Drought Contingency Plan 2025

Prepared by the City of Roswell

ROSWELL

New Mexico

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LIST OF ABBREVIATIONS

BOR	Bureau of Reclamation
COR	City of Roswell
DRAP	Drought Response Action Plan
DCTF	Drought Continuingly Task Force
ERP	Emergency Response Plan
GPCD	Gallons Per Capita Per Day
M	Mitigation
NDMC	National Drought Mitigation Center
NOAA	National Oceanic and Atmospheric Administration
NM	New Mexico
OMP	Operation and Maintenance Plan
PMDI	Palmer Drought Severity Index
PWS	Public Water Systems
RCC	Roswell City Council
RDCP	Roswell Drought Contingency Plan
USDM	U.S. Drought Monitor
USDA	U.S. Department of Agriculture
WCS	Water Conservation Specialist

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I. EXECUTIVE SUMMARY (Quoted text from *New Mexico Drought Plan: 2018* p 1)

"Drought is a common occurrence and has had acute impacts on New Mexico communities, industry, agriculture, and ecosystems." Developing a "drought response system that is adaptive to changing needs and conditions and is capable of being continually upgraded and enhanced through the incorporation of new information" is essential to the sustainability of the community. "The plan specifies that subsequent updates should be made every five years or as warrant."

The purpose of the Roswell Drought Contingency Plan is as follows:

- To conserve the available water supply
- To maintain supplies for domestic water use, sanitation, and fire protection
- To protect and preserve public health, welfare, and safety
- To minimize the adverse impacts of water supply shortages
- To minimize the adverse impacts of emergency water supply conditions
- To maintain and protect fresh water sources

"The Operational Framework (Section IV) develops a decision support system and communication plan by defining the organizational structure, roles, and individuals responsible for implementing the Drought Contingency Plan. The Drought Contingency Task Force (DCTF) is reaffirmed as the sole official point of contact between the drought plan development and implementation process and the Roswell City Council (RCC)."

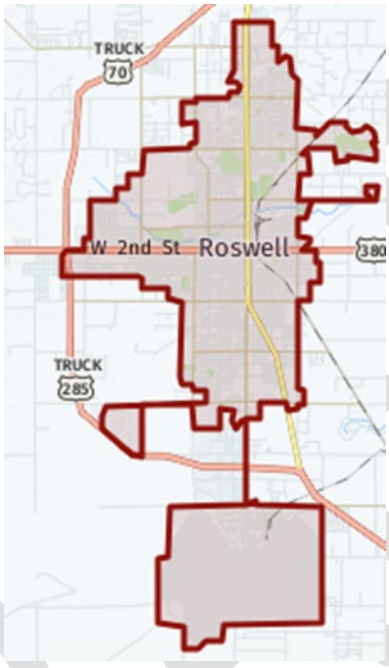
The Operational Framework (Section IV) develops a decision support system and communication plan by defining the organizational structure, roles, and individuals responsible for implementing the Drought Contingency Plan. The DCTF is reaffirmed as the sole official point of contact between the drought plan development and implementation process and the RCC.

The plan coincides and is consistent with the framework and drought stages established in the New Mexico Drought Plan: 2018. "The three drought stages are: Drought Watch Stage, Emergency Drought Stage, and Exceptional Drought Stage. These triggers will be constantly evaluated based on the analysis of current drought conditions.

"Section VIII title describes recommended mitigation actions for drought impacts within the Roswell Municipal use of water. (Section XI) -Future Work, discusses steps and strategies that can be explored to further refine (the City of Roswell's) drought response system. These include communication and collaboration with stakeholders, improvements to impact and vulnerability assessments, and evaluating/developing additional data for use as drought triggers."

The City of Roswell, located in Chaves County, New Mexico, provides water and wastewater services to approximately 48,422 residents within Roswell and the surrounding county shown in **Figure 1**. The area is entirely reliant on groundwater and has experienced multi-year drought

conditions. At the time of adoption of this plan, Roswell has experienced exceptional drought conditions since 2018-2024. This has resulted in a slight increased in groundwater pumping. Roswell will use the Roswell Drought Contingency Plan (RDCP) to increase water reliability and improve water management through conservation, expanded technologies, and improved modeling capabilities. This planning effort will work in tandem with Roswell's 2021 Water Conservation Plan.



City Limits, Highway, **Figure 1**

II. HISTORY AND PURPOSE **(Quoted text from *New Mexico Drought Plan: 2018* p 2)**

"Drought is a common occurrence in New Mexico, having impacted the Land of Enchantment since prehistoric times. During the more recent historical period, drought has had particularly acute impacts during the years 1900-1910, 1932-1937, 1945-1956, 1974-1977, 2002-2004, and 2011-2013 shown in **Figure 2** (Palmer Drought Index). Since 1998, New Mexico governors have issued seven emergency drought declarations in the form of executive orders. Drawing on work done by various state agencies and other southwestern states, the first New Mexico Drought Plan was introduced and implemented in 2002. Since then, the state drought plan has been updated five times in conjunction with drought declarations. On July 11, 2018, Governor Susana Martinez signed Executive Order 2018-031, ordering another update of the existing (New Mexico Drought Plan). The New Mexico Drought Task Force met on September 24, 2018, and approved an expedited process to update the drought plan."

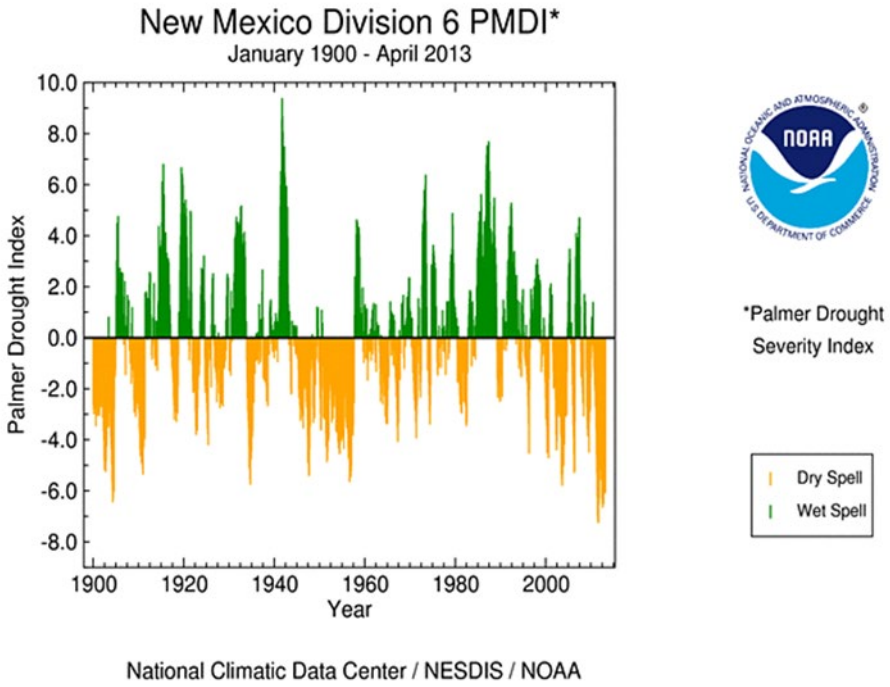


Figure 2

Summaries of Executive Orders Related to Drought (Excerpts in quotes from *New Mexico Drought Plan: 2018* pages 3-4)

"Term of Governor Gary Johnson (1995-2002)

Executive Order 1998-041

In October 1998, Governor Gary Johnson directed New Mexico to create a drought plan. The Governor described the behavior of drought in New Mexico as normal and periodic, triggering natural disturbances that negatively impact agricultural production and quality of the land, air, biomass, and water. These issues are difficult to respond to as drought evolves slowly, which presents challenges for efficient response.

This Order declared New Mexico to be in a state of drought whenever the continuation of rising temperatures and decreasing amounts of precipitation and snowpack prolong the dry conditions and harm surface water availability. The DCTF was established to review and edit the drought plan that had been drafted by the New Mexico Office of the State Engineer (NMOSE). State agencies were directed to identify specific vulnerabilities within their jurisdictions to provide mitigation strategies to the DCTF. Agencies were also asked to make recommendations to the Governor on how to respond efficiently to drought. Governor Johnson encouraged

individuals to identify drought vulnerabilities within their communities and take conservation actions when possible.

Executive Order 2002-019

In April 2002, an Executive Order was issued by Governor Johnson in response to a drought that intensified during the dry winter of 2001-2002. At that time, reservoirs were at their lowest points in two decades, and the snowmelt runoff forecast was one of the five lowest in the previous five decades. Drought conditions were expected to worsen, increasing fire danger and reducing stream runoff levels, potentially impacting compliance with the Endangered Species Act (ESA) and interstate compact deliveries.

Term of Governor Bill Richardson (2003-2010)

Executive Order 2003-019

In May 2003, Governor Bill Richardson declared an emergency drought condition for the state. Per Executive Order 2003-019, the extremely dry winters during the preceding seven years contributed to altered ecological regimes in which snowpack, runoff, streamflow, reservoir storage, and soil moisture were at their lowest levels since 1978.

The Order stated that the restoration of surface and subsurface flow to streams and reservoirs would take years of high precipitation. The Order outlined the purpose, tasks, and membership of the DCTF. Additionally, the Order identified the need for funding assistance to alleviate the deterioration of natural resources and environmental conditions, and stated that the funds would be released by the Office of the Governor upon the recommendation of the DCTF.

The Order directed the DCTF to continuously examine and monitor statewide drought conditions and recommend appropriate response measures to be implemented to mitigate drought impacts. The DCTF was chaired by the State Engineer and included cabinet secretaries from various state agencies.

Executive Order 2006-012

In March 2006, Governor Richardson once again declared a state of drought emergency in New Mexico, and directed state agencies to implement water-savings strategies and begin preparations to assist in drought relief efforts across the state. The Governor instructed the DCTF to prepare recommendations on additional water conservation and drought mitigation strategies that could be implemented. He also ordered all executive branches of state government to apply for emergency funds to carry out the existing drought plan.

Executive Order 2009-025

In June 2009, Governor Richardson issued a disaster declaration for the state due to drought. The Order directed the New Mexico Department of Finance and Administration (NMDFA) to make emergency financial resources available, the New Mexico Department of Homeland

Security and Emergency Management (NMDHSEM) to coordinate all drought responses and requests for assistance, and the New Mexico National Guard to provide military support to civil authorities as needed.

Term of Governor Susana Martinez (2011-2018)

Executive Order 2012-006

In May 2012, Governor Martinez declared New Mexico to be in an emergency state of drought and called for additional resources for mitigation due to its severity. This drought was compared to those of 1955 and 2011, then the driest years on record. The DCTF was directed to continue to convene quarterly for two years to assess the impacts of drought severity on the state's resources and economy, and make recommendations to the governor of intermediate actions and long-term mitigation strategies that could help stabilize environmental and economic conditions. The Governor also ordered a review of the existing drought plan, and revision as necessary.

Executive Order 2018-031

In July 2018, Governor Martinez ordered the DCTF to review and revise the drought plan with a focus on drought planning, mitigation, and response. Executive Order 2018-031 stated that as of July 11, 2018, New Mexico had received less than half of the average precipitation for the water year, resulting in record low snowpack and spring runoff. Drought impacts are described as being beyond the response capability of local communities."

