminating into Salado Creek.

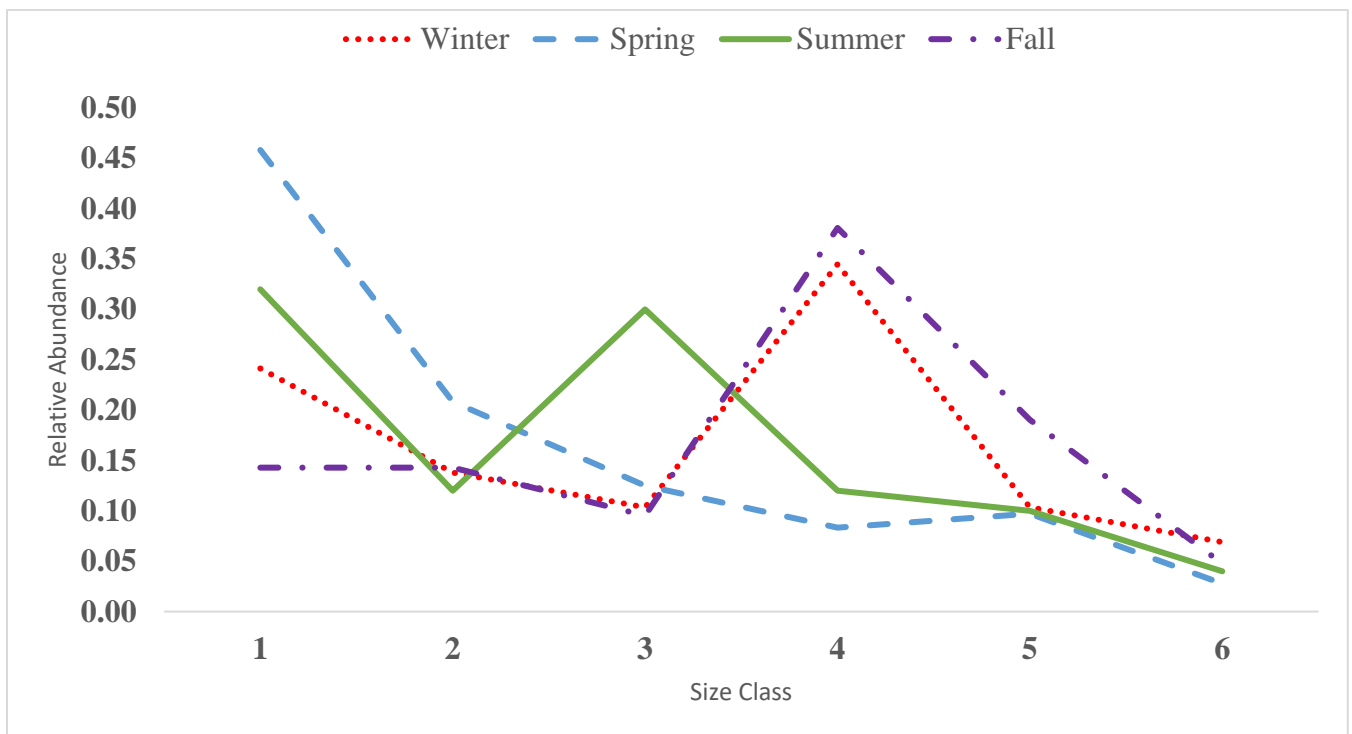


Figure 3. Relative abundance of Salado salamanders reflecting the dominant size class captured from the Downtown Spring Complex (DSC) and Robertson Springs by season from 2015 to 2022 for 172 salamanders. Size classes range from 10 - 19.99 mm = 1; 20 - 29.99 mm = 2; etc.

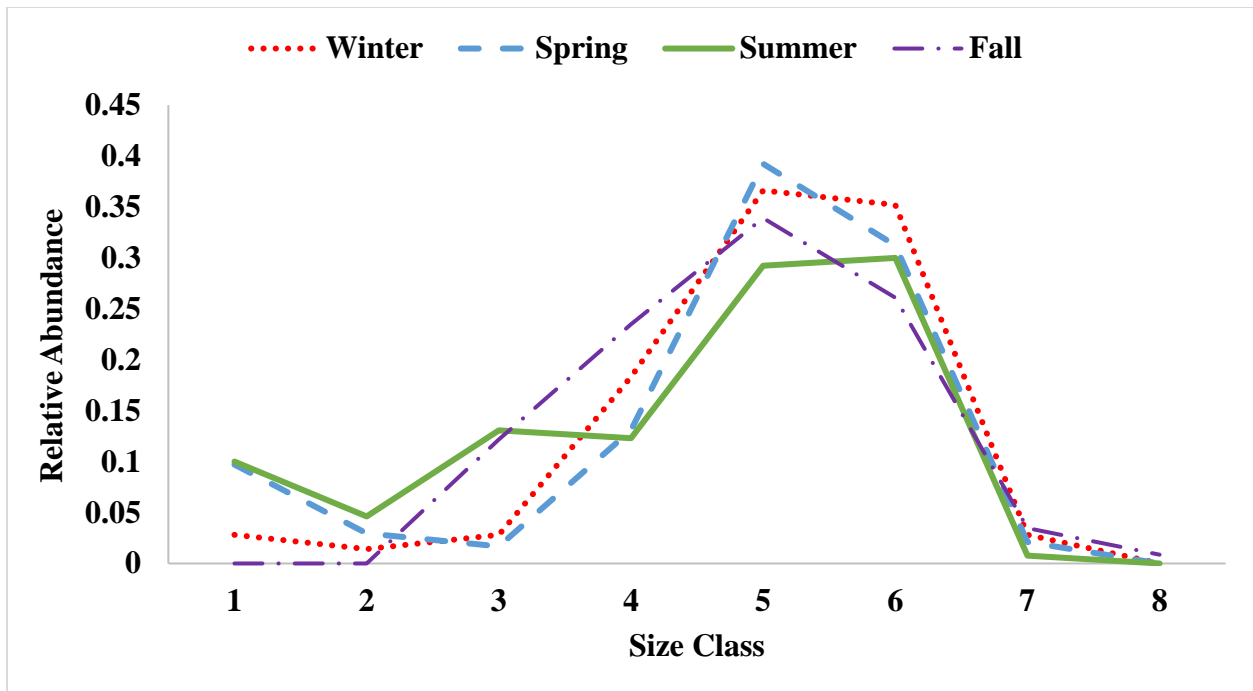


Figure 4. Relative abundance of Salado salamanders reflecting the dominant size class captured from the Solana Ranch Spring #1 by season from 2015 to 2022 for 553 salamander observations. Size classes range from 10 - 19.99 mm = 1; 20 - 29.99 mm = 2; etc.

