



New Braunfels Utilities

Aquifer Storage and Recovery Update

September 26, 2024

Agenda

1. Background
2. Summary of Cycles 1 and 2 and Issues Encountered
3. Current Cycle 3 Status
4. Pending Improvements Overview
5. Future ASR Planned Improvements/Buildout



Mission

Strengthening our community by providing resilient essential services



Vision

Be a trusted community partner dedicated to excellence in service



Core Values

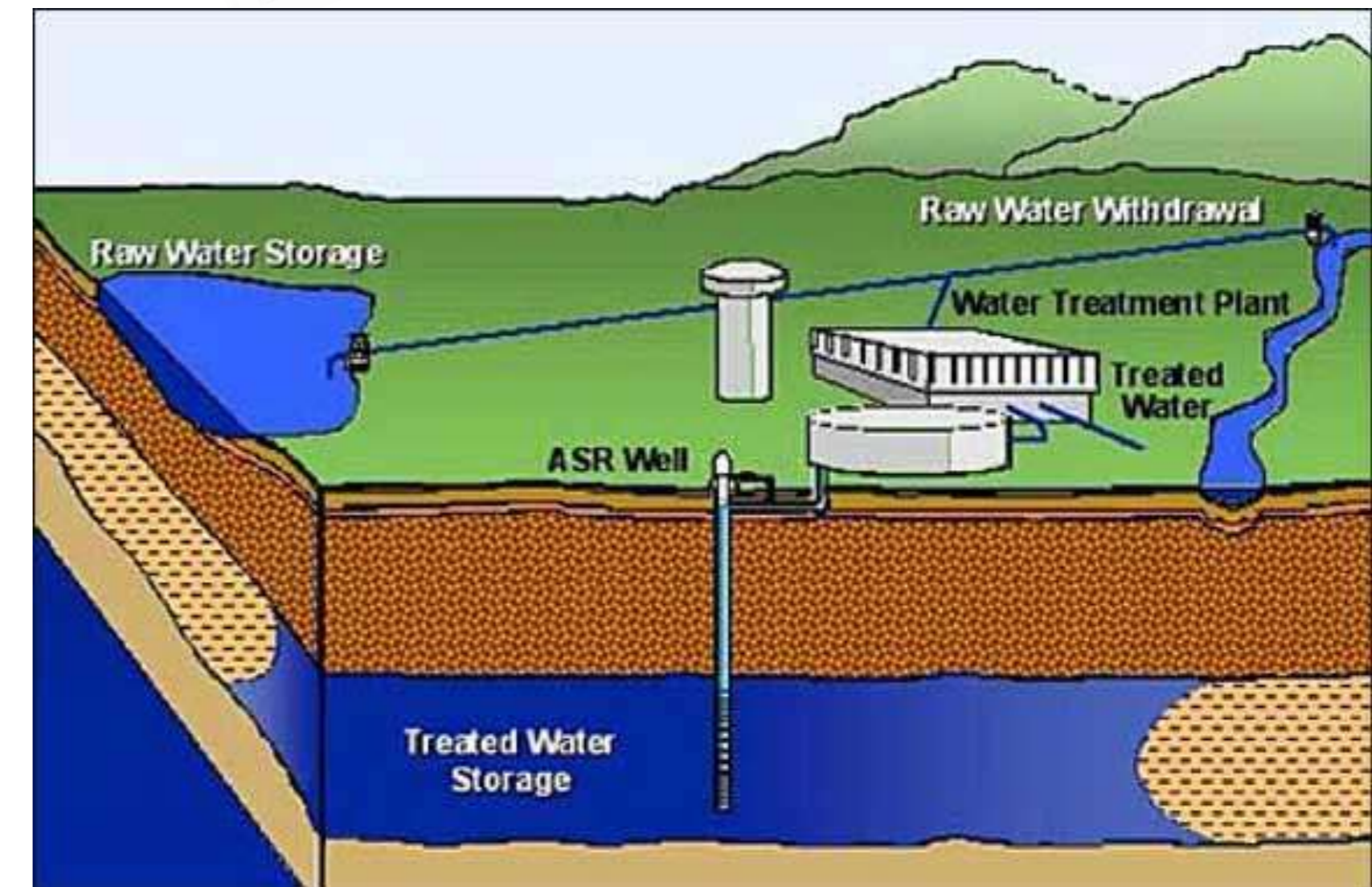
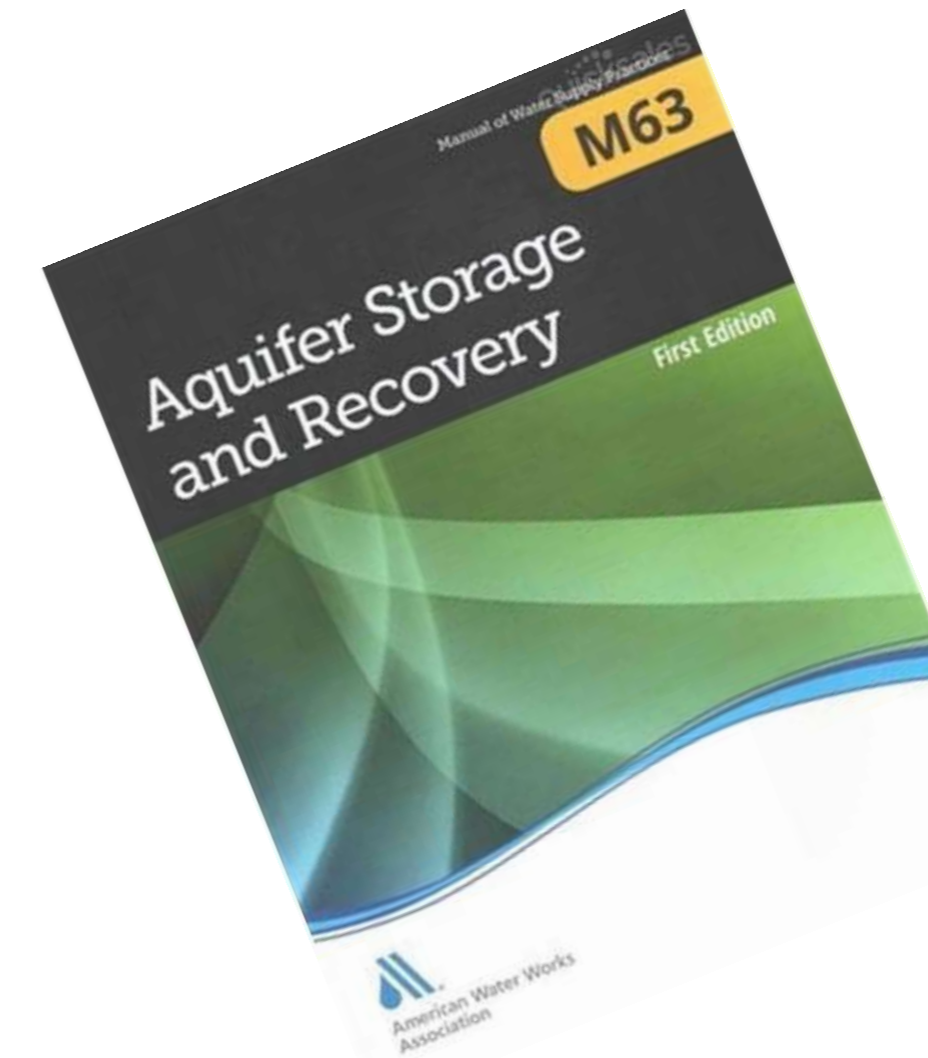
Safety, Team, Integrity, Culture, and Stewardship