Term of Governor Michelle Grisham (2019-Present)

Executive order 2025-210

New Mexico Governor Michelle Lujan Grisham has issued Executive Order 2025-210, declaring a drought and severe fire conditions emergency, directing the Drought Task Force to coordinate state agencies for water conservation, recommend actions, and find funding to address critical water shortages, low reservoir levels, and wildfire risk, urging local governments to implement restrictions and fire bans as part of a larger effort outlined in the state's long-term water plan.

Drought in the City of Roswell, NM

The City of Roswell serves a community of approximately 48,422 people. The City of Roswell (COR) Utilities Department serves an area of approximately 29.9 square miles. The system serves at total of 20,347 accounts, of which 18,049 are residential connections and 2,298 are commercial connections. The COR system is supplied by 24 wells used for domestic demands and 11 wells available for providing irrigation water to the golf course and some park lands. The city also owns several farms that are leased for agricultural purposes. The municipal wells can provide between 800 and 2650 gpm according to current well statistics

Roswell's DCTF was created on May 12, 2023 and held its first meeting on May 18, 2023.

Purpose of the Roswell Drought Contingency Plan (Based on the *New Mexico Drought Plan: 2018* p 1)

The purpose of this document, *Roswell Drought Contingency Plan: 2025*, is to provide the City of Roswell with an updated approach to address drought as well as support and promote water conservation to protect the population, cultural and natural resources through: a) synthesizing previous drought plan efforts and streamlining the content; b) making strategic adjustments to the previous conservation efforts; and c) laying a foundation for future collaborative improvements. To accomplish these objectives the RDCP:

- defines an updated drought operational framework to be followed in addressing drought and drought-related activities (Section IV)
- explains monitoring activities to identify drought status and triggers for the different stages of drought (Section V)
- describes impact and vulnerability assessment (Section VI)
- outlines the responses to drought based on triggers and impact conditions, identifies long- and short-term mitigation activities that can be implemented to cope with drought and to minimize the impacts of future droughts (Section VII)
- identifies actions that can be taken during a drought including communication with the public (Section VIII)
- acts as a catalyst for the creation and implementation of local drought planning and response efforts, including the drought plan update process (Section IX)
- includes a future work section describing potential work that is outside of the scope of this plan (Section X)

In designing the content of the RDCP, every effort was made to use existing partnerships and the input of various stakeholders from local entities to provide feedback on the effectiveness of planned or implemented responses and mitigation measures.

The RDCP is intended to complement the ongoing water resource planning efforts of Strategic Water Supply Program. The Strategic Water Supply Program Guidelines and the New Mexico Water Plan clearly identify drought planning as an important item of discussion in any water planning effort. It is anticipated that the measures and actions outlined in the RDCP will be incorporated into existing and future water planning efforts.

Summaries and web links have been used to streamline the contents of the plan. To allow access to The RDCP by the largest possible audience without the need for high document publication costs, the entire online document has been uploaded to the City or Roswell's website. In addition to hosting the RDCP, the website includes links to current drought conditions and updates by the Drought Monitoring Work Group (DMWG).

The RDCP should be considered a living document to which continual review, evaluation, and revision must be made to enhance successes, failures, and changes.

Value of Drought Planning **(Quoted text from *New Mexico Drought Plan: 2018* pages 5 & 6)**

"Drought planning develops an integrated drought response system identifying vulnerabilities, impacts, and responses. Documenting initiatives and programs in a drought plan can improve the potential to obtain public financing and public participation.

In 1998, New Mexico initiated planning efforts to be more proactive and anticipate drought impacts. Those efforts resulted in a comprehensive drought plan that addresses drought response and potential vulnerabilities in advance of drought.

New Mexico drought impacts can be severe and recovery can be challenging. Historically impacts have included:

- early and severe wildfire seasons
- adverse effects on agriculture
- loss of tourism resulting from reduced snowpack, streamflow's, and recreational opportunities
- low reservoir levels
- shortages in municipal water supplies
- reduce rangeland and forest health
- potential health problems for humans
- other meteorological, agricultural, hydrological, socioeconomic, and ecological consequences

This plan benefits drought assessment and response efforts in the city by developing an adaptive organizational infrastructure that improves systems monitoring as needs and impacts change, supporting collaboration among stakeholders, and integrating these efforts with policy experts and decision-makers. These components are further described in the subsequent sections."

III. DEFINITION OF DROUGHT **(Quoted text from *New Mexico Drought Plan: 2018* pages 6 & 7)**

"Drought is a normal characteristic of the climate in New Mexico, and unlike most natural disasters, occurs slowly and persistently. Due to this phenomenon, government response to drought has typically been slow and fragmented, with little focus on preparedness and mitigation.

Drought is a complex time-dependent physical process that can adversely impact regions on both the macro and micro scales. Drought is difficult to define succinctly, and there is no universally accepted definition. Drought has the following characteristics:

- unlike floods and other natural disasters, it is not a discrete event
- it is often the result of many complex factors, and may not have a well-defined beginning or end, and
- its impacts vary by geographic location and/or economic sector, making the definition of drought specific to each affected group or location.

Definitions of Drought

The most commonly used drought definitions are based on meteorological, agricultural, hydrological, socioeconomic, and ecological impacts.

Meteorological

Meteorological drought is a period of substantially reduced precipitation. It is commonly defined as an interval of time, generally on the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatic average moisture supply.

Agricultural

Agricultural drought occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought commonly occurs after or during meteorological drought, but before hydrological drought. Agricultural drought can also adversely impact livestock and other dry-land agricultural operations.

Hydrological

Hydrological drought occurs when there are deficiencies in surface and subsurface water supplies. It is measured as reduced streamflow, snowpack, reservoir, and groundwater levels. A delay usually occurs between the lack of precipitation and later deficits observed in water measurements. Due to this, hydrological response tends to lag behind other drought indicators.

Socioeconomic

Socioeconomic drought occurs when physical water shortages affect the health, well-being, and quality of life of people, or when the water shortages adversely impact economic activity.

Ecological

Ecological drought occurs when there is a prolonged and widespread deficit in naturally available water supplies, creating stresses across ecosystems."

IV. OPERATIONAL FRAMEWORK **(Quoted text from *New Mexico Drought Plan: 2018* p 7)**

"This section documents the operational framework of the RDCP. It designates the individuals tasked with implementing the plan and includes steps to communicate the drought response actions to the public.

The operational framework, based on National Drought Mitigation Center (NDMC) planning guidelines, outlines the organizational structures and membership necessary to carry out the various aspects of the drought plan including:

- conducting drought monitoring
- developing an adaptive drought response system
- initiating mitigation actions
- updating the drought plan
- encourage water conservation

City of Roswell's City Council (Text based on *New Mexico Drought Plan: 2018* p 9)

The City of Roswell's City Council calls upon the DCTF to provide drought updates and recommendations as needed. The RCC has the final authority in declaring drought emergencies. The DCFT shall, as needed, update Roswell City Council on drought conditions, status, and recommended actions.

Utility Director (Text based on *New Mexico Drought Plan: 2018* p 9)

The Utility Director or their designee will be the centralized point of contact for drought planning, coordination, and response efforts in the City. The primary role of the Utility Director will be to facilitate information sharing to RCC and the general public. This position will have the following responsibilities:

- provide regular updates to the DCTF
- serve as a community liaison and information facilitator
- facilitate agency work groups and other community partnerships
- establish priorities and meeting schedules for the DCTF
- engage with agencies and community drought groups to compile impacts and actions as needed
- maintain RDCP continuity by serving as the point of contact for plan activity and updates

Drought Contingency Task Force (Quoted text from *New Mexico Drought Plan: 2018* p 9)

"The DCTF oversees the implementation of drought-preparedness activities in the City of Roswell. Additionally, the DCTF plays major roles in intergovernmental drought preparedness, response coordination, agency collaboration, and media information releases. The DCTF is the singular official channel to the (RCC) for drought plan activities in the city. The DCTF has

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submitted reports that review current and ongoing drought mitigation activities. This plan maintains the DCTF's roles, and schedules future meetings based on drought severity as needed within the city."

The Drought Task Force (DCTF) maintains, updates, and communicates the drought plan to support the planning process. The DCTF will work with the Utility Director to summarize impact assessments from various agencies, compile lists of drought impact specific to each agency, communicate drought plan activities to different audiences, and conduct other activities as directed. The DCTF meets as needed in response to elevated drought stages and to address specific issues that require targeted action

DCTF Members in 2023

Judy Stubbs	Residential Customer
Thomas E Jennings	Residential Customer
Rose Duran	Commercial Customer
Cameron Grimm	Commercial Customer
Aron Balok	Pecos Valley Artesian Conservancy District
Sean Benedict	Roswell Independent School District
Jonathan McGary	Supervising Ranger, Bottomless Lakes State Park (Ex Officio Member)
Cristina Arnold	City Councilor
Chantel Longway	Water Conservation Specialist (Staff Liaison)

DCTF Member in 2024 and Final

Judy Stubbs	Residential Customer
Thomas E Jennings	Residential Customer
Todd DeKay	Commercial Customer (Vacant as of August of 2025)
Nathan Cobb	Commercial Customer
Aron Balok	Pecos Valley Artesian Conservancy District
Sean Benedict	Roswell Independent School District
Jonathan McGary	Supervising Ranger, Bottomless Lakes State Park (Ex Officio Member)
Darrell Johnson	City Councilor
Chantel Longway	Meter Reader Supervisor (Staff Liaison)

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Merideth Hildreth AICP Planning & Zoning Administrator (Staff in Advisory Capacity)

Drought Related Funding

A number of drought-related funding sources exist including, but not limited to:

- City of Roswell
- Bureau of Reclamation (BOR)

V. COORDINATED DROUGHT MONITORING **(Quoted text from *New Mexico Drought Plan: 2018* p 12 - 14)**

"Drought monitoring, assessing current conditions, and predicting future drought development are key to implementing and updating the (RDCP). The U.S. Drought Monitor (USDM) is used by the (DCTF) to monitor drought in the city. The USDM analyzes and maps current drought conditions using five drought intensity categories. It is produced weekly through the joint efforts of the National Drought Mitigation Center (NDMC), the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Department of Agriculture (USDA)."

In the City of Roswell, the Utility Director and or their designees shall review current drought conditions on as needed basis (**Figure V.1 and V.2**). The Utility Director and or their designees shall also track rainfall and snow amounts using local weather stations, to predict such water accumulation in the aquifers.