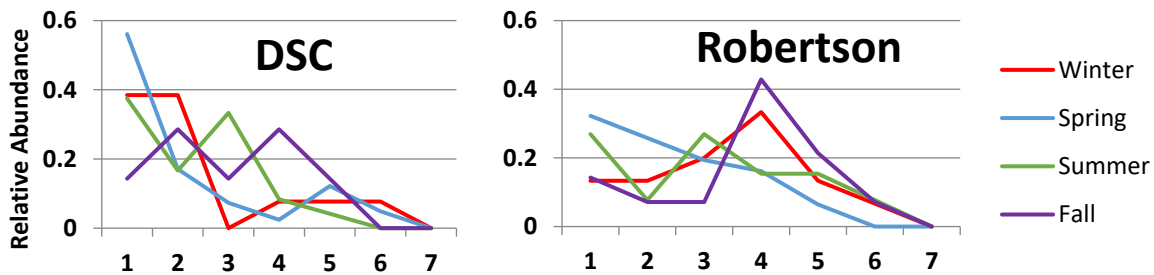


Figure 5. Relative abundance of Salado salamanders reflecting the dominant size class captured from the Downtown Spring Complex (DSC) and Robertson Springs by season from 2015 to 2022. Salamander observations; 86 from Robertson Springs and 85 from the DSC. Size classes (x-axis) range from 10 - 19.99 mm = 1; 20 - 29.99 mm = 2; etc.

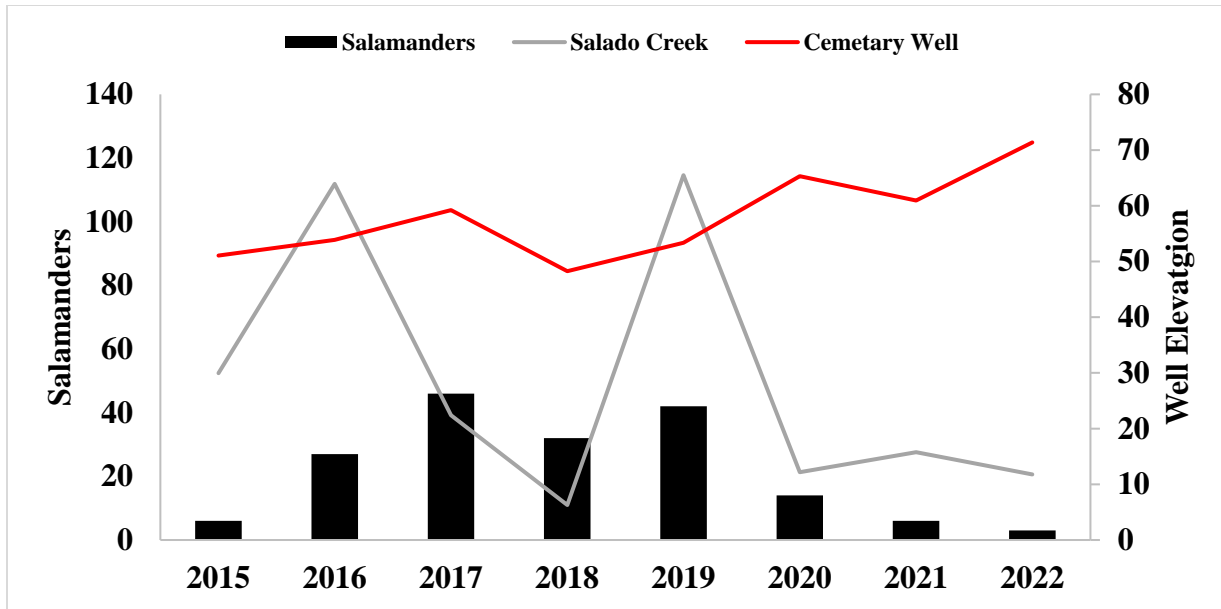


Figure 6. Data collected from the Cemetery Well (Monitor well #5804628) and from the USGS gauge on the Salado Creek (USGS #08104300) plotted with the total collection of salamanders from each year sampled at the Downtown Spring Complex (DSC) and Robertson Springs.