Background

Aquifer Storage & Recovery (ASR) is:

“...the storage of water in a suitable aquifer ... during times when water is available, and recovery of that water ... during times when it is needed.”

David Pyne, P.E.
ASR Systems, LLC
Gainesville, FL



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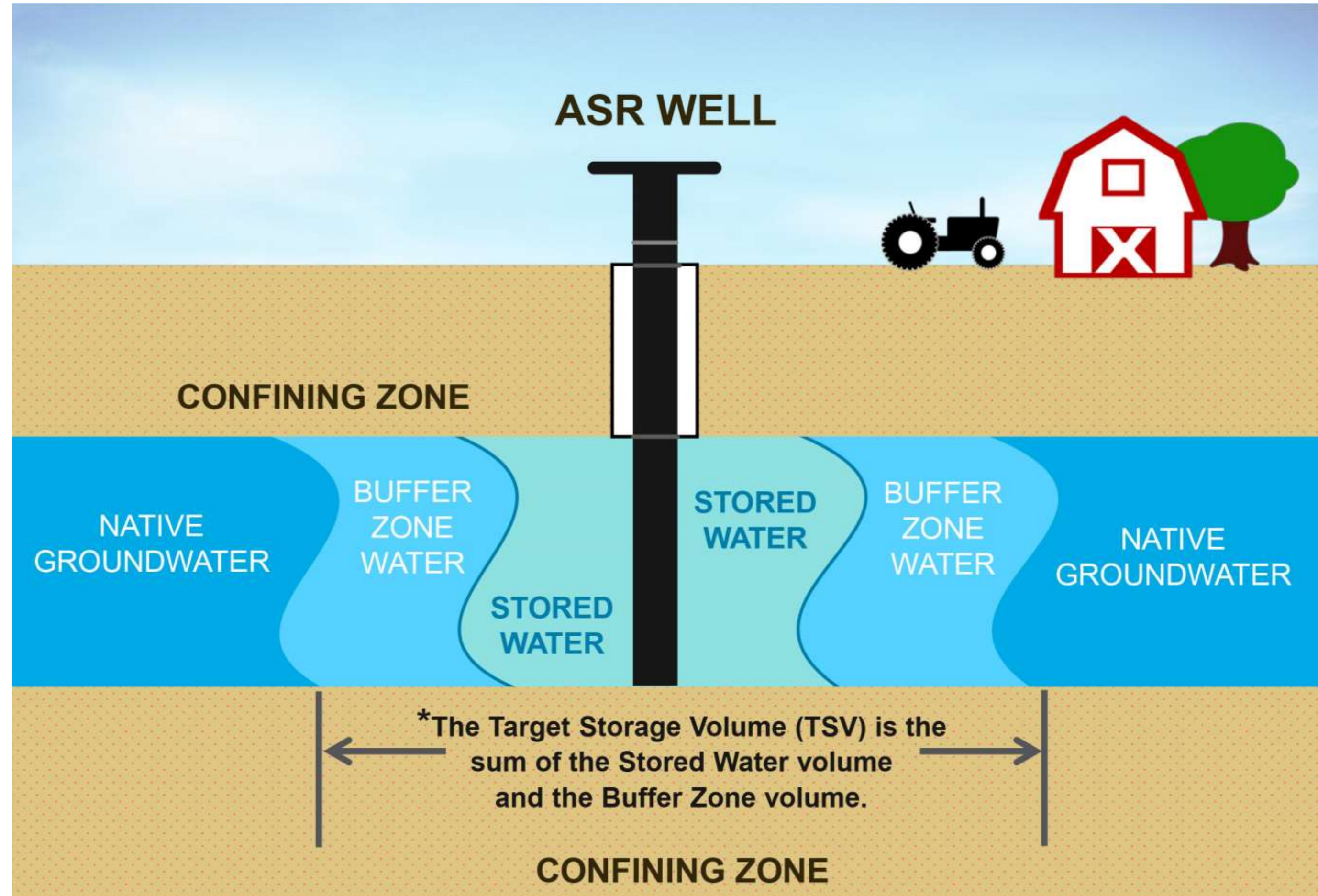


