



**Barton Springs
Edwards Aquifer**
CONSERVATION DISTRICT

Proposed Rules for Aquifer Storage and Recovery (ASR)

February 21, 2019

**BSEACD Board Meeting
Kendall Bell-Enders**



Activity to Date

84th Legislative Session 2015

- HB 655 amended Water Code and removed authority over ASR injection away from GCDs and over to TCEQ, which is the agency with exclusive authority to regulate ASR injection.
- HB 655 established that certain Districts' ability to regulate ASR is unaffected if they have existing authority under their enabling legislation (BSEACD exempt).
- HB 3405 amended the District enabling legislation to provide BSEACD with jurisdiction over ASR Recovery Wells.
- HB 655 established a comprehensive framework for the authorization of ASR projects by TCEQ.

Working Meetings with TCEQ

- Met with TCEQ staff (application process, interpretation of rules)
- Met with TCEQ Management Team (legal positions, statute interpretations)



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Activity to Date

- ❖ August 10, 2017 - Concepts to the Board
- ❖ December 13, 2017 - ASR Technical Workshop
- ASR experts and stakeholders (15 attendees)
- ❖ August 23, 2018 - Board Rules Committee Meeting
- ❖ September 13, 2018 - Concepts to Board
- ❖ February 5, 2019 - Board Rules Committee Meeting



Goals and Objectives of the ASR Rulemaking:

1. Consistency with TCEQ ASR rules
2. Clearly demonstrate our limited authority over “recovery”
3. Encourage and support ASR projects
4. Obtain adequate detail and information to understand the proposed ASR project



Outline

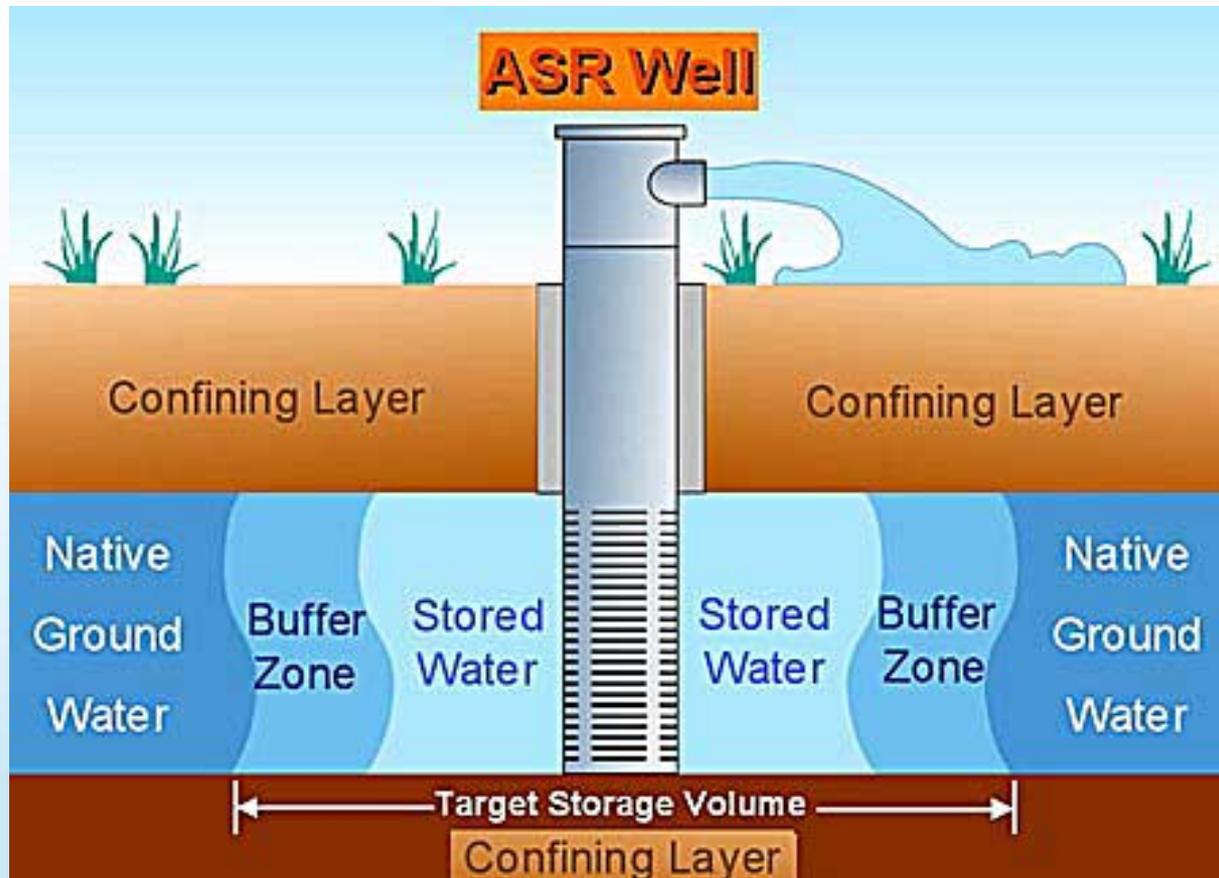
- Definitions
- Application Checklist (Well Drilling and Source and Recovery Permits)
- Hydrogeologic Report and Observation Wells
- Permit Amendments
- Saline Zone Requirements
- ASR Pilot Test
- Saline Edwards MAG/DFC
- Class D Conditional Permits
- Aquifer Storage and Recovery (new section)