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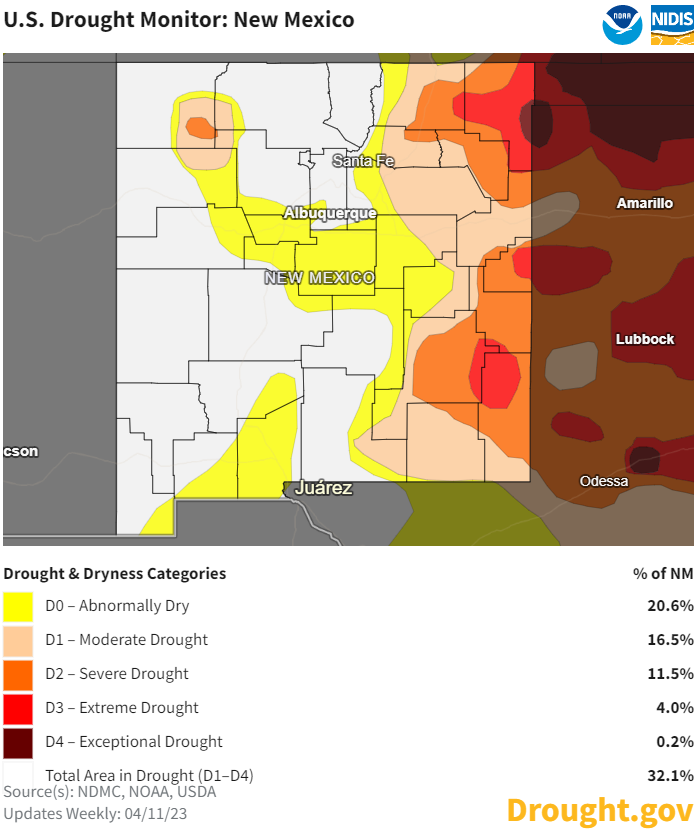


Figure V.1

(Source - New *Mexico Drought Plan: 2018* p 13)

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4/25/2023	0	100	87.87	58.05	8.58	0
Last Week	4/18/2023	0	100	87.87	58.05	8.58	0
3 Months Ago	1/24/2023	0	100	93.84	58.17	8.58	0
Start of Calendar Year	12/27/2022	0	100	84.8	58.17	8.58	0
Start of Water Year	9/27/2022	0	100	100	61.97	9.63	0
One Year Ago	4/26/2022	0	100	100	100	94.16	58.25

Figure V.2

"A network of data gathering sites, operated by various state and federal agencies, provide the most current climate, streamflow, and reservoir information for review by the Utility Director and or their designees. Data from water levels are reviewed as either raw data or more refined indicators of drought-related conditions. Any changes to the current city drought classifications are then recommended to the RCC. The USDM is an analysis of drought conditions and does not include any forecast information."

The City of Roswell purchased and installed three well monitors throughout the city. Below is a graph showing the observed water level of Well 18 over time (Figure V.3).

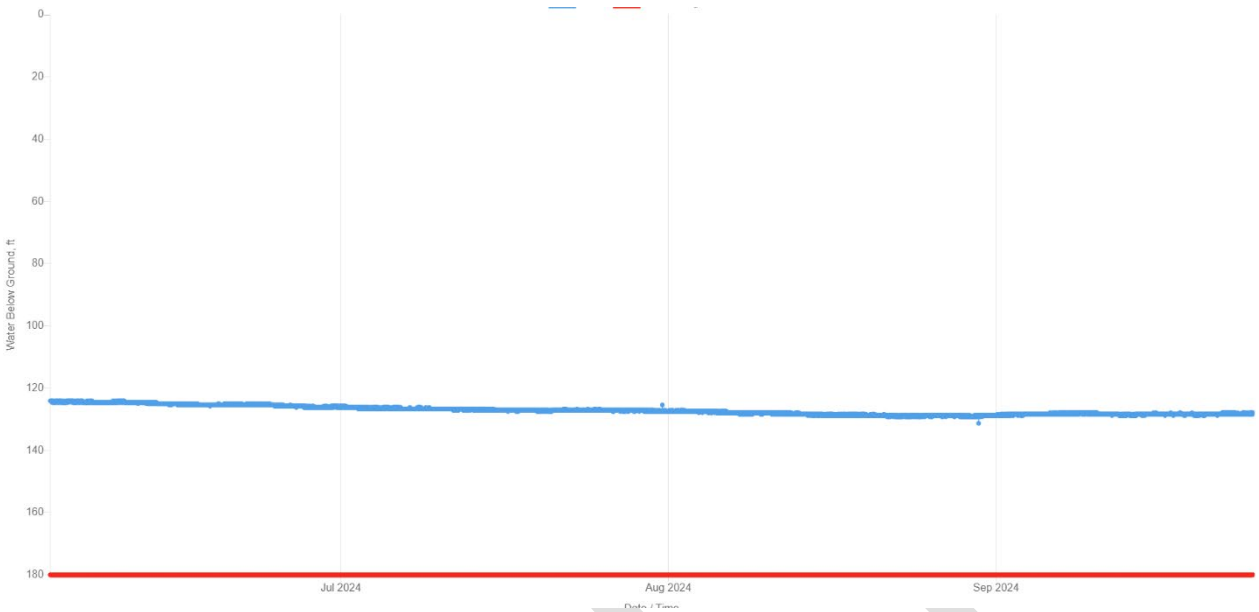


Figure V.3

To further understand the effect of drought on the city of Roswell Municipal well field, the DCTF through an RFP process, contracted Daniel B Stevens and Associates (DBS&A) of Albuquerque, NM to provide a hydrogeologic assessment. DBS&A produced a technical memorandum (memo) dated October 13, 2025 *Impacts of Drought on City of Roswell Groundwater Water Levels and Pumping* which is attached in appendix A.

VI. IMPACT AND VULNERABILITY ASSESSMENT **(Quoted text from *New Mexico Drought Plan: 2018* pages 14-15)**

"Vulnerabilities are increased susceptibilities to drought impacts, and are understood by identifying and assessing impacts (UNCCD, 2016). Drought impacts are the consequences of physical drought, including but not limited to crop yield losses, reservoir depletions, and loss of vegetation in rangelands.

The first step in assessing vulnerability is an identification of the impact, which is a measure of the effects that have already occurred. The assessment of vulnerability determines the structure of underlying systems and identifies how the systems will be impacted by drought. Impact and vulnerability assessments provide the basis for drought response and mitigation planning."

The DCTF identified the following potential vulnerabilities for the City of Roswell:

- Drought contributes to lower water table level that can impact the agricultural economy surrounding Roswell.
- Drought stresses the urban forest causing distressed trees to die or become diseased throughout the municipal area. A distressed urban forest has an aesthetic and an economic impact. Mature trees store carbon and provide shade thereby reducing the

heat island affect in urban environments. Removal of mature tree canopy increases heat captured and released in the urban environment and therefore increases ambient temperature.

- Increased fire risk due to accumulation of dry grass, weeds, and vegetation, possibly enhanced by dead and/or dying trees, which presents a danger to residence.
- Increased risk of negative wildlife encounters in the city due to lack of forage.
- Excess stress on athletic facilities, parks, school grounds, and private facilities, resulting in economic loss and reduced opportunity for children and adults to exercise and compete.
- Disadvantageous to the local economy in competition for tourist dollars, new move-ins, and economic development.
- The overall rising temperatures in this area contribute to public and animal health and well-being concerns such as dehydration. With record-breaking high nighttime temperatures, houses and bodies are unable to cool off at night. Source: Duke University Nicholas Institute for Energy, Environment & Sustainability (Heat Policy Innovation Hub).
- Drought conditions contribute to habitat degradation and loss for fish and wildlife. Roswell is surrounded by state and federal public lands which harbor threatened and endangered species.
- Increased expenditures for energy and air conditioning across the board for public and private entities and potential impacts to the energy grid.
- Increased use of water to produce energy for cooling. In 2012, The Department of Energy has initiated policy and established a Water-Energy Tech Team that published *The Water-Energy Nexus: Challenges and Opportunities*. Source: 2014 U.S. Department of Energy The Water-Energy Nexus: Challenges and Opportunities Overview and Summary.

The DBS&A Memo identified the following conclusions for the City of Roswell:

- A one-unit decrease in Palmer Drought Severity Index (PDMI) corresponds to a decline of approximately 0.45 feet in groundwater elevation in the following month.
- The aquifer at Well #18 has an estimated saturated thickness of about 539 feet, and the predicted decline during a severe drought (PDSI -3) of 1.35 feet represents less than one percent of the aquifer saturated thickness.
- Statistical analysis indicates an increase of City pumping of about 576 acre-feet per year due to a 3-point drop in PDMI, which represents a change from normal drought to severe drought. This increase in pumping is about 4.5 percent of the recent average annual City pumping amount of 12,672 acre-feet per year.

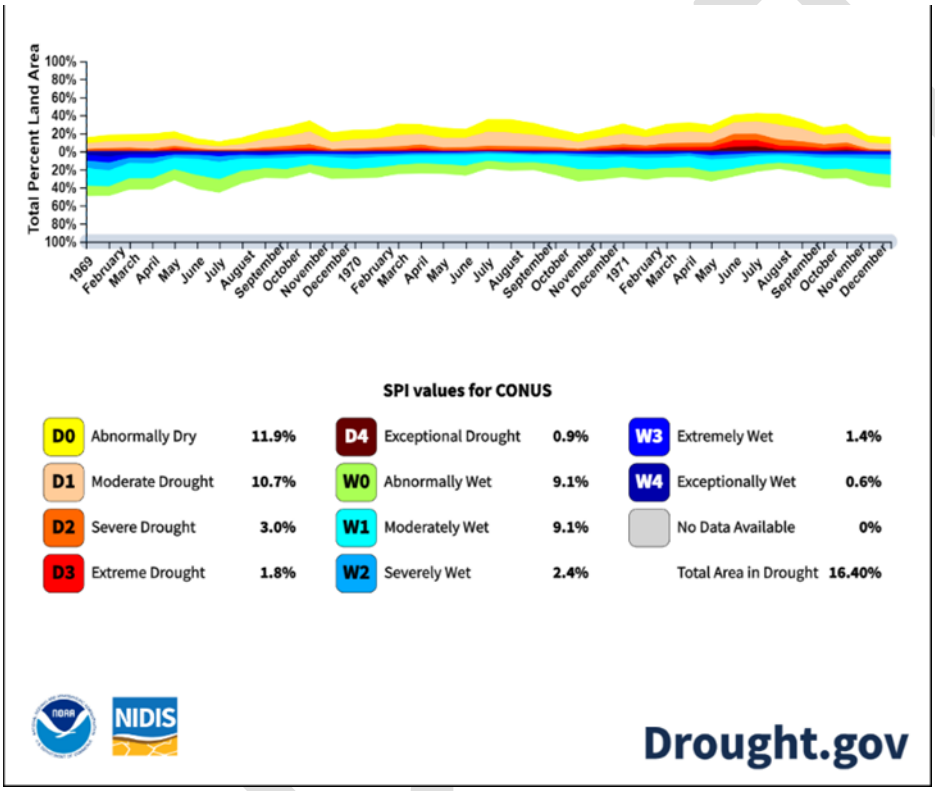
VII. TRIGGERS AND RESPONSE **(Text based on *New Mexico Drought Plan: 2018* pages 16 & 17)**

Triggers

The city of Roswell will use three drought phases: Drought Watch Stage, Emergency Drought Stage, and Exceptional Drought Stage. The city of Roswell will use a combination of Well Monitors via the Pecos Valley Artesian Conservancy District, Roswell Well Bubblers and the U.S Drought Monitor (PDMI).

Figure VII.1, the USDM graph shows the drought conditions in New Mexico from 1969 to 1971, which was part of the 1931-1979 major drought in New Mexico that occurred in intervals throughout the years.