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Background

ASR Concept and Terminology



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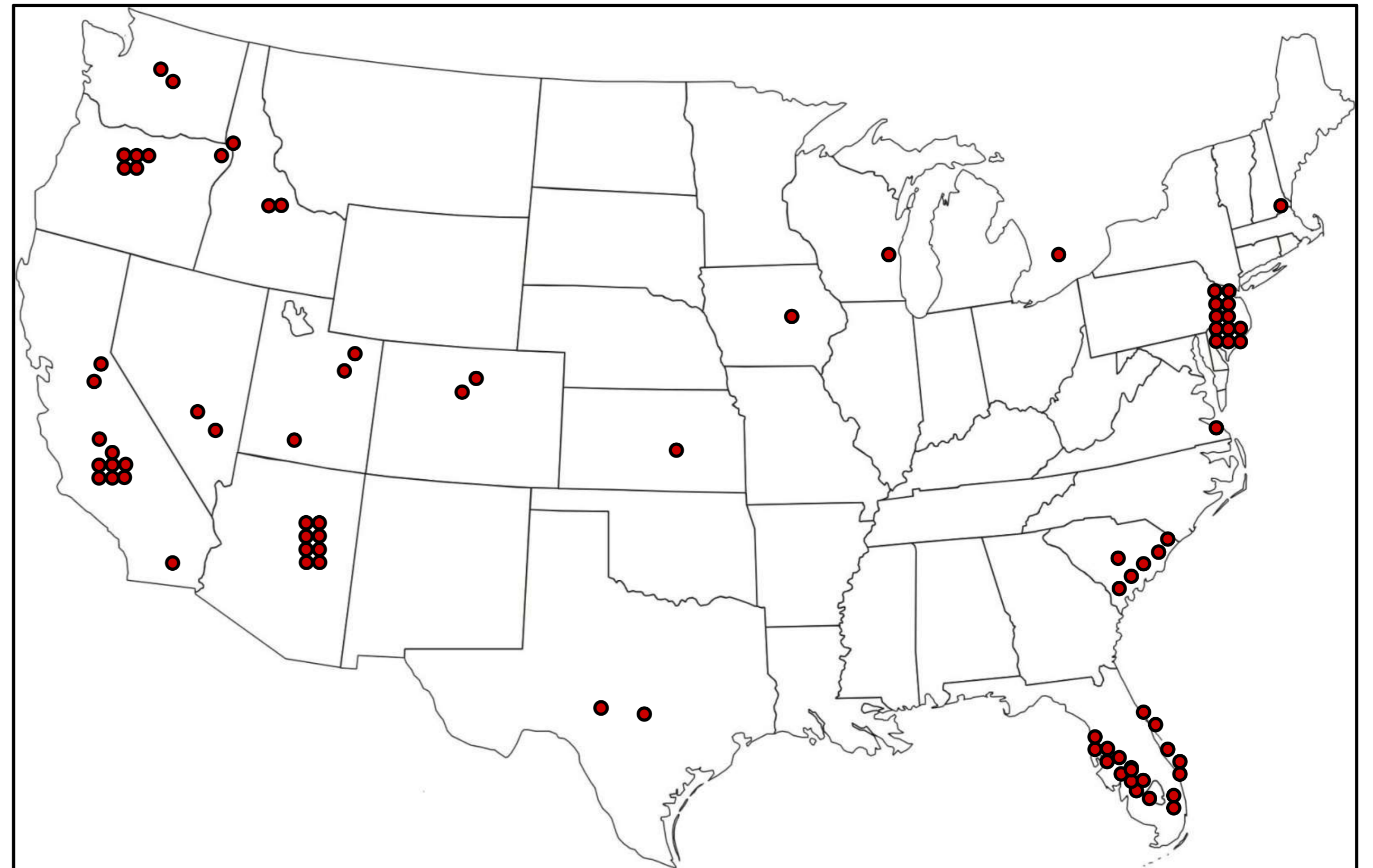
ASR Development in Texas

Three in operation:

- El Paso
- San Antonio
- Kerrville

Others in development:

- City of Victoria
- New Braunfels Utilities
- Guadalupe Blanco River Authority
- Buda



Why Was ASR Considered?

- Rapid growth in the NBU Service Territory
- Water Supply Availability/Curtailment
- Drought of Record and Max Day Demand
- System Reliability and Resiliency

<http://herald-zeitung.com> > community_alert

New Braunfels breaks 90000 in 2020 Census; Comal grows to ...

Aug 12, 2021 — Population figures for New Braunfels and Comal County jumped a significant 56.6% and 48.9%, respectively, over the last 10 years, ...