Definition of Terms

pg. 6-26

Recovery, Recharge, Storage





ASR Permit and Drilling Applications

pg. 43-49

ASR Recovery Well (New Well Drilling Authorization)

- Description of project operational design and well completion
- ½ mile radius notice requirement

Source and Recovery Permit *will authorize two things: 1) the production of Class D source water for the purpose recharging water and 2) the recovery of stored waters*

Application Checklist for a Source (Production) and Recovery Permit

- Site location maps
- Class D production permit volume
- Site configuration
- Project operations and demand
- Recoverability Analysis
- Hydrogeologic Report
- Accounting and Monitoring Plan
- TCEQ authorizations
- Tiered notice requirement

Source and Recovery Permit Certificate

- Conditional Class D Edwards Production Volume
- Recovery %
- Permit Term (1 yr)
- Recharge Source
- Permit Conditions



Hydrogeologic Report and Observation Wells pg. 57-58

- Hydrogeologic report required
 - Unreasonable impacts/interference
 - Add ASR section to guidelines
- Observation well(s) will be required for Tier 3 (> 200 M/year) target storage volumes. The location and completion of the observation well(s) shall be coordinated with District staff.
- For smaller production volumes, additional water quality monitoring may be required in lieu of installing observation wells.

Permit Amendments pg. 76

- Changes to Source and Recovery Permit will be considered a minor amendment unless for total storage volume or recoverable amount increases beyond 20%

