POSGCD Background
and Reasons for creation (2001)

I. Resources + Location + Growth =

>35,000 acres water rights leased by 2000

II. Local Concerns

a. Existing Area Users (100% Burl. Co., 90% Milam Co.- use groundwater)
   Municipal, Industrial, Agricultural
b. Future Growth
c. Reasonableness of Management Strategies
d. Insufficient Science
e. Unknown area future projects (in and out of District)
f. Property Rights
Groundwater Management Toolbox

POSQCD PERMITS (Property rights, Property rights, ...)
- Historic Use Permits (limited to life of the well)
- Local (Public) Water Utility Permits
  - Automatic if production required for CCN by state or federal law
  - Must meet Spacing Rules for rate of production
  - Exempt from hearings
- Limited Production Permits
  - Limited to 25,000 gallons per day
  - Must meet contiguous acreage requirement
  - Exempt from hearings
- Oil & Gas Frac Permit
  - Must provide proof of right to produce (affidavit or lease)
  - Limited to single use
  - Exempt from hearings
- Aggregate Well Field Permits
- Production and Transport Permits
Groundwater Management Toolbox

POSGCD COMMON RULES

• Production Permit Terms (40 years with 5 year reviews)
  • Adjustable to meet Desired Future Conditions (DFCs)
  • Adjustable to meet Protective Drawdown Limits (PDLs)
• Water Usage Reporting
• New Well Spacing- Aquifer Specific based on characteristics
  • Spacing from nearest uncontrolled Property Line
  • Spacing from nearest well in same formation
  • Added vertical spacing for Yegua-Jackson
  • Alluvial formations are exempt from spacing
• Maximum Production Rate
  • Currently 2 Acre Feet/ Acre per Year (all inclusive)
  • Adjustable & may be based on Management Zones
• Contiguous Acreage Requirement(Adjustable to meet DFCs & PDLs)
• Protective Drawdown Limits (DFC for shallow parts of aquifers)
• Water Level Monitoring is of utmost importance!
Groundwater Management Toolbox

POSGCD ADDITIONAL/FUTURE TOOLS (Best Available Science!)

- Improvements to the Central Carrizo-Wilcox Groundwater Availability Model (GMA12)
  - Cooperative work with TWDB, 3 other GCDs, 2 river authorities, plus 3 other entities
  - Extended calibration period
  - Improved values for recharge, storage, and transmissivity
  - Improved representation of fault zones
  - Improved predictive Surface Water-Groundwater interaction (Texas Water Journal)

- Aquifer Storage and Recovery Evaluations
  - Predictive recovery efficiencies
  - Affects of local pumping
  - Evaluate opportunities for in-District projects

- Expanding Water Level Monitoring Network- 200+ by end of 2018
Barton Springs/Edwards Aquifer Conservation District

Established: 1987 by landowner petition
Funding: Fee Based, statutory City of Austin fee
Edwards: Barton Springs pool, endangered Species, PWS
Trinity: Shared Territory with EAA after 2015 annexation
Aquifers: Edwards and Trinity

and other aquifers (Austin Chalk)
Evolving Regulatory Framework

1987-2004
- 1987 - District created by landowner petition
- 1987 to 2004 – Historic Permits
- 2004 Sustainable Yield Study (Edwards)
- 2004 – Conditional Permits

2009
- 2009 - Management Zones

2004
- 2004 – Conditional Permits

2010
- 2010 – DFC determination
- 2007 – Extreme Drought Withdrawal Limitation
- 2009 – Ecological Flow Reserve

2015
- 2015 – Annexation of Shared Territory (HB 3405)
- 2016 – Defined “Unreasonable Impacts”
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Drought Management
The District's goal is to manage total production while avoiding unreasonable impacts

- **Reasonable Non Speculative Demand**
  - Beneficial Use
  - Reasonable Use

- **Regional Evaluations**
  - Desired Future Condition
  - Groundwater Availability Models
  - Conceptual, Numerical, Analytical Models

- **Local Evaluations**
  - Aquifer Tests
  - Well Monitoring
  - Data Collection & Evaluation
  - Analytical Models
Sustainable Yield has been a part of BSEACD Management Policy

2004 Findings
- 1:1 pumping to springflow
- Under DOR, without pumping curtailments:
  - Barton Springs may cease flowing
  - 19% of the wells in the District may go dry

Management Goals:
- Sustainable yield
- Preserve minimum spring flows
- Preserve water well supplies
- Allow reasonable non-drought pumpage

Drought DFC: “minimum of 6.5 cfs of springflow during recurrence of DOR conditions”
During Average Conditions (No Drought)
District Preserves the DFC by only allowing 16 cfs of groundwater production

Production available for Conditional Permits
Production allocated for Historic Permits.