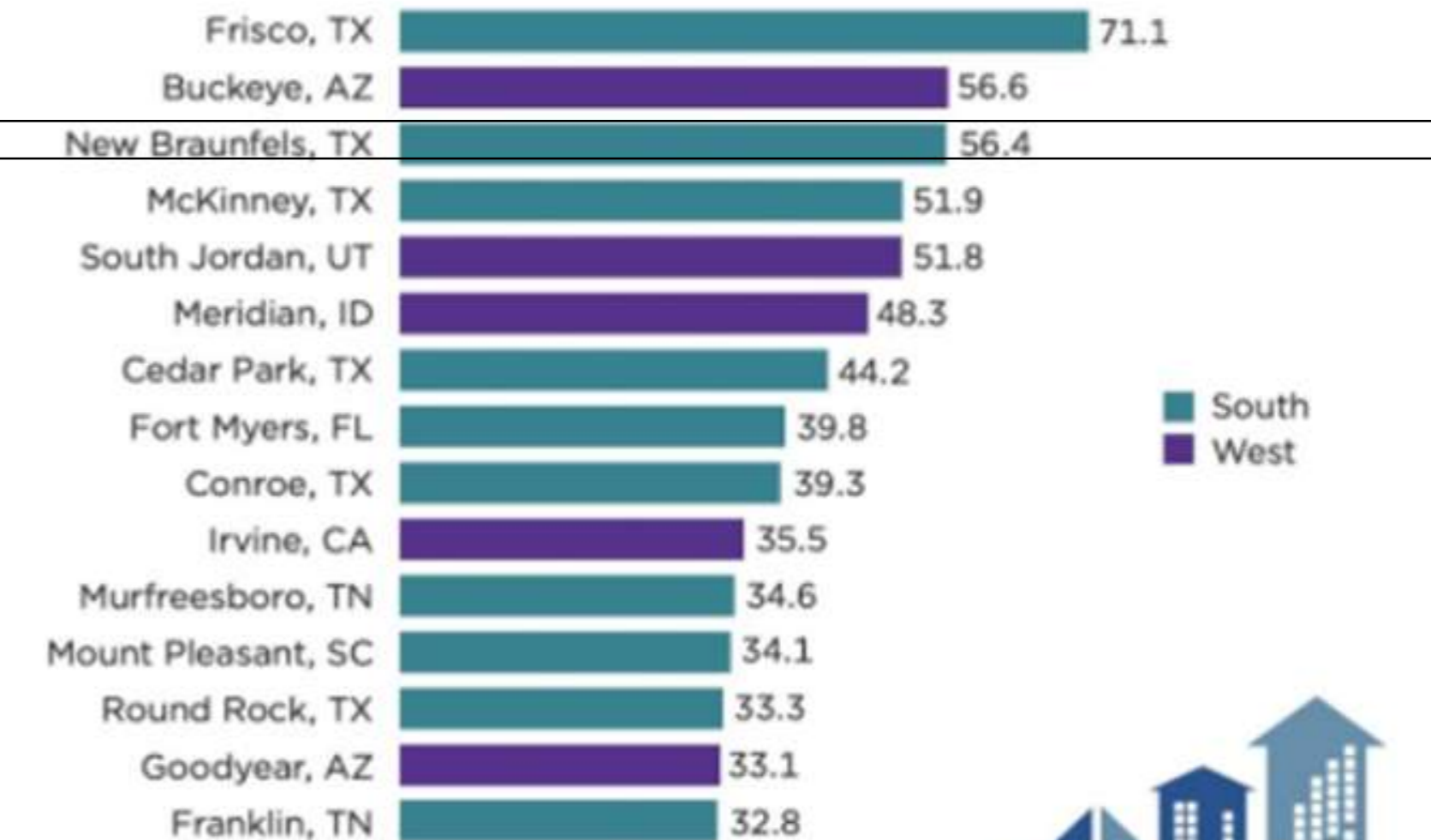
New Braunfels eyes 100,000 population milestone

New Braunfels has issued more than 200 permits for new residential starts each in June, July and September

By Steve Knight | The Herald-Zeitung Oct 20, 2020 Updated Oct 21, 2020

The 15 Fastest-Growing Large Cities

By Percent Change: April 1, 2010-July 1, 2019



United States
Census
Bureau

U.S. Department of Commerce
U.S. CENSUS BUREAU
census.gov

Note: Percent change for fastest-growing large cities and towns with populations of 50,000 or more on April 1, 2010.
Source: Vintage 2019 Population Estimates