Figure VII.1



The triggers and restrictions are shown in **Figure VII.2.**

Figure VII.2 Three Triggers for Drought Response
(Framework for Table information based on *New Mexico Drought Plan: 2018* p 17)

Pre-Drought	**Initiation**	Pre-Stage D0-D1 is the continued observation of drought and water conscious behavior to promote water saving activities.
	Conditions	A stage where the city of Roswell is constantly in.
	Termination	This stage is not entered into or out of; instead, it is a constant reminder to remain vigilant about water usage

		and conduct public education and water conservation activities.
	Restrictions	Enforce the rules and restrictions in current City of Roswell Municipal Code.

Drought Watch	**Initiation**	D2 drought severity via the U.S Drought Monitor
	Conditions	Ask all Roswell Water users to reduce consumption through voluntary measures described in this stage.
	Termination	When drought severity is below D2, the City of Roswell will return into the Pre-Drought Stage.
	Restrictions	**Target**: Minimize the increased drought stage pumping. **Water Utility Measures**: • Increase public education and outreach regarding water use reduction • Reduce water consumption at all city facilities. **Voluntary Water Use Restrictions:** • Encourage customers to reduce water consumption

Emergency Drought	**Initiation**	D3 drought severity via the U.S Drought Monitor
	Conditions	Ask all Roswell Water users to reduce consumption through voluntary measures described in this stage.
	Termination	When drought severity is below D3, the City of Roswell will return into the Drought Watch Stage.
	Restrictions	**Target**: Minimize the increased drought stage pumping. **Water Utility Measures**: • Increase public education and outreach regarding water use reduction • Decrease routine line flushing and testing • Decrease routine fire hydrant flushing and testing **Voluntary Water Use Restrictions**: • Request all Industrial, Commercial, and Institutional customers reduce consumption

Exceptional Drought	**Initiation**	D4 drought severity via the U.S Drought Monitor
	Conditions	Ask all Roswell Water users to reduce consumption through voluntary measures described in this stage.
	Termination	When drought severity is below D4, the City of Roswell will return into the Emergency Drought.
	Restrictions	**Target:** Minimize the increased drought stage pumping.

		Voluntary Water Use Restrictions: • Increase targeted outreach to high consumption customers to urge water use reduction • Encourage no outside watering between 10 am – 6 pm during the summer (April 1 to August 31st) for all customers. • Increase code enforcement of Waste of Water Municipal City Ordinance.

The City of Roswell may declare the drought stage, upon being notified of conditions from the Utility Director of their designee. After such declaration, the conditions will continue to be monitored weekly to ensure descending into the lowest drought stage in an efficient and quick manner. The mayor may declare an emergency, implement a drought stage, or enhance any drought stage restrictions, after which the RCC shall meet within five days to vote on the matter. **Legal Review**

Notification

Notification of the Public:

The Public Affairs Office or designee shall notify the public with voluntary actions requested according to given drought stages by using any combination of the following:

- public service announcements
- social media announcements
- news media (online/print)
- digital public service messages on public and private digital billboards, digital signs, and electronic message centers
- Continuous bill inserts showing the current water restriction until the water system is at a Pre-Drought Stage condition.
- Customer notification via mail and/or email

This notification shall take place within forty-eight (48) hours. This will allow customers to be informed of the drought stage via a broad range of notification systems. The notifications will be made in English and Spanish to ensure to notification for the mass majority in Roswell, NM.

Additional Notification:

The Utilities Director or designee shall directly notify the following individuals and entities:

- City Manager
- Mayor
- City and/or County Emergency Management Coordinator(s)
- Wholesale Customers
- Critical water users, i.e. hospitals

- Parks/street superintendents & public facilities managers

This notification shall take place within twenty-four (24) hours. This will allow customers to be informed of the drought stage via a broad range of notification systems.

Mitigation **(Quoted text from *New Mexico Drought Plan: 2018* pages 20)**

"In addition to planning for triggering emergency responses, mitigation planning helps communities and agencies proactively prepare for the next drought. For example, a mitigation strategy for the City of Roswell would be enhancing supply through aquifer recharge. Other mitigation strategy examples include demand management through reducing losses, reducing use, and employing economic incentives. The goal of mitigation planning is often defined as supporting communities to become resilient in the face of drought by reducing vulnerabilities to impacts in the underlying social, economic, and environmental systems. (Wilhite et al., 2014)."

The overall mitigation actions for drought management in Roswell are as follows:

Turf Management Education

Water Step Cost Education and Evaluation of a Person Using More than Average

Reduce Water Use

Turf Removal Education

Abstract of Water Rights

Outreach education on water and energy conservation through a coordinated public information and public service announcement communication guide and policy

Hold local and regional water conservation summits

Replace failing infrastructure

Encourage water reuse and recycling with water harvesting

Hold Fix a Leak Weeks (EPA)

Hold my water pledge in April annually (Awareness)

Plan for, design, and fund water reclamation infrastructure such as "purple pipe" technologies to water public, institutional, and private vegetation, turf, golf courses, cemeteries, and recreational facilities

Draft and adopt Water wise vegetation and landscaping policies and ordinances

DRAFT

Use of Hydro Delta to detect water leaks in both public and private infrastructure through a satellite imagery system. Source: New Mexico Environment Department.

Use of tools and technologies such as N0-DES™ to filter water that would otherwise be wasted when flushing fire hydrants.

VIII. ENFORCEMENT ACTIONS

Enforcement actions are possible if ordinances exist to support them. Currently the City of Roswell has one ordinance regarding waste of water. Ordinance could be modified to increase water conservation measures. Attached in Appendix B are example ordinances that could be added by the city council in the future.

IX. DROUGHT PLAN UPDATE PROCESS **(Quoted text from *New Mexico Drought Plan: 2018* p 29)**

"There are not any previously established guidelines for drought contingency plan content and updates. Moving forward, the drought contingency plan should be updated every five years for the purpose of keeping the document current." After drought emergencies, the Utility Director or their designee evaluate the current plan and make proposed modifications to the RCC.

X. FUTURE WORK

Water Conservation

The City of Roswell has adopted the following goals for the water conservation program:

- Reduce nonrevenue water to below 10%
- Track billed vs. produced water more closely
- Reduce outdoor water use
- Reduce water waste
- Reduce peak summer demands for more efficient system operation and reduced energy use
- Reduce pumping and treatment costs
- Educate the public about water conservation
- Increase the water audit data validity score from 67 to a minimum of 80

To see the full City of Roswell Water Conservation Plan, go to the provided link https://www.roswell-nm.gov/DocumentCenter/View/20084/Water-Conservation-Plan---Dec-2021?bidId=.

The Water Conservation Plan is to be used with the Communication and Outreach Plan developed by the DCTF to educate the community stakeholders in conserving water and fixing unchecked leaks.

DRAFT

Performance Measures

Ensure the RDCP is effective, performance metrics should be used to track positive change. The following is a list of performance metrics:

- A survey can be submitted to customers to gauge their perception of current drought conditions
- Track monthly GPCD in relation to how many active connects are currently used. This will give the average GPCD for consumers. This can be breaking down by commercial, city, and residential use.
- Quarterly track the number of leaks the city repairs, to ensure the line replacement plan is effective at reducing water loss.

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XII. APPENDICES

DRAFT

Memorandum

To: Roswell Drought Task Force **Date:** October 13, 2025

From: Todd Umstot, Lily Rich, and Neil Blandford

Subject: Impacts of Drought on City of Roswell Groundwater Water Levels and Pumping

Daniel B. Stephens & Associates, Inc. (DBS&A) conducted an analysis to evaluate the effects of drought on the City of Roswell (City) supply wells in terms of groundwater levels, aquifer saturated thickness, and pumping required to meet the City's water demand. This evaluation was undertaken to quantify the relationship between regional drought conditions and the hydrologic response of the aquifer system that is the source of supply the City's wells.

The analysis integrates multiple data sources, including automated and manual groundwater-level measurements collected by the Pecos Valley Artesian Conservancy District (PVACD), groundwater levels collected using "bubblers" at City Well #18, Palmer Drought Severity Index (PDSI) records, and monthly City pumping amounts. These datasets were used to (1) assess the correlation between drought severity and water-level fluctuations in the Roswell Basin, (2) estimate the potential magnitude of water-level declines during drought conditions, and (3) evaluate whether drought influences the City's overall groundwater pumping requirements.

Water Level Data and Correlation Between Wells

Water level data from PVACD were obtained from New Mexico Water Data (https://newmexicowaterdata.org/) for 10 wells in the Roswell Basin (Figure 1). These data include automated depth-to-water measurements, which generally begin in December 2021 and extend through June 24, 2025, and manual measurements that span several decades and continue until September 2024. Automated measurements are recorded at 2-hour intervals, while manual measurements are typically collected every 10 days. Figure 2 shows time series plots of the groundwater elevations for PVACD wells Transwestern, Berrendo-Smith, and LFD. These three wells are the closest monitored PVACD wells to City Well #18.

The City installed a bubbler in Well #18 on June 3, 2024. Data from this bubbler were retrieved through September 29, 2025, with depth-to-water levels recorded at 15-minute intervals. Figure 3 shows a time series for the available water level data converted to elevation based on a land

surface elevation of 3,650 ft, msl. The average groundwater elevation from the data is about 3,526 ft msl.

Figure 4 shows a plot of the change in water levels at Well #18 and the three nearby PVACD wells starting in June 2024. Visual inspection of the the plot shows that the Well #18 water level mostly closely corresponds with the PVACD Berrendo-Smith well. This observation is supported by time-series analysis of the groundwater level data. Time-series analysis encompasses a variety of mathematical methods developed to statistically analyze sequential data points to identify patterns, trends, and correlations.

Time-series analysis was conducted to compare daily observed water levels in Well 18 with those from the three nearest PVACD monitor wells. Data were aggregated to daily means, and cross-correlations were evaluated across ±30-day lags (Figure 5). The strongest correlations were found for the Berrendo-Smith and Transwestern wells, both showing close agreement with Well 18 after accounting for slight time lags (Table 1). Although the Transwestern well produced marginally lower error metrics, the Berrendo-Smith well has a slope closer to one, indicating more similar water-level fluctuations to Well 18. Therefore, the long-term Berrendo-Smith record was selected for evaluating drought effects on City Well 18.

Table 1 Summary of cross-correlation and regression results for Well 18 and nearby PVACD monitor wells

Well Name	Lag (Days)	Peak Correlation at Lag (R)	Slope	Intercept (ft)	Squared Correlation of Regression (R^2)	Root Mean Squared Error (ft)	Samples (n)
Berrendo-Smith	+4	0.9810	0.887	73.93	0.9586	0.686	307
Transwestern	-5	0.9809	1.459	1.54	0.9621	0.669	331

Palmer Drought Severity Index and Correlation with Water Levels

The Palmer Drought Severity Index (PDSI) is widely used for assessing long-term drought and wetness conditions in the United States. Developed by Wayne Palmer in the 1960s, the index

was designed to measure cumulative departures in the surface water balance by incorporating both current and antecedent conditions of moisture supply (precipitation) and demand (potential evapotranspiration). The index is calculated using a hydrological accounting system that includes a two-layer soil moisture "bucket" model, with inputs such as weekly precipitation, average temperature, soil water-holding capacity, and the previous index values. The PDSI provides a standardized measure of moisture anomalies, ranging from about -10 (extreme drought) to +10 (extreme wetness), although values between -4 and +4 are most common. Values below -2 indicate moderate to severe drought, while values above +2 indicate unusually wet conditions (Table 2). To account for the duration of events, the index combines the current moisture anomaly with a portion of the previous index, which allows it to reflect not only the severity but also the persistence of droughts or wet spells.