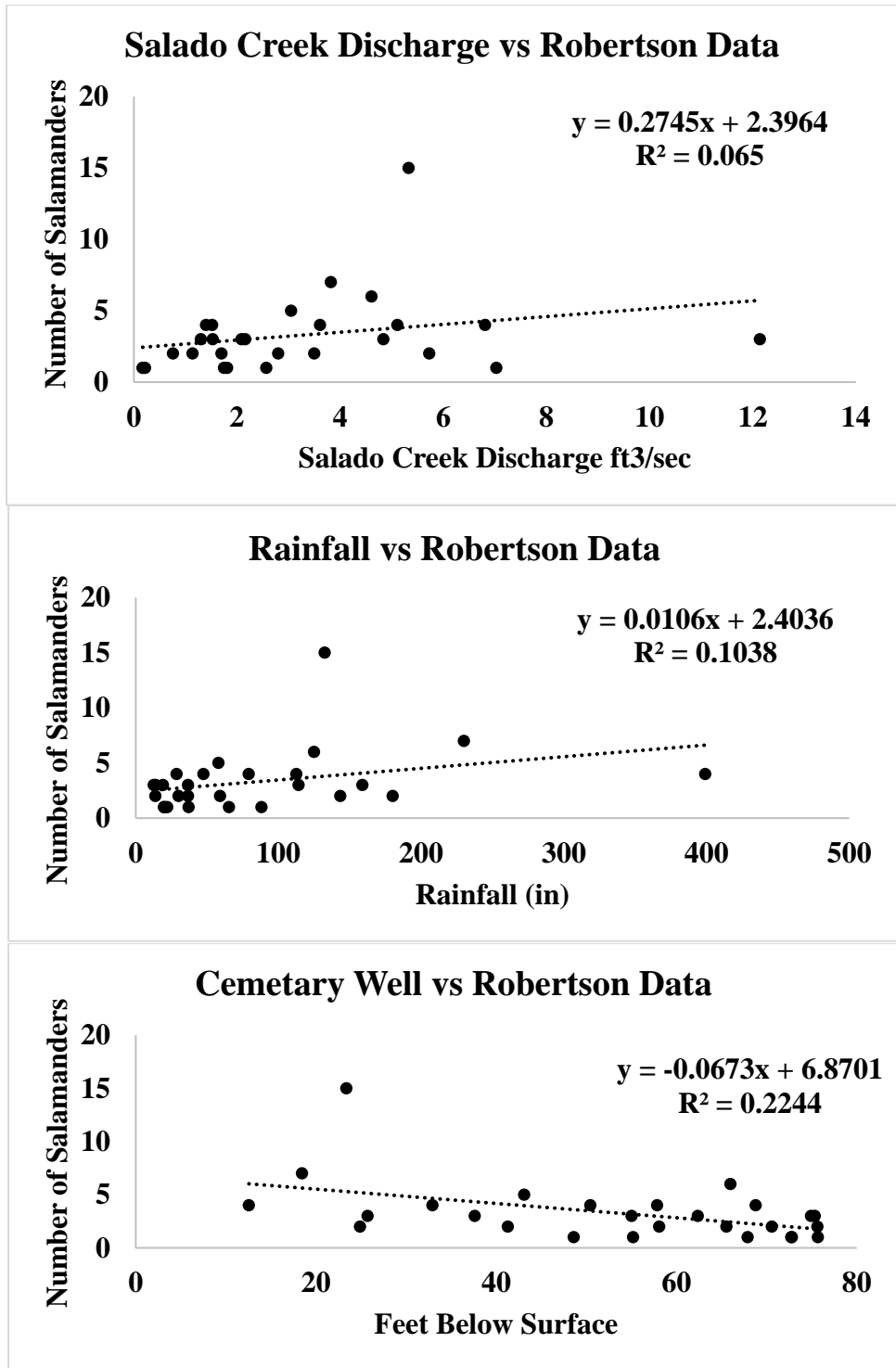


Figure 7. Relationships between Salado salamander capture data from Robertson Springs (2015 to January 2023) and predictors of abundance data.

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# *Appendix L*

## RAINWATER HARVESTING

Rainwater harvesting is an innovative alternative water supply approach anyone can use. Rainwater harvesting captures, diverts, and stores rainwater for later use.

Implementing rainwater harvesting is beneficial because it reduces demand on existing water supply, and reduces run-off, erosion, and contamination of surface water.

Rainwater can be used for nearly any purpose that requires water. These include landscape use, stormwater control, wildlife and livestock watering, in-home use, and fire protection.

A rainwater harvesting system can range in size and complexity. All systems have basic components, which include a catchment surface, conveyance system, storage, distribution, and treatment.



For more information, please visit the [Texas A&M AgriLife Extension – Rainwater Harvesting website](#) and the [Texas Water Development Board – Rainwater Harvesting website](#).

### Related Resources



**Rainwater Harvesting Book:** Homeowners and landowners can construct systems to capture, store and use rainwater to water their landscape plants.

Where is my well?  
Where is my property?

[Click Here](#)

SEARCH

# *Appendix M*

## BRUSH CONTROL

Brush Busters is a cooperative program of the Texas AgriLife Research and Extension Service to expedite the adoption of Tactical Brush Management Systems (TBMS) technology.

Brush Busters methods are easily understood, even by those with little or no previous experience in brush control. We recommend only “select” treatments capable of killing at least 7 out of 10 of the plants treated. Brush Busters methods make every attempt to keep equipment costs and complexity to a minimum, and whenever possible, to use non-restricted herbicides. One-page pamphlets are available from most County Extension offices that describe, in a simple 3-step process, the Brush Busters control methods for mesquite, pricklypear and cedar. Videos are available for checkout through most County Extension offices that demonstrate the Brush Busters control methods. For those who are computer literate, a CD-ROM Brush Busters program is available that uses interactive video, audio and graphics to teach the use of Brush Buster methods for mesquite control.

- **Cedar**
  - Leaf Spray Method
  - Spot Spray Method
  - Top Removal Method
  - How to Estimate Costs for Controlling Small Cedar
- **Cut Stumps**
  - Cut Stump Spray for Hardwood Species
  - Cut Stump Spray for Redberry Cedar
- **Huisache**
  - Leaf Spray Method
  - Stem Spray Method
- **Macartney Rose**
  - Leaf Spray Method
- **Mesquite**
  - Leaf Spray Method
  - Stem Spray Method
  - How to Estimate Cost for Controlling Mesquite
- **Pricklypear**
  - Pad or Stem Spray Method
  - Top Removal Method
  - How to Estimate Costs for Controlling Pricklypear
- **Saltcedar**
  - Leaf Spray Method
  - Stem Spray Method
- **Tallowtrees**
  - Leaf Spray Method
  - Stem Spray Method
- **Yucca**
  - Herbicide + Oil Whorl Spray
  - Undiluted Whorl Spray
- **Equipment**

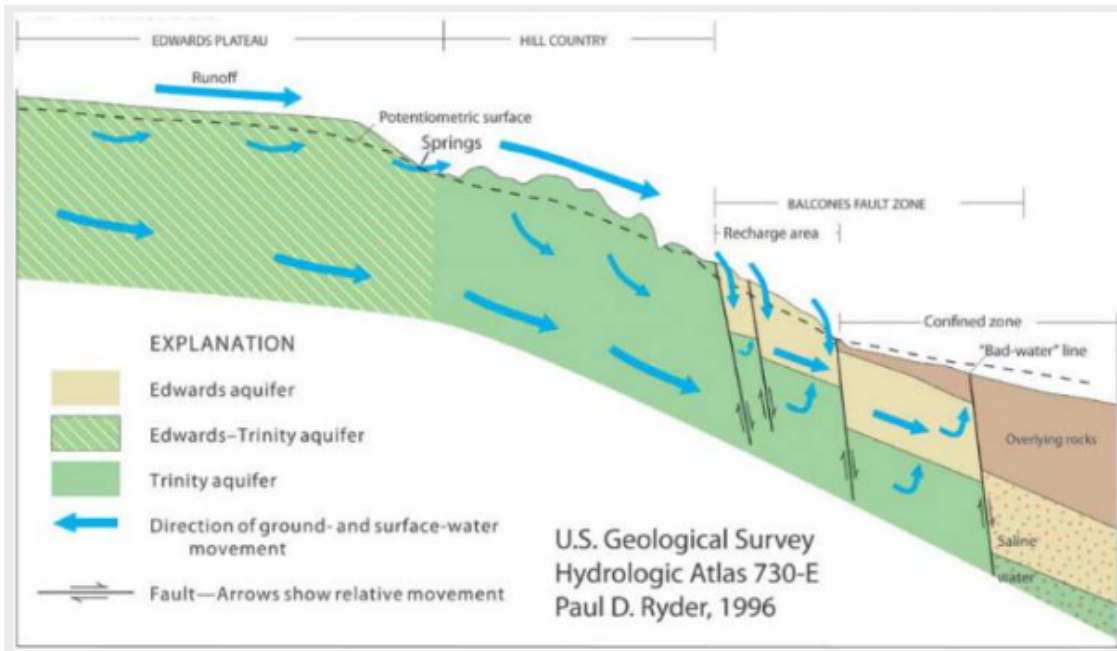


**SEARCH**

# *Appendix N*



## RECHARGE ENHANCEMENT



Recharge enhancement is an important tool to help encourage recharge of our groundwater. Urban development decreases direct recharge from precipitation but introduces new sources of water which, in most instances, can increase groundwater recharge if applied properly.