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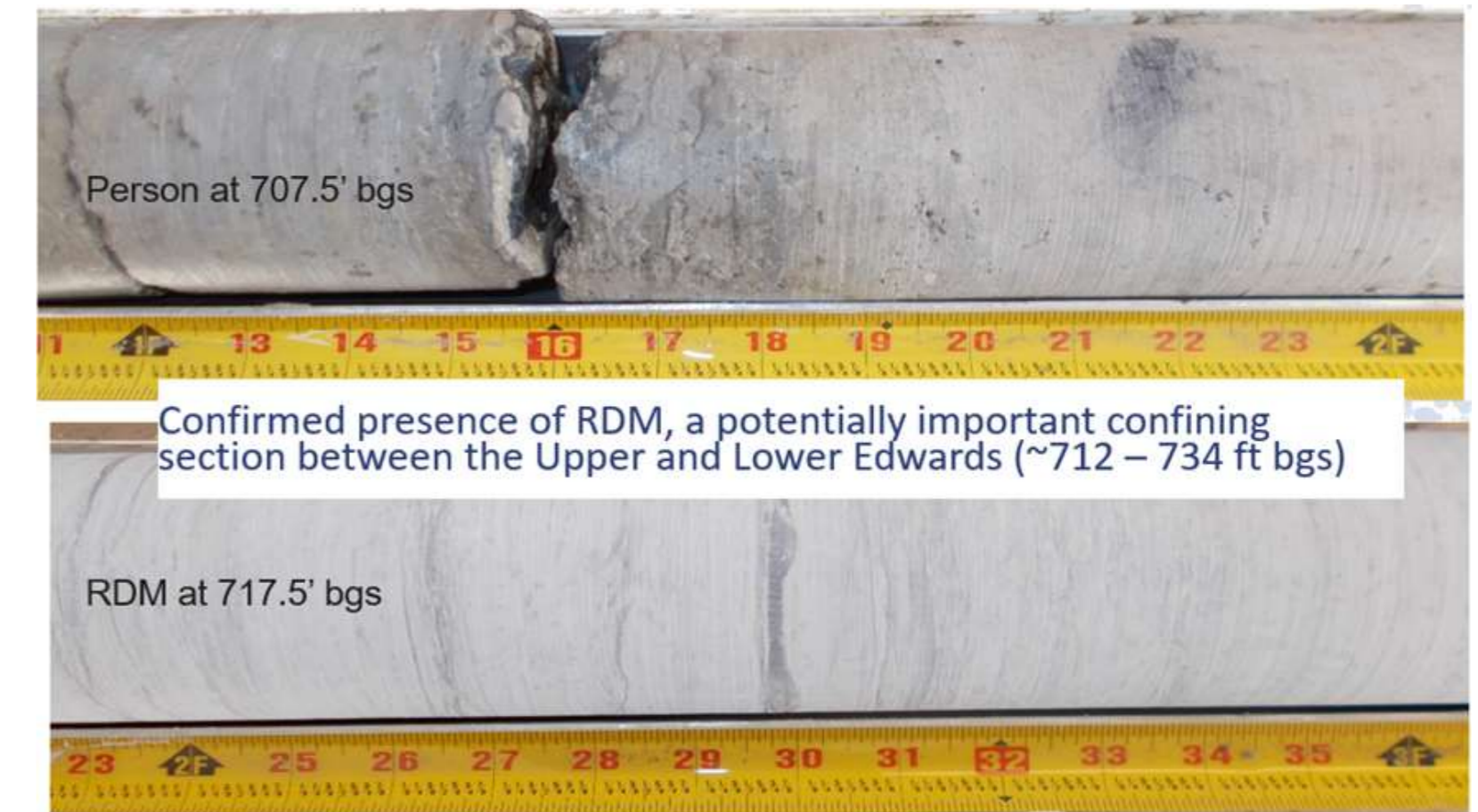


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Background

- Arcadis engaged in 2011
- Preliminary Feasibility Report published with key findings and recommendations
 - Hydrogeology is conducive for ASR
 - 5,156 ac-ft of water needed to meet 2016 needs
 - Recharge rate of 4 mgd
 - Recovery rate of 9 mgd
 - Intended to provide drinking water source during drought of record conditions
 - Up to nine wells – 1 mgd recovery per well