Table 2 Palmer Drought Severity Index Categories

Category	PDSI Range
Extreme Drought	-4.0 or less
Severe Drought	-3.0 to -3.9
Moderate Drought	-2.0 to -2.9
Near Normal	-1.9 to +1.9
Unusual Moist Spell	+2.0 to +2.9
Very Moist Spell	+3.0 to +3.9
Extremely Moist	+4.0 or above

The PDSI is published by the National Oceanic and Atmospheric Administration for each climate division in the United States. The Roswell Basin lies within New Mexico Climate Division 7 (the Southeastern Plains), which generally follows the Pecos River watershed from upstream of Santa Rosa Reservoir to the Texas–New Mexico state line, and also extends east beyond the watershed to include areas such as Lovington and Hobbs. Monthly PDSI data are available for this division from 1895 to the present (NCEI, 2025).

Time-series analysis was performed on the groundwater level data from the Berrendo-Smith well and the PDSI to evaluate the effect of drought on water levels in the Roswell Basin. Figure 6 shows the manual water level measurements at the Berrendo-Smith well compared to the PDSI for January 1946 through June 2025. The Berrendo-Smith water levels have a long-term trend over the decades and an inter-annual variation due to irrigation pumping in the region. The time series analysis accounts for spikes, outliers, and seasonal effects. First, the water-level series was

"cleaned" by removing abrupt jumps greater than 10 feet and interpolating across the removed points. The 10-day daily series was then used to calculate monthly averages, and a rolling z-score filter was applied to flag and interpolate statistical outliers. Both the water-level and PDSI series were converted to average monthly values, aligned over their common time period, and passed through a Fast Fourier Transform (FFT) filter that removed the very long-term trends and seasonal cycles at annual and semiannual frequencies. The resulting de-seasonalized and detrended changes are standardized into z-scores, allowing direct comparison of variability between the two series (Figure 7).

Next, the lag correlations were computed between the standardized water-level changes and PDSI changes over a ±24-month window. A positive lag of 1 month was determined to have the highest correlation (R = 0.589; R^2 = 35%) meaning that 35% of the variation in the water level changes (after removing seasonal pumping effects and long-term trends) can be explained by corresponding changes in the drought index with a 1-month lag.

The correlation analysis can be used to calculate the effect of a change in the PDSI on the water level from the following equation:

$$\Delta WL = R * \sigma_{WL} * \frac{\Delta PDI}{\sigma_{PDI}}$$

where

ΔWL is the change in water level (feet)
R is the correlation coefficient (0.589)
σ_{wl} is the standard deviation of the water-level change (1.24 feet)
σ_{pdi} is the standard deviation of the PDSI change (1.63)
Δ_{pdi} is the change in the PDSI

So, for each 1-point change in the PDSI, there is a corresponding change of 0.45 feet in the water level at the Berrendo-Smith well. For example, if there was a change from normal conditions (PDSI = 0) to a severe drought (PDSI = -3), a month later, the water level in the Berrendo-Smith well would drop 1.35 feet.

Aquifer Saturated Thickness

The Roswell Basin contains two principal aquifer units. The shallow aquifer occurs in valley-fill alluvial deposits and the upper portions of the Artesia Group, and the underlying carbonate

aquifer, which consists primarily of the San Andres Formation. These aquifers are separated by a semiconfining unit on the east side of the basin, but this semiconfining unit is absent in the west side of the basin. Where the semiconfining unit is present, water in the underlying carbonate aquifer occurs under pressure, or "confined" conditions. Where the semiconfining unit is absent, water in the carbonate aquifer occurs under "unconfined" conditions and the top of the aquifer is equivalent to the water table. The carbonate aquifer is unconfined in the western part of the basin, where it receives recharge in what is known as the intake area.

Well #18 is located in the intake (unconfined) portion of the carbonate aquifer just west of the confined aquifer area. In this region the top of the aquifer is equivalent to the water table elevation, which is the same as the water level measured in Well #18. The top of the carbonate aquifer was mapped by Welder (1983), but the base of the aquifer remains uncertain. In the vicinity of Well #18, Welder (1983) mapped the carbonate aquifer as being approximately 260 feet thick, with the water table occurring above an elevation of 3,500 ft msl. This mapped elevation is similar to, but about 35 feet higher than, the elevation recorded in the Well #18 log, which shows the contact between the alluvium and limestone at approximately 3,465 ft msl.

According to the well log, the principal water-bearing zone screened at the well is 61 feet thick. The saturated thickness of aquifer above this zone averages about 478 feet, and the total saturated thickness (water column) in the well averages approximately 539 feet (Figure 8). The predicted water-level decline during a severe drought of 1.35 feet is less than one percent of the total water column in the well, indicating that the well's yield would remain essentially unaffected by drought conditions.

Pumping Data

Monthly groundwater pumping records for the City from 2015 through July 2025 were compared to the monthly PDSI to evaluate the effect of drought on City pumping. For the period 2015 through 2024, City pumping averaged 12,672 acre-feet per year, with a range from 11,770 acre-feet in 2015 to 13,628 acre-feet in 2020.

As was done with the water level data, the monthly pumping data were de-seasonalized and then a cross-correlation was performed between the total pumping and the PDSI. This analysis indicated the highest correlation at a lag of zero, meaning that there is no delay between the occurrence of drought or wet conditions and the resulting change in City pumping amounts. A regression on the de-seasonalized pumping data and the PDSI was performed and a statistically significant but weak correspondence was found between drought and City pumping. The slope

of the regression was -16 acre-feet per month per PDSI unit, indicating that in the case of a decrease of 3 PDSI units from normal to severe drought conditions, the City pumps 48 acre-feet more per month or 576 acre-feet more per year. this increase in annual pumping due to drought equates to an increase of about 4.5 percent of the average annual City pumping.

Conclusions

Water levels, drought, and pumping data were analyzed to evaluate the relationship between drought severity and groundwater conditions in the vicinity of Roswell, with a particular focus on City Well #18. The analysis demonstrated that water levels in Well #18 are highly correlated with those at the nearby PVACD Berrendo-Smith well assuming a short 4-day lag between the two wells. Consequently, the Berrendo-Smith well provides a reliable analog for evaluating long-term drought effects on Well #18. Analysis of the Berrendo-Smith well water-level record for the period 1946 to 2025 shows a moderate but statistically significant relationship between groundwater level changes and drought severity as measured by the PDSI. A one-unit decrease in PDSI corresponds to a decline of approximately 0.45 feet in groundwater elevation in the following month.

The magnitude of drought-related changes in water levels is small compared to the available saturated thickness of the carbonate aquifer at Well #18. The aquifer at Well #18 has an estimated saturated thickness of about 539 feet, and the predicted decline during a severe drought of 1.35 feet represents less than one percent of the aquifer saturated thickness. Consequently, the yield and operational reliability of Well #18 are not expected to be materially affected by drought conditions.

Analysis of City pumping data from 2015 through 2024 also indicates a statistically significant but relatively weak relationship between the occurrence of drought and total City pumping. Statistical analysis indicates an increase of City pumping of about 576 acre-feet per year due to a 3-point drop in PDSI, which represents a change from normal drought to severe drought. This increase in pumping is about 4.5 percent of the recent average annual City pumping amount of 12,672 acre-feet per year.

Overall, while groundwater levels and City pumping both respond to drought conditions, the magnitude of the responses is small relative to the aquifer's storage capacity and its ability to provide water to City wells. The carbonate aquifer has sufficient saturated thickness to comfortably buffer against short-term drought effects on the City's water supply.

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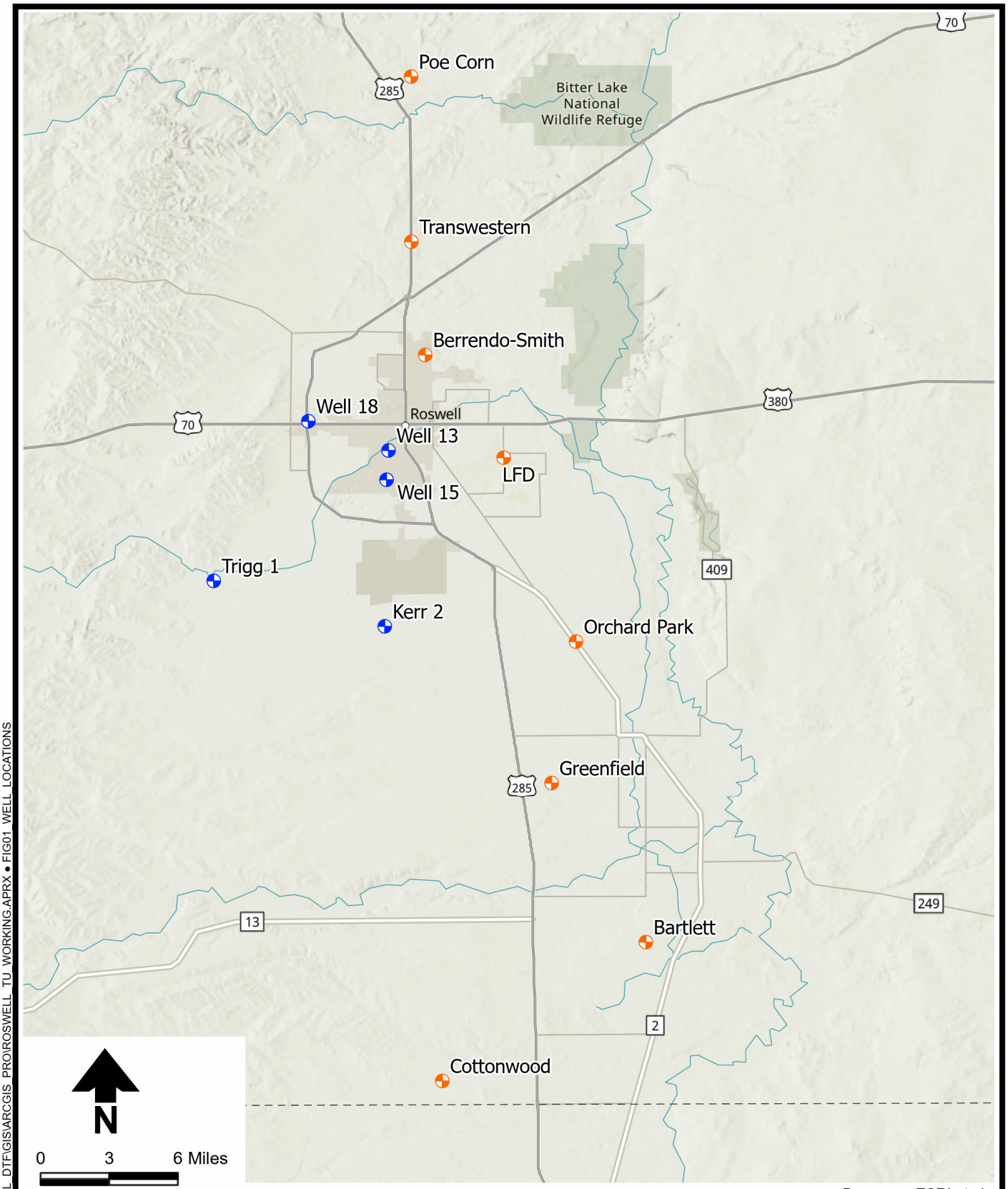

Basemap: ESRI et al.