### Best Management Practices for Recharge Enhancement

#### Onion Creek Recharge Enhancement

Where is my well?  
Where is my property?

[Click Here](#)

SEARCH

# *Appendix O*



Clearwater LWDC - Edwards BZ Monitor Wells

Staff members will perform a water chemistry monitor the specific levels in part of our laboratory capabilities. The Texas Water Development Board conduct some of the requirements. Clearwater will. The requirements of that were given by the Clearwater staff. The Texas Water Development Board provides information through publication of performance monitoring data on the requirement of the local well use to be published on a bi-annual basis.

Table with 44 columns and 38 rows. Columns represent various monitoring wells and parameters (e.g., MW-01, MW-02, etc.). Rows represent different dates (e.g., 7/15/2008, 7/16/2008, etc.). The table contains numerical data points for each well-parameter-date combination, with some cells containing dashes or specific values like 0.00, 10.00, etc.



Chlorwater UWCD - Edwards BZ Monitor Wells

Staff members with authority to make decisions outside the specific limits in part of the monitoring responsibility. The Texas Water Development Board considered each of the requirements. Chlorwater Inc. The requirements of the Texas Water Development Board provided information through publication of petroleum monitoring data on the requirement of the Texas water well and petroleum well board, chlorwater inc.

Table with columns for monitoring wells (e.g., MW001, MW002) and various parameters (e.g., Chloride, Sulfate, Nitrate, Iron, Manganese, Cadmium, Lead, Copper, Zinc, Barium, Strontium, Selenium, Vanadium, Molybdenum, Fluoride, Silica, Total Dissolved Solids, Total Hardness, Total Solids, Total Suspended Solids, Total Organic Carbon, Total Organic Nitrogen, Total Organic Phosphorus, Total Organic Sulfur, Total Organic Chlorine, Total Organic Fluorine, Total Organic Bromine, Total Organic Iodine, Total Organic Nitrogen, Total Organic Phosphorus, Total Organic Sulfur, Total Organic Chlorine, Total Organic Fluorine, Total Organic Bromine, Total Organic Iodine). Rows represent data for various wells and parameters over time.



Cherwater LWCD - Edwards BZ Monitor Wells

Small amounts with vertical error bars indicate the specific results in part of the laboratory's responsibility. The Texas Water Development Board conducted some of the measurements. Check the "By" requirements of the report from the laboratory staff. The Texas Water Development Board provides information through publication of petroleum monitoring data on the requirements of the Texas water well to be published and to be used.

Table with columns for monitoring wells (e.g., LWCD01, LWCD02) and various chemical parameters (e.g., Arsenic, Barium, Boron, Cadmium, Calcium, Chloride, Copper, Fluoride, Iron, Lead, Manganese, Mercury, Nitrate, Nitrite, Nickel, Selenium, Silver, Strontium, Sulfate, Sulfide, Total Dissolved Solids, Total Hardness, Total Suspended Solids, Total Zinc, Vanadium, Zinc). The table contains numerical data points for each parameter across the wells.



Chlorwater UWCD - Edwards BZ Monitor Wells

Small text at the top of the page providing context and disclaimers regarding the data and its use.

Main data table with columns for various monitoring wells (e.g., 18-01-001, 18-01-002) and rows for different parameters (e.g., Chlorine, Bromine, Iodine). The table contains numerical data points for each well-parameter combination.



Cherwater LWCD - Edwards BZ Monitor Wells

Small text providing details about the data source and measurement methods.

Main data table with columns for dates (e.g., 1/1/2010, 1/2/2010) and various numerical values representing measurements at different wells.







### Clearwater UWCD - Upper Trinity Monitor Wells

Staff measures wells quarterly in order to closely monitor the aquifer levels as part of our statutory responsibility. The Texas Water Development Board conducted some of the measurements, shown in red. The measurements in blue were taken by the Clearwater staff. The Texas Water Development Board provides information through publication of continuous monitoring data on the measurements of the TxDOT wells and an additional well in Salado, shown in red.