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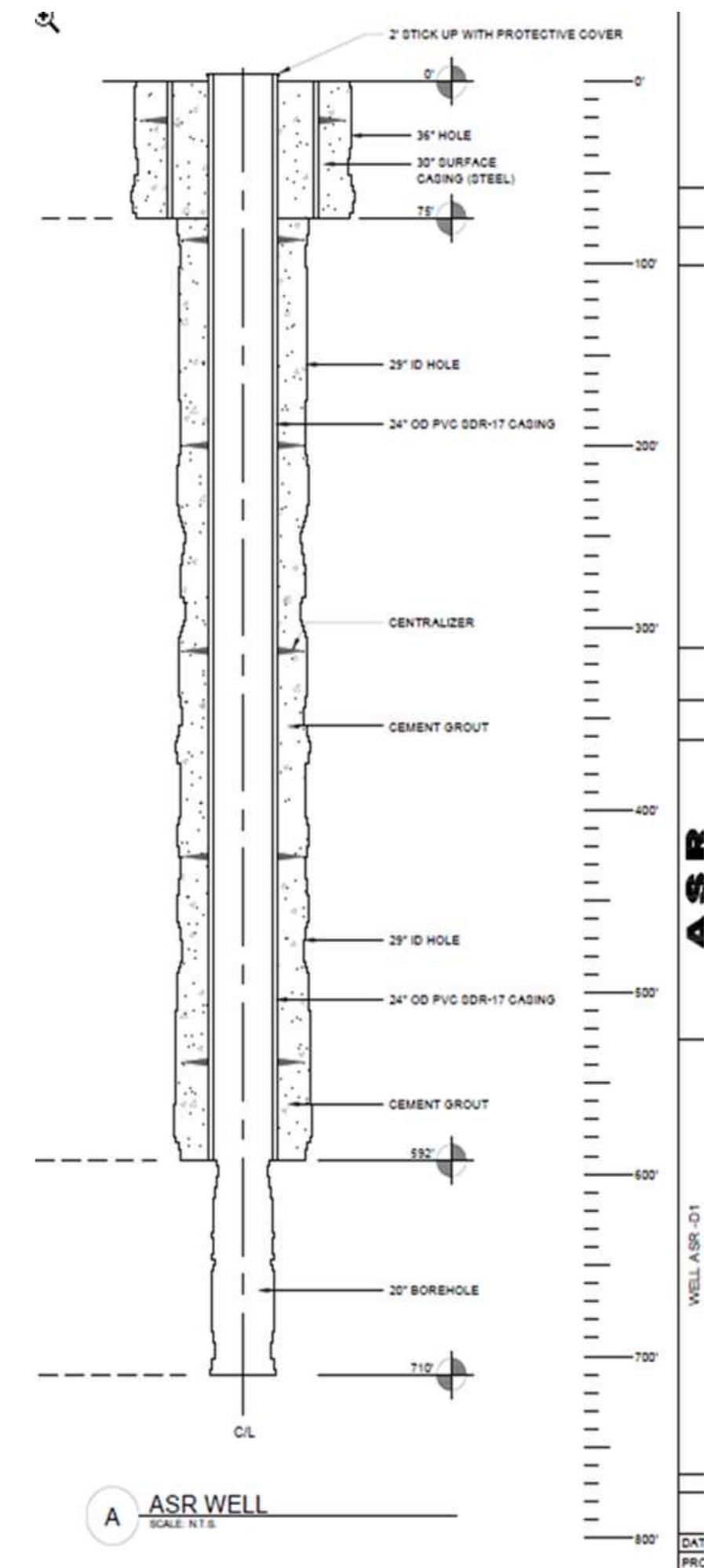


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Demonstration Project and Cycle Testing

- Demonstration Well completed and began injection in 2020
- Cycle 1 Recovery occurred between September 2021 and January 2022
- Warranty repairs and operational modifications were made to enhance recharge and recovery
- Cycle 2 Recovery occurred between November 3 and November 28, 2022



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Status of Cycle 3 Testing

- Cycle 3 Recharge began on December 12, 2022
- As of July 17, 2023, 518 MG stored in the Upper Edwards; 89 MG stored in the Lower Edwards
- System was shut in due to extended drought conditions and water unavailability
- Have not returned to recharge mode as of this date

Pending Improvements

- Deepen the ASR-D1 well into the lower saline zone
 - Intent is to be able to get more water stored in the Lower Edwards
 - ASR-D1 will be a dual completion well capable of storing and recovering from either the Upper or Lower Edwards
- Cycle 3 Recovery anticipated to take place in Spring/Summer 2026 once sufficient water is stored in the Lower Edwards

Future Planned Improvements

- ✓ Conceptual wellfield design is complete and additional aquifer modeling has been conducted
- ✓ An extension of our current experimental permit has been received
 - Full TCEQ Operating Permit
 - Additional monitoring well at Kohlenberg tank site
 - ASR Wellfield build-out
 - Can be phased or all at once
 - Instead of eight additional wells, likely only 3-4 will be needed
 - Additional Monitoring Wells

Tentative Schedule

- May 29, 2024 - Bid Opening for ASR-D1 well deepening contract
- August 29, 2024 –Award ASR-D1 well deepening contract
- Fall/Winter 2025 - Complete Cycle 3 Recharge
- Spring/Summer 2026 – Cycle 3 Recovery
- 2026 – Place ASR-D1 into operating mode
- FY 26 – Drill Kohlenberg monitoring well
- FY 27 – Begin Wellfield Expansion
- FY28/29 – Additional monitoring wells

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Questions?



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