Explanation

- City of Roswell well
- PVACD well

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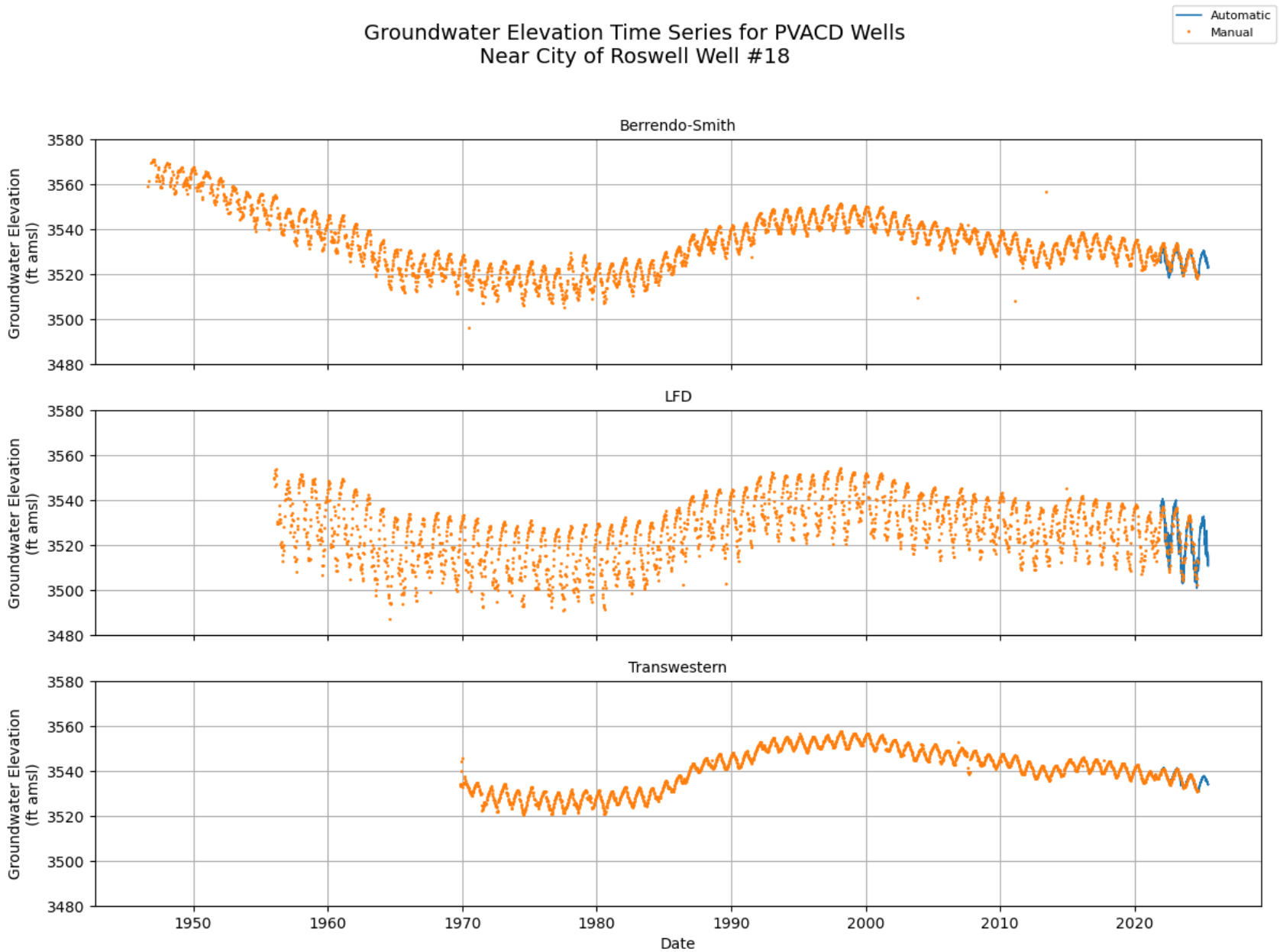
DBS&A
a Geo-Logic Company

10/13/2025 DB25.1193

ROSWELL DROUGHT TASK FORCE

Well Locations

Figure 1



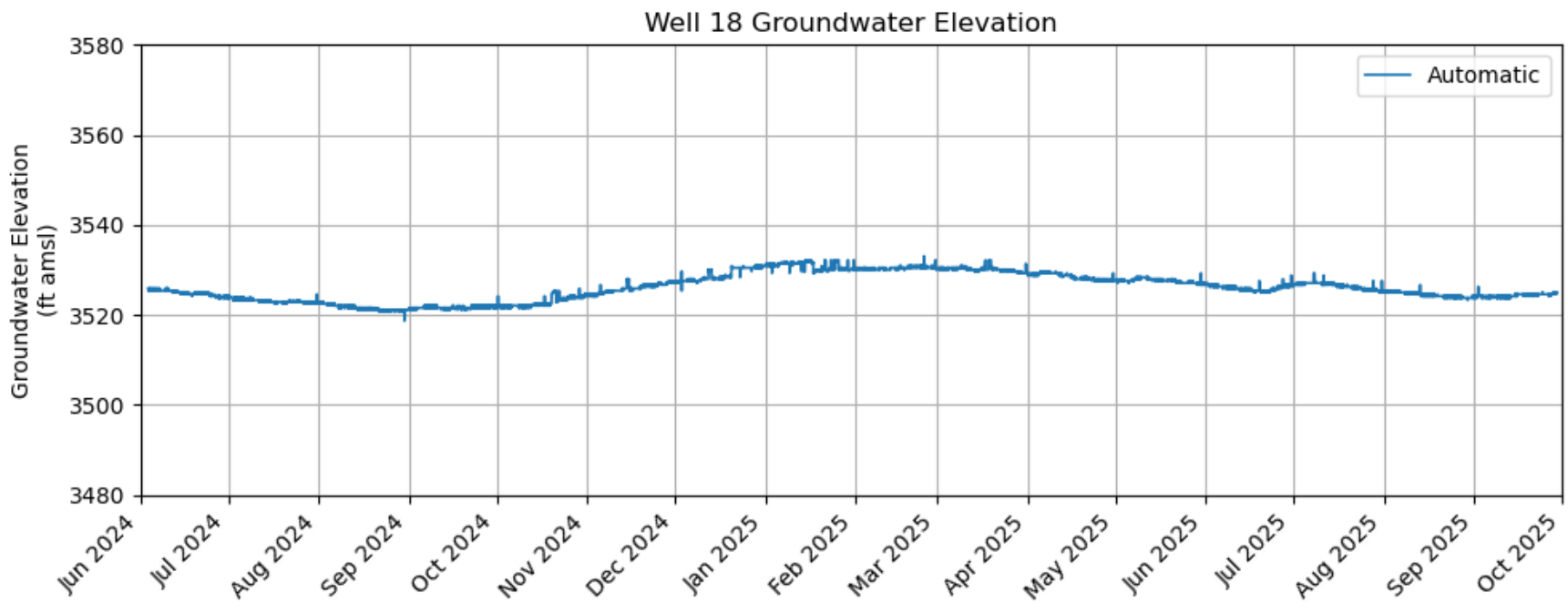
ROSWELL DROUGHT TASK FORCE

PVACD Well Groundwater Elevations

DBS&A a Geo-Logic Company

10/7/2025 DB25.1193

Figure 2



ROSWELL DROUGHT TASK FORCE

City of Roswell Well #18 Groundwater Elevations

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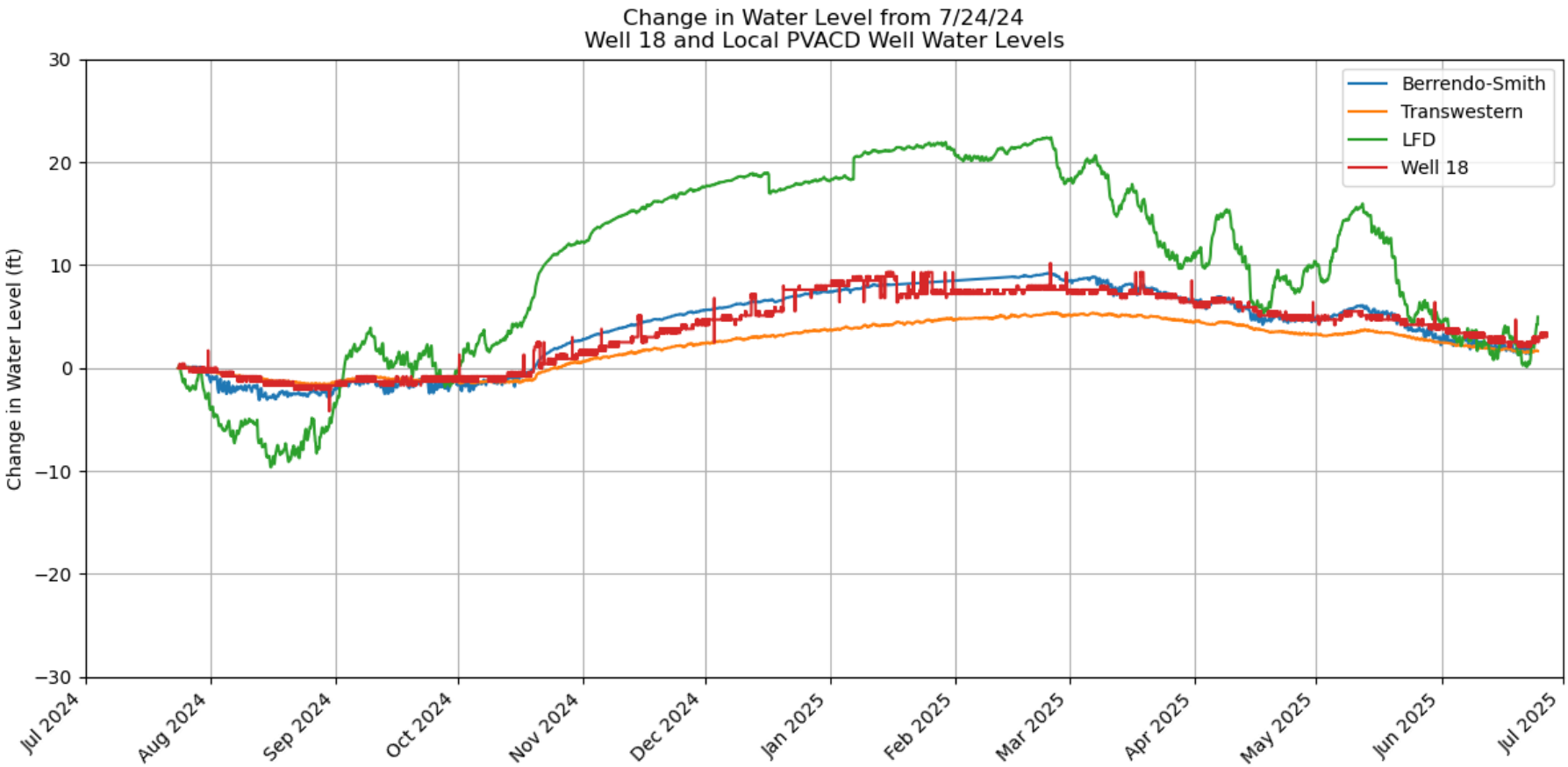
Figure 3