State #	40-57-902	40-57-903	58-04-103	40-57-905	40-58-201	57-15-903	40-59-302	40-57-906					
CUWCD #	E-02-721G	E-02-722G	E-16-052GU	E-19-224P	M-10-001P	L7-CTGCD_Robin	N1-18-003P	N1-19-007P					
Well Name	McCallum #1	McCallum #2	Fant	R Family Land	CTC	Robinson	Myers	risty & Larry Bickel					
Highest	-131.20	-131.10	-280.10	-212.47	-77.83	-4.93	-467.55	-164.14	0.00	0.00	0.00	0.00	0.00
Lowest	-185.30	-185.30	-418.80	-237.50	-87.59	-64.19	-491.81	-178.05	0.00	0.00	0.00	0.00	0.00
2/24/1993 0:00			-301.70										
2/8/1994 0:00			-308.25										
1/26/1995 0:00			-280.10										
1/12/1998 0:00			-302.27										
1/13/1999 0:00			-297.20										
2/19/2004 0:00			-304.70										
11/1/2006 0:00	-142.10	-142.50											
1/1/2007 0:00	-144.30	-144.20											
7/1/2007 0:00	-131.20	-131.10											
1/1/2008 0:00	-134.50	-134.40											
7/1/2008 0:00	-151.80	-151.50											
1/1/2009 0:00	-145.40	-145.00											
7/1/2009 0:00	-159.60	-159.50											
1/1/2010 0:00	-152.10	-152.00			-87.59	-7.38							
7/1/2010 0:00	-150.60	-151.30			-77.83	-14.51							
1/1/2011 0:00	-149.70	-150.00			-79.64	-16.03							
2/25/2011 0:00			-326.12										
7/1/2011 0:00	-166.80	-165.70			-80.53	-16.42							
9/1/2011 0:00	-170.10	-170.90			-81.01	-28.97							
11/1/2011 0:00	-163.80	-164.30			-80.28	-48.35							
1/1/2012 0:00	-156.50	-157.30			-79.72	-64.19							
5/1/2012 0:00	-156.40	-157.60			-78.99	-13.83							
10/9/2012 0:00			-332.23										
1/1/2013 0:00	-155.00	-157.30			-81.66	-16.64							
5/1/2013 0:00	-160.80	-161.30			-82.13	-16.34							
8/1/2013 0:00	-172.60	-173.30			-82.70	-15.16							
11/1/2013 0:00	-159.20	-160.00			-82.35	-13.11							
2/1/2014 0:00	-156.80	-157.70			-82.68	-14.94							
5/1/2014 0:00	-163.00	-162.90			-83.07	-15.95							
8/1/2014 0:00	-169.70	-167.70			-83.56	-15.96							
11/1/2014 0:00	-165.10	-166.60			-83.42	-21.88							
1/1/2015 0:00	-157.60	-158.40			-83.54	-15.98							
6/1/2015 0:00	-153.20	-154.20			-83.92	-10.12							
9/14/2015 0:00	-167.90	-167.90			-83.48	-15.17							
11/30/2015 0:00	-155.50	-156.50			-82.72	-10.51							
1/1/2016 0:00						-4.93							
1/5/2016 0:00	-154.70	-155.60			-83.50								
4/19/2016 0:00	-155.03				-83.82	-7.72							
4/19/2016 6:00		-157.10											
6/1/2016 0:00						-8.28							



### Clearwater UWCD - Upper Trinity Monitor Wells

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Well Name	McCallum #1	McCallum #2	Fant	R Family Land	CTC	Robinson	Myers	risty & Larry Bickel					
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Lowest	-185.30	-185.30	-418.80	-237.50	-87.59	-64.19	-491.81	-178.05	0.00	0.00	0.00	0.00	0.00
8/30/2016 0:00	-159.00	-162.50			-84.45								
10/3/2016 0:00					-84.30								
10/6/2016 0:00			-310.15										
10/19/2016 0:00					-84.25								
12/1/2016 0:00					-84.07								
12/6/2016 0:00					-83.91								
12/29/2016 0:00	-153.60	-153.80											
1/5/2017 0:00					-83.90								
2/6/2017 0:00					-83.92								
3/5/2017 0:00					-83.96								
3/30/2017 0:00	-154.10	-154.40			-84.00								
5/8/2017 0:00					-84.23								
6/4/2017 0:00					-84.21								
7/7/2017 0:00	-162.70	-162.90			-84.51								
8/9/2017 0:00					-83.28								
9/5/2017 0:00					-83.37								
10/2/2017 0:00	-160.90	-161.40			-83.30								
10/2/2017 14:09						-14.20							
11/6/2017 0:00					-83.29								
11/6/2017 14:13						-14.05							
12/4/2017 0:00					-83.20								
12/4/2017 14:13						-14.12							
12/27/2017 0:00	-156.70	-156.80			-83.31								
12/27/2017 14:14						-13.81							
3/5/2018 0:00						-13.86							
3/8/2018 12:00					-83.18								
3/29/2018 0:00						-13.98							
3/29/2018 12:00					-83.41								
5/7/2018 0:00						-13.54							
5/7/2018 14:21					-83.78								
6/3/2018 20:00					-83.99								
6/4/2018 0:00						-11.75							
6/21/2018 11:57		-162.70											
6/21/2018 12:00					-84.21								
6/22/2018 11:53	-162.60												
7/5/2018 0:00						-11.18							
8/6/2018 12:00					-84.54								
8/13/2018 12:00					-84.38								
9/3/2018 12:00					-84.46								
9/4/2018 12:00						-12.81							



### Clearwater UWCD - Upper Trinity Monitor Wells

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State #	40-57-902	40-57-903	58-04-103	40-57-905	40-58-201	57-15-903	40-59-302	40-57-906					
CUWCD #	E-02-721G	E-02-722G	E-16-052GU	E-19-224P	M-10-001P	L7-CTGCD_Robin	N1-18-003P	N1-19-007P					
Well Name	McCallum #1	McCallum #2	Fant	R Family Land	CTC	Robinson	Myers	risty & Larry Bickel					
Highest	-131.20	-131.10	-280.10	-212.47	-77.83	-4.93	-467.55	-164.14	0.00	0.00	0.00	0.00	0.00
Lowest	-185.30	-185.30	-418.80	-237.50	-87.59	-64.19	-491.81	-178.05	0.00	0.00	0.00	0.00	0.00
9/10/2018 9:30							-477.86						
9/28/2018 12:00					-84.30	-11.83							
9/28/2018 12:14	-165.70												
9/28/2018 12:17		-166.00											
9/28/2018 14:20							-473.69						
10/17/2018 16:07			-410.82										
11/5/2018 12:00					-83.46	-5.69							
12/3/2018 12:00					-83.64	-8.36							
12/26/2018 9:12							-475.93						
12/26/2018 11:24	-157.10												
12/26/2018 11:27		-157.40											
12/26/2018 12:00					-83.35								
12/31/2018 12:00						-8.77							
2/4/2019 12:00					-83.48	-8.75							
3/4/2019 12:00					-83.91	-9.39							
3/26/2019 9:35							-468.48						
3/26/2019 11:25	-154.00												
3/26/2019 11:28		-154.10											
3/26/2019 12:00					-84.02								
4/1/2019 12:00						-10.07							
5/6/2019 8:00					-84.51								
5/6/2019 12:00						-9.56							
6/3/2019 12:00					-84.88	-9.55							
6/26/2019 9:18							-467.55						
6/26/2019 11:13	-154.10												
6/26/2019 11:16		-154.40											
7/1/2019 12:00						-9.42							
8/5/2019 12:00					-84.81	-11.04							
9/2/2019 12:00						-11.73							
9/3/2019 12:00					-85.08								
9/27/2019 10:00							-473.06						
9/27/2019 11:41	-164.50												
9/27/2019 11:43		-165.00											
9/27/2019 12:00					-84.98								
10/7/2019 12:00						-12.85							
10/16/2019 11:40				-213.14									
10/18/2019 8:02				-215.47									
10/18/2019 22:02				-212.47									
11/4/2019 12:00					-85.22	-13.56							
12/2/2019 6:00						-13.35							