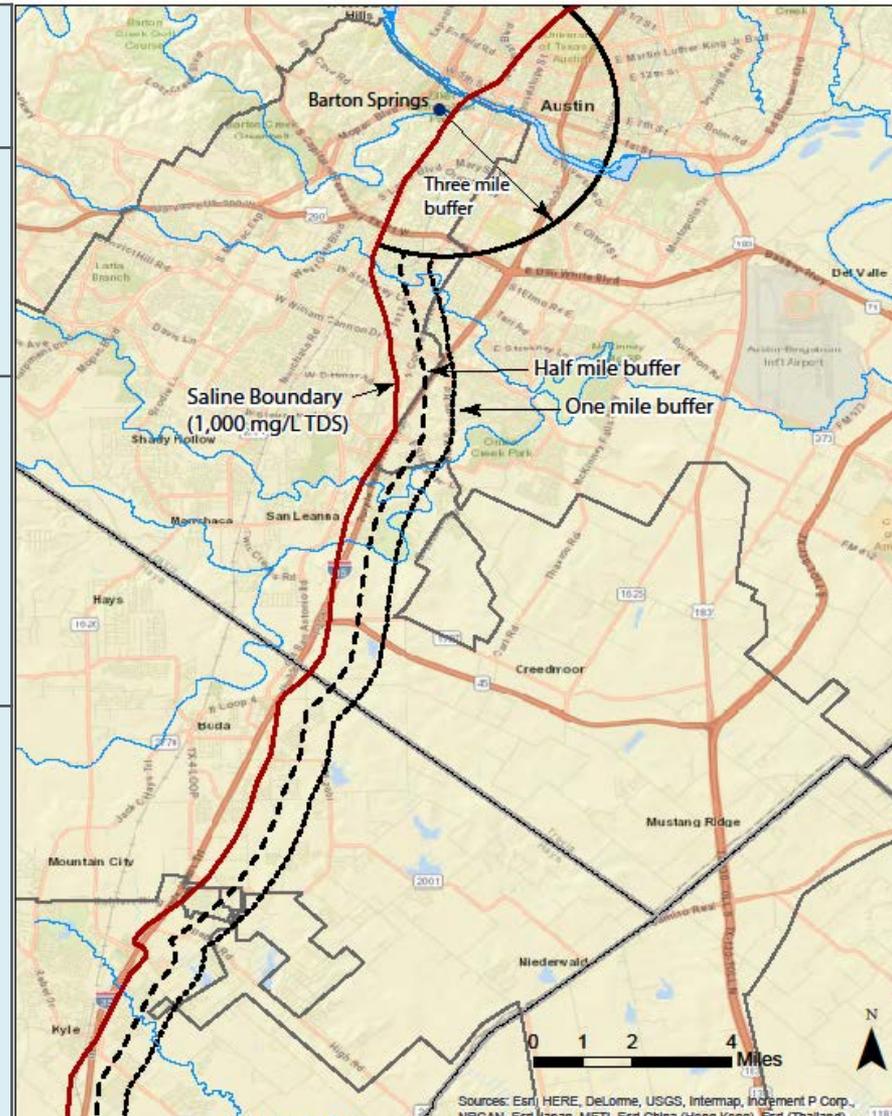


Saline Zone Requirements

pg. 85-87

No new wells in 3 mile radius of BS

Zone	Volumes Produced from a Production or Recovery Well	Buffer Spacing Requirement from 1,000 mg/L TDS boundary (Freshwater – Saline Water Interface)
Zone 1	< 2,000,000 gpy	<ul style="list-style-type: none"> No buffer spacing requirements from other wells. These volumes are allowed in all parts of the Saline Edwards Zone.
Zone 2	2,000,000 to <300,000,000 gpy	<p>A spacing buffer is required from the following:</p> <ul style="list-style-type: none"> Other wells that produce > 2 MGY - the new well must be spaced at least ½ mile apart Boundary interface - ½ mile or more away.
Zone 3	> 300,000,000 gpy	<p>A spacing buffer is required from the following:</p> <ul style="list-style-type: none"> Other wells that produce > 2 MGY - new well must be spaced at least ½ mile apart Boundary interface - 1 mile or more away.



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), Swire



General Permits – ASR Pilot Test Permit

pg. 99-102

Authorizes temporary production and recovery of groundwater for testing

Checklist

- Nature/Purpose, Site Location, Volume, Testing Work Plan, Accounting Plan, Related Authorizations

Conditions and Requirements

- Volumes can be produced during Drought Stages 1 and 2. No volumes shall be produced from Stage 3-5.
 - Variances may be allowed
- Recovery is allowed during any drought stage.
- Volume **shall not exceed 30 million** gallons per authorization.
 - Volumes over **10 million gallons** will be accessed the a production fee (\$0.17/1000 gallons)
- 2 year authorization; **one** authorization per well field
- Monthly volume reporting
- 1 year status and final summary Report
- Compliance with TCEQ



Saline Edwards MAG/DFC pg. 105

- GMA 10 DFC – no more than 75 ft of regional average potentiometric surface drawdown due to pumping when compared to pre-development conditions.
- MAG – 3,799 acre/ft year
- Changed in last round – 2015/2016



Class D Conditional Permits pg. 108

- 2 cfs (472 MG/Y) for fresh Edwards available for ASR projects where stored water is recovered and used to supplement Freshwater Edwards supplies during District-declared drought or for supply management in times of need.
 - Allows for broader scope and possible applications of ASR and Class D production
- Production of Edwards Class D is curtailed 100% during District-declared drought.



3-1.26 Aquifer Storage and Recovery

pg. 111-115

Permissible Sources of Water for Recharge

- ASR injection into or through the Edwards must comply with TCEQ Rules
 - 331.19 - Edwards Rules - Unaltered Edwards groundwater
 - Other: 331.186 – TCEQ ASR rules

- District Groundwater Permits for Recharge and Storage
 - Conditional Class D Fresh Edwards
 - Historical Fresh Edwards and Trinity

- Non - BSEACD Permits – shall cooperate and comply with other entities rules

Well Construction Standards

- Shall comply with District and TCEQ standards
 - Non-corrosive casing/elements
 - Grout from bottom of casing to surface



3-1.26 Aquifer Storage and Recovery

Cont.. pg. 111-115

Site Location

- ASR wells associated with single well field shall be located:
 - Within continuous boundary on one parcel, or
 - Within two or more adjacent parcels under common ownership, lease, agreement, or contract

Authorization of ASR Recovery

- Applicants must complete a recoverability analysis and report shall be submitted with application
- District will authorize a recoverable amount as determined by the analysis
- Permittee cannot recover more than the authorized recoverable amount. If so, must have permit for native groundwater
- Recovery is not subject to drought curtailments



3-1.26 Aquifer Storage and Recovery

Cont... pg. 111-115

Accounting and Reporting

- Monthly meter reading and volume accounting
 - Source water produced, source water stored, recovered water
- Water quality monitoring and reporting
 - Annual basis – submit water quality results required by TCEQ
 - Additional testing for first year and when recover more than 50%
 - GM may require more frequent and additional constituents
- Annual Reporting for each FY
 - No later than Sept. 30th, permittee shall submit a concise annual report that includes: all volume accounting, water quality data, observation well data, injection pressures, infrastructure or operational changes
- Operations Report
 - Every 5 years the permittee shall submit a detailed report that includes: overview of operations and maintenance, project performance, complications, meter calibration report



Next Steps

- **Board Direction to post Proposed Rules**
- **Publish Notice of Proposed Rules (February 27, 2019)**
 - 20-day public comment period starts
- **Board meeting (March 28, 2019)**
 - Public hearing
 - Possible Board action to Adopt Rules