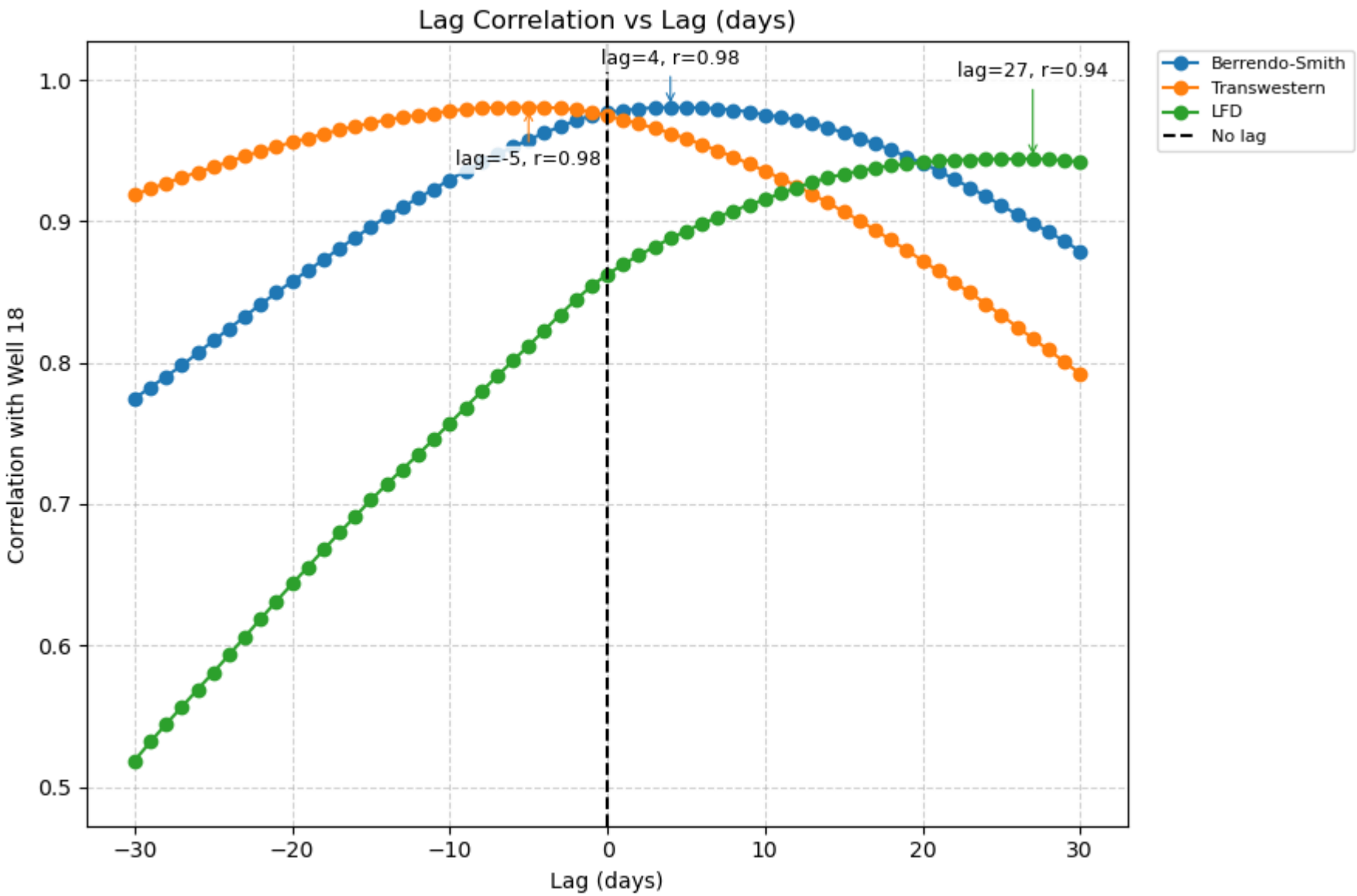
ROSWELL DROUGHT TASK FORCE

Change in Water Level at Well #18 and Nearby PVACD Wells from July 2024

DBS&A
a Geo-Logic Company

10/7/2025 DB25.1193

Figure 4



ROSWELL DROUGHT TASK FORCE

Cross-Correlation of Water Levels for Well #18 and Closest PVACD Wells

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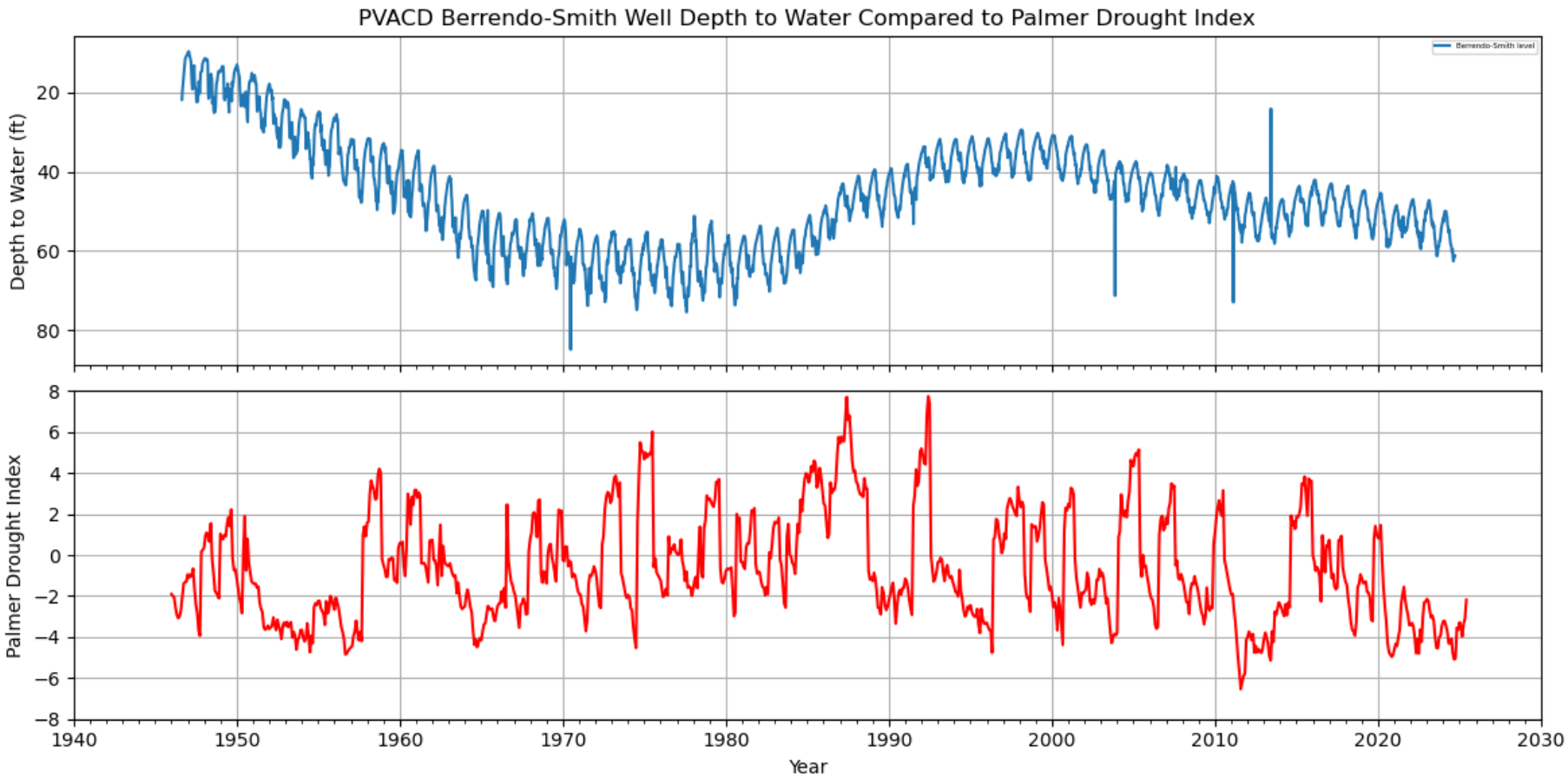
Figure 5