### Clearwater UWCD - Upper Trinity Monitor Wells

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Well Name	McCallum #1	McCallum #2	Fant	R Family Land	CTC	Robinson	Myers	risty & Larry Bickel					
Highest	-131.20	-131.10	-280.10	-212.47	-77.83	-4.93	-467.55	-164.14	0.00	0.00	0.00	0.00	0.00
Lowest	-185.30	-185.30	-418.80	-237.50	-87.59	-64.19	-491.81	-178.05	0.00	0.00	0.00	0.00	0.00
12/2/2019 12:00					-85.26								
12/26/2019 6:00						-13.80							
12/26/2019 10:11							-473.97						
12/26/2019 12:00					-85.07								
12/26/2019 12:57				-222.86									
12/26/2019 13:20	-158.50												
12/26/2019 13:22		-158.80											
2/2/2020 12:00					-85.10								
2/3/2020 6:00						-14.03							
3/2/2020 6:00						-13.62							
5/4/2020 5:00						-12.01							
5/4/2020 12:00					-84.70								
6/1/2020 12:00					-85.11								
6/2/2020 5:00						-12.07							
6/24/2020 9:28							-474.09						
6/25/2020 5:00						-12.54							
6/25/2020 10:17				-226.63									
6/25/2020 10:34	-171.30												
6/25/2020 10:37		-171.40											
6/25/2020 12:00					-85.38								
8/3/2020 5:00						-13.26							
8/3/2020 12:00					-85.74								
9/7/2020 5:00						-13.53							
9/7/2020 12:00					-84.94								
10/1/2020 12:00					-85.03								
10/2/2020 5:00						-13.28							
10/2/2020 9:02							-483.66						
10/2/2020 10:57	-170.90												
10/2/2020 11:00		-171.30											
10/2/2020 11:15				-233.62									
12/1/2020 12:00					-85.07								
12/27/2020 12:00					-85.07								
12/29/2020 10:30				-235.20									
12/30/2020 13:38	-167.80												
12/30/2020 13:41		-168.00											
12/30/2020 14:38							-480.20						
2/1/2021 6:00						-12.46							
3/1/2021 6:00						-12.88							
3/30/2021 10:11				-237.50									
3/30/2021 10:40								-164.14					





### Clearwater UWCD - Upper Trinity Monitor Wells

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State #	40-57-902	40-57-903	58-04-103	40-57-905	40-58-201	57-15-903	40-59-302	40-57-906					
CUWCD #	E-02-721G	E-02-722G	E-16-052GU	E-19-224P	M-10-001P	L7-CTGCD_Robin	N1-18-003P	N1-19-007P					
Well Name	McCallum #1	McCallum #2	Fant	R Family Land	CTC	Robinson	Myers	risty & Larry Bickel					
Highest	-131.20	-131.10	-280.10	-212.47	-77.83	-4.93	-467.55	-164.14	0.00	0.00	0.00	0.00	0.00
Lowest	-185.30	-185.30	-418.80	-237.50	-87.59	-64.19	-491.81	-178.05	0.00	0.00	0.00	0.00	0.00
9/6/2022 11:00					-86.14								
10/5/2022 11:00					-86.06								
10/5/2022 12:59								-178.05					
10/5/2022 13:10	-185.30												
10/5/2022 13:13		-185.30											
10/5/2022 13:57							-491.81						
11/1/2022 11:00					-85.75								
12/29/2022 18:00					-85.25								
12/29/2022 21:00								-172.25					
12/29/2022 21:16	-178.40												
12/29/2022 21:19		-178.10											
12/29/2022 22:22							-481.26						
Since Last												0.00	0.00
Historic							-40.97						

E-line Measurement
Sonic Measurement
TWDB Measurement
No Reading Available

The desired future conditions established by Clearwater Underground Water Conservation District for the Upper Trinity is no more than 155 feet of drawdown after 50 years.  
**average drawdown goal per year is -3.1 feet.**

The

Minimum Number of Measurements: 5

<b>Average Drawdown</b>	<b>-3.98 ft/yr</b>
Drawdown of Water Level	
Increase of Water Level	



Chester Water UWCD - Middle Trinity Member Wells

Each well is shown in its own row. The 'Total' column shows the total production for each well. The 'Production' column shows the production for each month. The 'Injection' column shows the injection for each month. The 'Total' column shows the total production for each well.

Table with columns for Well Name, Production, Injection, and Total. The table contains data for numerous wells, including names like 'W-1', 'W-2', 'W-3', etc., and their corresponding production and injection values over time.









Chesterwater UWCD - Mobile Toilet Monitor Wells

Map requires user's location to be able to display nearby the public roads as part of our mapping capabilities. The Chester Water Department does not collect or store the location data. The measurements shown are for the Chesterwater only. The Chester Water Department does not provide information through

Well ID	Well Name	Well Type	Well Status	Well Depth	Well Diameter	Well Material	Well Construction	Well Location	Well Coordinates	Well Elevation	Well Notes
100001	Well 1	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100001	100001	100001	
100002	Well 2	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100002	100002	100002	
100003	Well 3	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100003	100003	100003	
100004	Well 4	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100004	100004	100004	
100005	Well 5	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100005	100005	100005	
100006	Well 6	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100006	100006	100006	
100007	Well 7	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100007	100007	100007	
100008	Well 8	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100008	100008	100008	
100009	Well 9	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100009	100009	100009	
100010	Well 10	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100010	100010	100010	
100011	Well 11	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100011	100011	100011	
100012	Well 12	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100012	100012	100012	
100013	Well 13	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100013	100013	100013	
100014	Well 14	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100014	100014	100014	
100015	Well 15	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100015	100015	100015	
100016	Well 16	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100016	100016	100016	
100017	Well 17	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100017	100017	100017	
100018	Well 18	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100018	100018	100018	
100019	Well 19	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100019	100019	100019	
100020	Well 20	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100020	100020	100020	
100021	Well 21	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100021	100021	100021	
100022	Well 22	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100022	100022	100022	
100023	Well 23	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100023	100023	100023	
100024	Well 24	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100024	100024	100024	
100025	Well 25	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100025	100025	100025	
100026	Well 26	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100026	100026	100026	
100027	Well 27	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100027	100027	100027	
100028	Well 28	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100028	100028	100028	
100029	Well 29	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100029	100029	100029	
100030	Well 30	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100030	100030	100030	
100031	Well 31	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100031	100031	100031	
100032	Well 32	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100032	100032	100032	
100033	Well 33	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100033	100033	100033	
100034	Well 34	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100034	100034	100034	
100035	Well 35	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100035	100035	100035	
100036	Well 36	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100036	100036	100036	
100037	Well 37	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100037	100037	100037	
100038	Well 38	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100038	100038	100038	
100039	Well 39	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100039	100039	100039	
100040	Well 40	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100040	100040	100040	
100041	Well 41	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100041	100041	100041	
100042	Well 42	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100042	100042	100042	
100043	Well 43	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100043	100043	100043	
100044	Well 44	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100044	100044	100044	
100045	Well 45	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100045	100045	100045	
100046	Well 46	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100046	100046	100046	
100047	Well 47	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100047	100047	100047	
100048	Well 48	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100048	100048	100048	
100049	Well 49	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100049	100049	100049	
100050	Well 50	Mobile Toilet	Active	10.0	12.0	Concrete	Standard	100050	100050	100050	