During Extreme Drought Conditions
District Preserves the DFC by only allowing 5.2 cfs of groundwater production

Conditional Permits are fully curtailed 100%
Historic Permits are curtailed max 50%
Remaining active Production for Historic Permits

Exempt
Historic
Cond’l

16
10
5
0

Pumping (cfs)
Groundwater Management Toolbox

- Public Water Utility CCN Permits
- Brackish Water Oil & Gas Permit Exemptions
- Concentrated Well Field Permits
Groundwater Management Toolbox

• Common Rules
  • Aquifer Production Rates
  • Production Permit Terms (5 years)
  • Water Usage Reporting
  • Property Line Well Spacing
  • Peaking Production Rates (150% of permitted production rate)
  • Aggregate Well Permits

• Special Conditions
  • Groundwater Ownership/Contractual Rights vs CCN
  • Permits vs Exemptions
  • Single Wells vs Concentrated Well Field
Gonzales UWCD Special Conditions

• Public Water Utility CCN Permits
  • Well must be located within CCN
  • Eliminate claimed acreage (permitted/leased/sold)

• Brackish Water Oil & Gas Exemptions
  • Wilcox, Carrizo, Queen City, Sparta Aquifers – well completed in down-dip area where water quality exceeds 3,000 ppm TDS
  • Yegua-Jackson Aquifer – well completed and screened below 350 feet

• Concentrated Well Field Agreements
  • Mitigation Agreement
  • Monitor Well Agreement
  • Negotiated Fee Agreement vs Export Fee
POSAGCD Special Conditions

• Permits are adjustable (Rules- Section 16)
  • Treat all property owners equally in opportunity to produce
  • To achieve Desired Future Conditions (DFCs)
  • To achieve Protective Drawdown Limits (PDLs)

• Additional
  • Applicant may obtain a variance from neighbor to meet spacing or contiguous acreage requirements
  • Required Mitigation
  • Certain Exemptions with proof of property rights
Mitigation/ Conservancies
Gonzales County UWCD Mitigation Fund

• Funded by permittees capable of producing greater than 3,000 ac-ft/year (Voluntary)
• Managed by the Gonzales County UWCD
• Mitigation Fund Areas – Eastern and Western
• Wells Covered by Mitigation Fund
  • Drilled before permits granted
  • Completed in Carrizo Aquifer
  • Non public supply wells
  • Meet criteria for mitigation
Mitigation Work

• Lower pumps in wells to a depth that exceeds the anticipated 50 year water level declines based on GAM

• Restrictions in well or well too shallow:
  • Plug and abandon and install replacement well and pump
  • Plug and abandon and connect to public water supply
  • Plug and abandon and replace with stock tank

• Former flowing wells
  • Connect to power grid and install electric pump
  • Install solar pump
Mitigation Costs

• Costs to Date (2011 – 2018) - $1,323,142
• Electric Grid Connections - $46,700
• Eighteen Well Redrills - $6,500 - $21,000
• Eighty-three Pumps Lowered - $3,200 - $14,900
• Twenty-two Solar Pumps - $3,800 - $19,000
• One Public Water Supply Connection - $2,500
POSGCD New Tools

- Board Dashboard (on website)
  - Coordination of committees, staff, and consultants
  - Transparency to, and inclusion of public

- Groundwater Well Assistance Fund (GWAP)
  - Developed in response to citizens request & Stakeholder driven
  - Developed after review of existing mitigation programs (GCUWCD)
  - Addresses consequences of balance between production and conservation
  - Provide assistance for wells affected by aquifer-wide production
  - Proactive- address needs 10 years before wells affected
  - Also addresses unexpected emergencies
  - Encourages additional wells in POSGCD Water Level Monitoring Network
  - Funded by stand-alone budget item
  - Adopted January 2018
POSGCD NEWEST TOOL

• POSGCD Aquifer Conservancy Program (PACP)
  • Developed in response to citizens request & stakeholder driven
  • Specific to land over the Carrizo-Wilcox in POSGCD
  • Create legacy of stewardship of groundwater resources by conserving groundwater for future generations
  • Completely voluntary with flexible terms, & Exempt wells are acceptable
  • Creates partnership between landowners and POSGCD in conservation
  • Financial reward for not producing or permitting non-exempt amounts
POSGCD NEW TOOLS!

• POSGCD Aquifer Conservancy Program (PACP) (continued)
  • Landowner maintains ownership of resource
  • Long range and big picture- will survive current Board and management
  • Creates a balance in property rights (produce vs. not produce)
  • Works in conjunction with other POSGCD management strategies (tools)
  • Participants remain eligible for all other POSGCD programs
  • Funded by stand-alone budget item
  • Anticipate adoption January 2019
Phased In Permits with criteria

Proactive avoidance measures

Monitoring and response curtailments

Mitigation response plan for “unexpected” problems

Grant or Deny the Full Permit Request

Reduce the permit significantly upfront

Grant Permit with Special Conditions

Permit Options that Board could consider
Compliance Index Wells

The aquifer will not be dewatered

Pumps will not go dry
Groundwater Management Zones
Management Zones
Management Zone Boundaries

Shallow Wilcox MZs (includes Simsboro)

Deep Wilcox MZs (Simsboro), Deep Carrizo MZ, and Queen City / Sparta / Yegua Jackson MZ

Trinity MZ

Alluvium MZ
Management Zone Boundaries

Shallow Wilcox MZs (includes Simsboro)

Deep Wilcox MZs (Simsboro), Deep Carrizo MZ, and Queen City / Sparta / Yegua Jackson MZ

Trinity MZ

Alluvium MZ