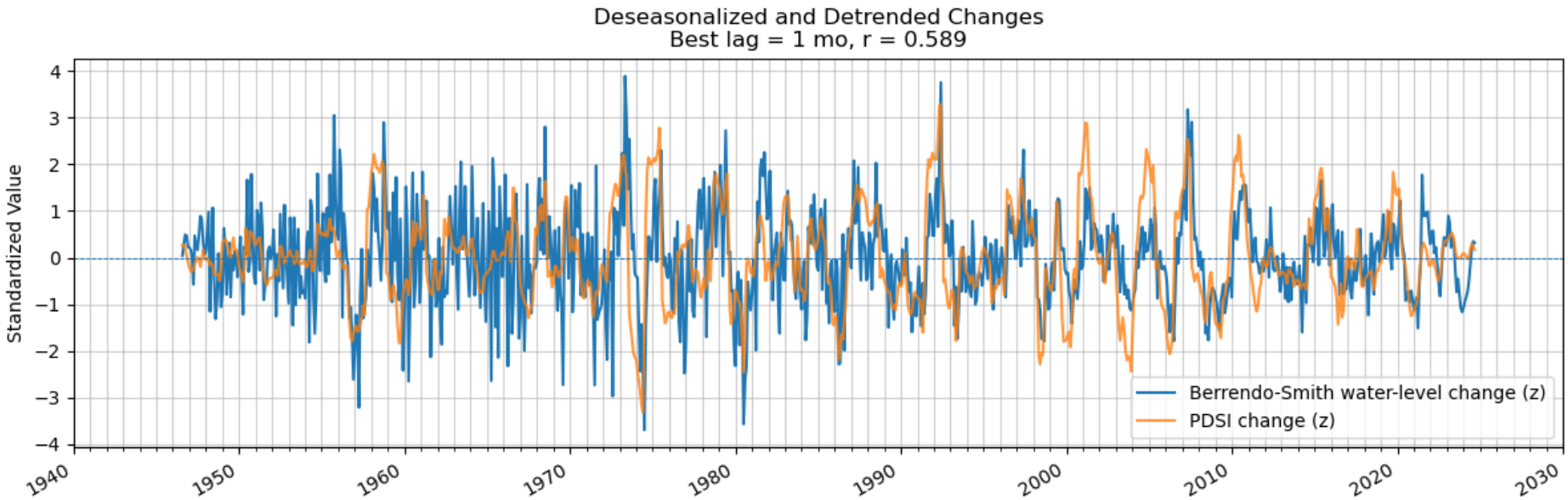
ROSWELL DROUGHT TASK FORCE

Berrendo-Smith Water Levels Compared to Palmer Drought Index

DBS&A a Geo-Logic Company

10/7/2025 DB25.1193

Figure 6



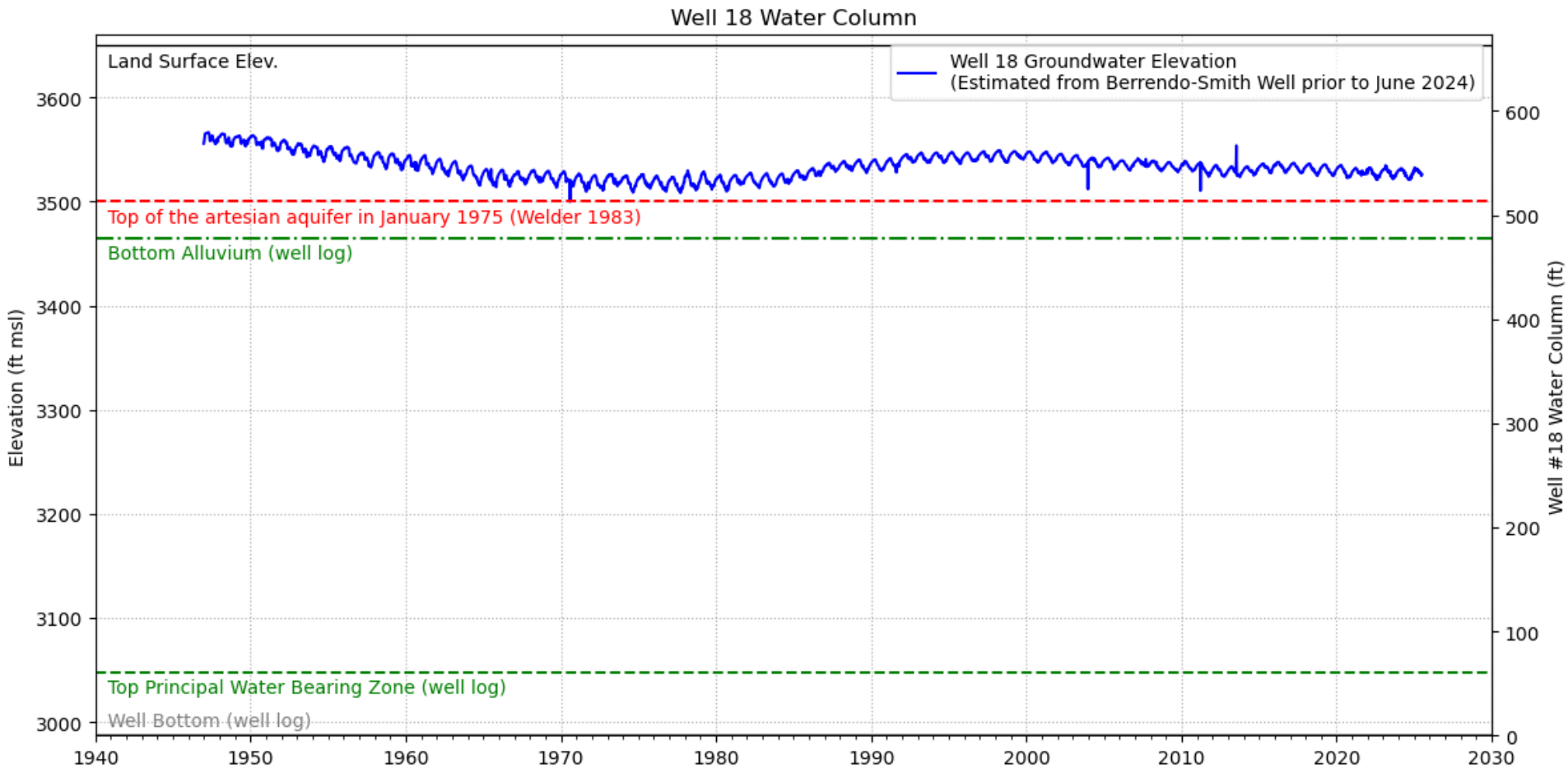
ROSWELL DROUGHT TASK FORCE

Standardized Berrendo-Smith Water Level and Palmer Drought Severity Index Changes

DBS&A
a Geo-Logic Company

10/7/2025 DB25.1193

Figure 7



ROSWELL DROUGHT TASK FORCE

Well #18 Water Column

DBS&A a Geo-Logic Company

10/7/2025 DB25.1193

Figure 8

Appendix B

Division IV – Service: Water Conservation

Sec. 26-230 - Definitions.

All definitions contained in Section 26, Definitions, of Chapter 26 "Roswell Utility Ordnance" are incorporated into this chapter by reference.

Sec. 26-231 Purpose and Scope of Ordinances

This ordinance is intended to set forth the rules under which the City of Roswell provides services to the City's property owners and ratepayers with conservation efforts in mind.

A. The governing body finds and determines that encouraging and requiring the adoption of water conservation strategies is an effective and low cost means to provide water conscious behavior. The governing body further recognizes that as a consequence of implementing water conservation regulations, reduction in water use provides the following benefits to the city and its citizens:
   - Potential for reduction of individual residential and commercial customers' water and sewer bills.
   - Serves as a critical interim source of supply while additional supply sources are being brought on line.
   - Reduces peak summer demands thereby reducing short and long-term system costs.
   - Enhances the local environment by minimizing transport of fertilizer, pesticide, and other contaminants from runoff to deep percolation to ground waters. Enhances the global environment by reducing energy consumption associated with water production, treatment, and distribution.
B. It is hereby declared, because of the overall benefits of water conservation, that the city promotes and require water use efficiency strategies for the public health, safety, and general welfare of its citizens.

Sec 26-232 - Water conservation compliance.

No person who uses water from the city water supply system, shall make, cause, use or permit the use of water received from Roswell Utilities for residential, commercial, industrial, agricultural, governmental or any other purposes in a manner contrary to any provisions of this chapter. Provided further, that no person shall make, cause, use or permit the use of water in a manner contrary to Chapter 26 of the city code.

Sec. 26-233 - Mandatory compliance—Lawn and landscape watering.

The following mandatory restrictions shall apply to all customers of, or persons who use or receive water from Roswell Utilities:

A. Outdoor irrigation of grass, trees, plants or other vegetation on City of Roswell parks (with such meter/account under the control and management of the City of Roswell Parks and Recreation Department) must submit an annual Conservation Plan. The City of Roswell Parks and Recreation Department will submit the annual conservation plan to the City Manager by end-of-January each year. The plan will consist of:

- Conservation goals and targets; total annual water consumption, volume per developed acre, and any other agreed upon metric;
- Conservation improvements implemented in prior year; improvements planned for year ahead,
- Policy statement that any new city parks have been designed to irrigation efficiently; and
- Special variances needed for the year (watering days, new parks, turf renovation, seeding, etc.).

The plan will be considered and approved on an annual basis with previous year compliance taken into account as part of the approval process. All outdoor irrigation shall be subject to the water master plan and conservation plan adopted by City of Roswell.

Sec. 26-234 - Nonessential water use restrictions.

The following restrictions shall apply to all customers of or persons who use or receive water from the City of Roswell:

A. The washing of vehicles
   1. Automobiles, trucks, trailers, boats, airplanes and other types of mobile equipment shall be done only with a hand-held bucket or a hand-held hose equipped with a shut-off nozzle that completely shuts off the flow of water, even if left unattended. This restriction does not apply to the washing of the above-listed vehicles or mobile equipment when conducted on the premises of a commercial car wash or a commercial service station. When used in this chapter, "bucket" means a bucket or other container.

B. The following uses of water are defined as "wasting water" and are absolutely prohibited:
   1. Irrigating any turf grass, tree, plant, or other vegetation, or otherwise utilizing the city water supply system to permit or cause water to pond, or to flow, spray or otherwise move or be discharged from the premises of any person responsible for any property within the corporate limits of the city, or which receives water from Roswell Utilities to or upon any street, alley, gutter or ditch, or other public right-of-way, or into a storm water drainage system or facility;
   2. Failing to repair a leak to be used in conjunction with **Sec. 26-162 Notification**.

C. When referred to in this subsection, "swimming pool" shall mean any portable or permanent structure containing a body of water twenty-four (24) inches or more in depth and containing one thousand one hundred twenty-two (1,122) gallons or more of water and intended for recreational purposes, including a wading pool. All swimming pools, which are constructed after the effective date of the ordinance codified in this chapter.

1. It is unlawful to drain swimming pools into the street, alley, gutter or other public right-of-way, ditch, or storm water drainage system or facility. Swimming pools may be drained into the sanitary sewer system only in coordination with the Roswell Water Utilities' Wastewater System Division.

Sec. 26-235 - Declaring of nuisance of exist.

The flow of produced water from property into streets, alleys, gutters, and other public rights-of-way, ditches, or into a stormwater drainage system or facility is contrary to the public health, safety and welfare of the citizens of Roswell and is therefore declared to be a nuisance. This authorization to seek relief, or other legal action to abate such a nuisance shall not preclude prosecution for a violation of this chapter.

Sec. 26-236 - Penalty.

Any person who violates any of the provisions of this chapter shall be deemed guilty and a fine imposed of the following:

- $0, warning first offence in 30 days
- $75, second offence in 30 days
- $150, third offence in 30 days
- $250, fourth offence in 30 days
- Termination of water service, fifth offence in 30 days

The customer will receive a copy. The enforcement will be tracked by the Water Conservation Specialist, who keep a copy and submit the original to Water billing. Water billing will retain the original infraction and make a note in the billing system.

Sec. 26-237- Appeal

A. Any person who is issued a water conservation citation under section 26-236 who applies for a permit or variance under Section 26-237, may appeal the decision. Any person(s) filing an intention to appeal in writing with the City Manager within five working days of the review board's decision. If a proper appeal is timely filed, the public service board will hear the appeal within thirty days of the time the appeal is filed with the City Manager. The public service board may take any action it deems necessary with regard to the appeal. The decision of the review board shall be final and binding if there is no timely filing of an appeal in accordance with this section.

B. Any person, whose appeal to the public service board is denied, may appeal the decision of the public service board by filing an intention to appeal in writing with the city clerk within five working days of the public service board's decision. If a proper appeal is timely filed, the city council will hear the appeal within thirty days of the time the appeal is filed with the city clerk. The city council may take any action it deems necessary with regard to the appeal. The decision of the city council shall be final and binding. The decision of the public service board shall be final and binding if there is no timely filing of an appeal in accordance with this section.

Sec. 26-238 - Exceptions to enforcement.

The following shall constitute exceptions from compliance with the provisions of this chapter:

A. The water is a result of natural events such as rain or snow;
B. The flow is a result of temporary failures or malfunctions of the water supply system;
C. The flow is a result of water used for firefighting purposes including the inspection and pressure testing of fire hydrants or the use of water for firefighting training activities;
D. The use of water is required for the control of dust or the compaction of soil;
E. The water is used to wash down areas where flammable or otherwise hazardous material has been spilled and creates a dangerous condition;
F. The water is used to prevent or abate public health, safety or accident hazards when alternate methods are not available;
G. The water is used for routine inspection or maintenance of the water supply system;
H. The water is used to facilitate construction within public right-of-way in accordance with the requirements of the city and good construction practices;
I. The water that is used for street sweeping, sewer maintenance or other established utility and public works practices;

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The above ordinance shall not be enforced without the attempt to educate the customers of the city utilities. Education on water conscious behavior shall be in the forefront of all activities. Enforceable action is only deemed appropriate when the issue becomes a public nuisance or has a damaging effect to public property ie damaging the public roads or surrounding neighbor’s property. As per sec. 26-236, a warning shall always come before any monetary fine.