Chempur LWCO - Mobile Tertiary Monitor Wells

Field requests were prepared to study trends in aquifer levels as part of our regulatory compliance. The Data User Development Board continued control of the measurement system. The measurements listed were taken by the Chempur staff. The Data User Development Board provides information through...

Table with columns for Date, Well ID, and various data points. The table contains multiple rows of data, with some cells highlighted in yellow at the bottom.

The observed/expected conditions established by Chempur Underground Water Conservation District for the Mobile Tertiary Monitor Wells are as follows:
Average Drawdown: 0.175 ft
Maximum of Water Level: 10.00 ft
Minimum of Water Level: 10.00 ft



Clearwater UWCD - Lower Trinity Monitor Wells

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Table with columns for Date #, Well ID, and various monitoring data points. The table lists measurements from 1992 to 2002 for numerous wells, including 18-01-10, 18-01-11, 18-01-12, 18-01-13, 18-01-14, 18-01-15, 18-01-16, 18-01-17, 18-01-18, 18-01-19, 18-01-20, 18-01-21, 18-01-22, 18-01-23, 18-01-24, 18-01-25, 18-01-26, 18-01-27, 18-01-28, 18-01-29, 18-01-30, 18-01-31, 18-02-01, 18-02-02, 18-02-03, 18-02-04, 18-02-05, 18-02-06, 18-02-07, 18-02-08, 18-02-09, 18-02-10, 18-02-11, 18-02-12, 18-02-13, 18-02-14, 18-02-15, 18-02-16, 18-02-17, 18-02-18, 18-02-19, 18-02-20, 18-02-21, 18-02-22, 18-02-23, 18-02-24, 18-02-25, 18-02-26, 18-02-27, 18-02-28, 18-02-29, 18-02-30, 18-03-01, 18-03-02, 18-03-03, 18-03-04, 18-03-05, 18-03-06, 18-03-07, 18-03-08, 18-03-09, 18-03-10, 18-03-11, 18-03-12, 18-03-13, 18-03-14, 18-03-15, 18-03-16, 18-03-17, 18-03-18, 18-03-19, 18-03-20, 18-03-21, 18-03-22, 18-03-23, 18-03-24, 18-03-25, 18-03-26, 18-03-27, 18-03-28, 18-03-29, 18-03-30, 18-03-31, 18-04-01, 18-04-02, 18-04-03, 18-04-04, 18-04-05, 18-04-06, 18-04-07, 18-04-08, 18-04-09, 18-04-10, 18-04-11, 18-04-12, 18-04-13, 18-04-14, 18-04-15, 18-04-16, 18-04-17, 18-04-18, 18-04-19, 18-04-20, 18-04-21, 18-04-22, 18-04-23, 18-04-24, 18-04-25, 18-04-26, 18-04-27, 18-04-28, 18-04-29, 18-04-30, 18-05-01, 18-05-02, 18-05-03, 18-05-04, 18-05-05, 18-05-06, 18-05-07, 18-05-08, 18-05-09, 18-05-10, 18-05-11, 18-05-12, 18-05-13, 18-05-14, 18-05-15, 18-05-16, 18-05-17, 18-05-18, 18-05-19, 18-05-20, 18-05-21, 18-05-22, 18-05-23, 18-05-24, 18-05-25, 18-05-26, 18-05-27, 18-05-28, 18-05-29, 18-05-30, 18-05-31, 18-06-01, 18-06-02, 18-06-03, 18-06-04, 18-06-05, 18-06-06, 18-06-07, 18-06-08, 18-06-09, 18-06-10, 18-06-11, 18-06-12, 18-06-13, 18-06-14, 18-06-15, 18-06-16, 18-06-17, 18-06-18, 18-06-19, 18-06-20, 18-06-21, 18-06-22, 18-06-23, 18-06-24, 18-06-25, 18-06-26, 18-06-27, 18-06-28, 18-06-29, 18-06-30, 18-07-01, 18-07-02, 18-07-03, 18-07-04, 18-07-05, 18-07-06, 18-07-07, 18-07-08, 18-07-09, 18-07-10, 18-07-11, 18-07-12, 18-07-13, 18-07-14, 18-07-15, 18-07-16, 18-07-17, 18-07-18, 18-07-19, 18-07-20, 18-07-21, 18-07-22, 18-07-23, 18-07-24, 18-07-25, 18-07-26, 18-07-27, 18-07-28, 18-07-29, 18-07-30, 18-07-31, 18-08-01, 18-08-02, 18-08-03, 18-08-04, 18-08-05, 18-08-06, 18-08-07, 18-08-08, 18-08-09, 18-08-10, 18-08-11, 18-08-12, 18-08-13, 18-08-14, 18-08-15, 18-08-16, 18-08-17, 18-08-18, 18-08-19, 18-08-20, 18-08-21, 18-08-22, 18-08-23, 18-08-24, 18-08-25, 18-08-26, 18-08-27, 18-08-28, 18-08-29, 18-08-30, 18-08-31, 18-09-01, 18-09-02, 18-09-03, 18-09-04, 18-09-05, 18-09-06, 18-09-07, 18-09-08, 18-09-09, 18-09-10, 18-09-11, 18-09-12, 18-09-13, 18-09-14, 18-09-15, 18-09-16, 18-09-17, 18-09-18, 18-09-19, 18-09-20, 18-09-21, 18-09-22, 18-09-23, 18-09-24, 18-09-25, 18-09-26, 18-09-27, 18-09-28, 18-09-29, 18-09-30, 18-10-01, 18-10-02, 18-10-03, 18-10-04, 18-10-05, 18-10-06, 18-10-07, 18-10-08, 18-10-09, 18-10-10, 18-10-11, 18-10-12, 18-10-13, 18-10-14, 18-10-15, 18-10-16, 18-10-17, 18-10-18, 18-10-19, 18-10-20, 18-10-21, 18-10-22, 18-10-23, 18-10-24, 18-10-25, 18-10-26, 18-10-27, 18-10-28, 18-10-29, 18-10-30, 18-10-31, 18-11-01, 18-11-02, 18-11-03, 18-11-04, 18-11-05, 18-11-06, 18-11-07, 18-11-08, 18-11-09, 18-11-10, 18-11-11, 18-11-12, 18-11-13, 18-11-14, 18-11-15, 18-11-16, 18-11-17, 18-11-18, 18-11-19, 18-11-20, 18-11-21, 18-11-22, 18-11-23, 18-11-24, 18-11-25, 18-11-26, 18-11-27, 18-11-28, 18-11-29, 18-11-30, 18-12-01, 18-12-02, 18-12-03, 18-12-04, 18-12-05, 18-12-06, 18-12-07, 18-12-08, 18-12-09, 18-12-10, 18-12-11, 18-12-12, 18-12-13, 18-12-14, 18-12-15, 18-12-16, 18-12-17, 18-12-18, 18-12-19, 18-12-20, 18-12-21, 18-12-22, 18-12-23, 18-12-24, 18-12-25, 18-12-26, 18-12-27, 18-12-28, 18-12-29, 18-12-30, 18-12-31.



Clearwater UWCD - Lower Trinity Monitor Wells

Staff measure wells quarterly in order to closely monitor the aquifer levels as part of our statutory responsibility. The Texas Water Development Board conducted some of the measurements, shown in red. The measurements in blue were taken by the Clearwater staff. The Texas Water Development Board provides information through publication of continuous monitoring data on the measurements of the TWDB wells and an additional well in table, shown in red.

Table with columns for Date #, Well ID, and various monitoring wells (e.g., M-13-0001, M-13-0002, etc.). The table contains multiple rows of data points for each well, showing measurements over time from 2010 to 2012. Some cells are highlighted in red or blue to indicate specific data sources as mentioned in the text above.



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Table with columns for Date, Well ID, and various monitoring data points. The table contains multiple rows of data for different wells and dates, with values ranging from approximately -580 to 400. Some cells are highlighted in red or blue to indicate specific measurement types.



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Table with columns for Date, Well ID, and various measurement values. The table contains multiple rows of data, with some cells highlighted in red or blue to indicate specific measurement types or sources.





Clearwater UWCD - Lower Trinity Monitor Wells

Staff measure wells quarterly in order to closely monitor the aquifer levels as part of our statutory responsibility. The Texas Water Development Board conducted some of the measurements, shown in red. The measurements in blue were taken by the Clearwater staff. The Texas Water Development Board provides information through publication of continuous monitoring data on the measurements of the TWDD wells and additional wells in tables, shown in red.

Table with columns for Well ID, Date, and various measurement values (e.g., 58-01-410, 58-01-411, etc.). The table contains multiple rows of data points for different wells over time, with some values highlighted in red or blue.



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# *Appendix P*

# 21st Annual Bell County Water Symposium

## “Our Culture, Our Economy and Our Water Use”

**November 16, 2022 8:00 A.M. --- 3:30P.M.**

**Bell County Expo Center - Assembly Hall**

**\*\*This event is free but requires RSVP by November 10th\*\***

### Program at a Glance

**8:00 a.m. - Doors Open for Registration**

**9:00 a.m. - Welcome & Introductions**

**9:05 a.m. Reflecting on Growth (Opportunities & Challenges)**

*Honorable Judge David Blackburn, Bell County*

**9:20 a.m. Brazos River Authority “Water Management Strategies” and “System Update”**

*Mr. David Collinsworth, General Manager & CEO, Brazos River Authority*

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

**9:50 a.m. Bell County WCID #1 “History & Role, Serving in Times of Need”**

*Mr. Richard Garrett, General Manager, Bell County WCID No. 1*

**10:15 am Break “Refreshments and Announcements”**

**10:30 a.m. Bell County Groundwater Resource Update “Concerns, Conservation and Future”**

*Mr. Leland Gersbach, Board President, Clearwater UWCD*

*Mr. Dirk Aaron, General Manager, Clearwater UWCD*

**11:00 a.m. Panel Discussion “Annexation Request from Aquifer Conservation Alliance (ACA)”**

*Moderator: Honorable Judge David Blackburn, Bell County*

*Panelist: Cole Ruiz, CUWCD General Counsel; Kristen Fancher, ACA General Counsel;*

*Vince Clause, Professional Geo-scientist; Keith Elliston, ACA President*

**12:00 noon - Lunch (Invited Texas Legislative Comments)**

**12:45 p.m. Keynote Address**

**Domestic and International Perspective of Water Resources and Legal Disputes**

*Dr. Gabriel Eckstein, Professor of Law,*

*Director of Texas A&M University Law Program in Natural Resources*

**1:30 p.m. Texas Climatic Trends and Drought Predictions for 2022 & Beyond**

*Dr. John Nielson-Gammon, Texas State Climatologist,*

*Director of the Texas Center for Climate Studies*

**2:15p.m. Texas State Water Planning and Brazos G Regional Planning for the Future**

*Mr. Tony Smith, Associated Vice President, Carollo Engineers*

**3:00 p.m. “Your Aquifer and You: Data Insights from the Middle Trinity Aquifer and the People Who Use It”**

*Dr. Joe Yelderman, Professor & Chair, Department of Geosciences, Baylor University*

*Dr. Logan Yelderman, Associate Professor of Psychology, Prairie View A&M University*

*Mr. Will Brewer, Graduate Assistant, Department of Geosciences, Baylor University*



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are Pleased to Announce the 21th Annual

## Bell County Water Symposium

### “Our Culture, Our Economy and Our Water Use”

November 16, 2022

8:00 a.m. - 3:30 p.m.

#### Location

**Bell County Expo Center - Assembly Hall**

**301 W Loop 121, Belton, TX**

*This event is open to the public free of charge*

Please RSVP by November 10th

254-933-0120

[tsmith@cuwcd.org](mailto:tsmith@cuwcd.org)

Clearwater Underground Water Conservation District and Bell County would like to extend a special thank you to the sponsors of the 21st Annual Bell County Water Symposium.

