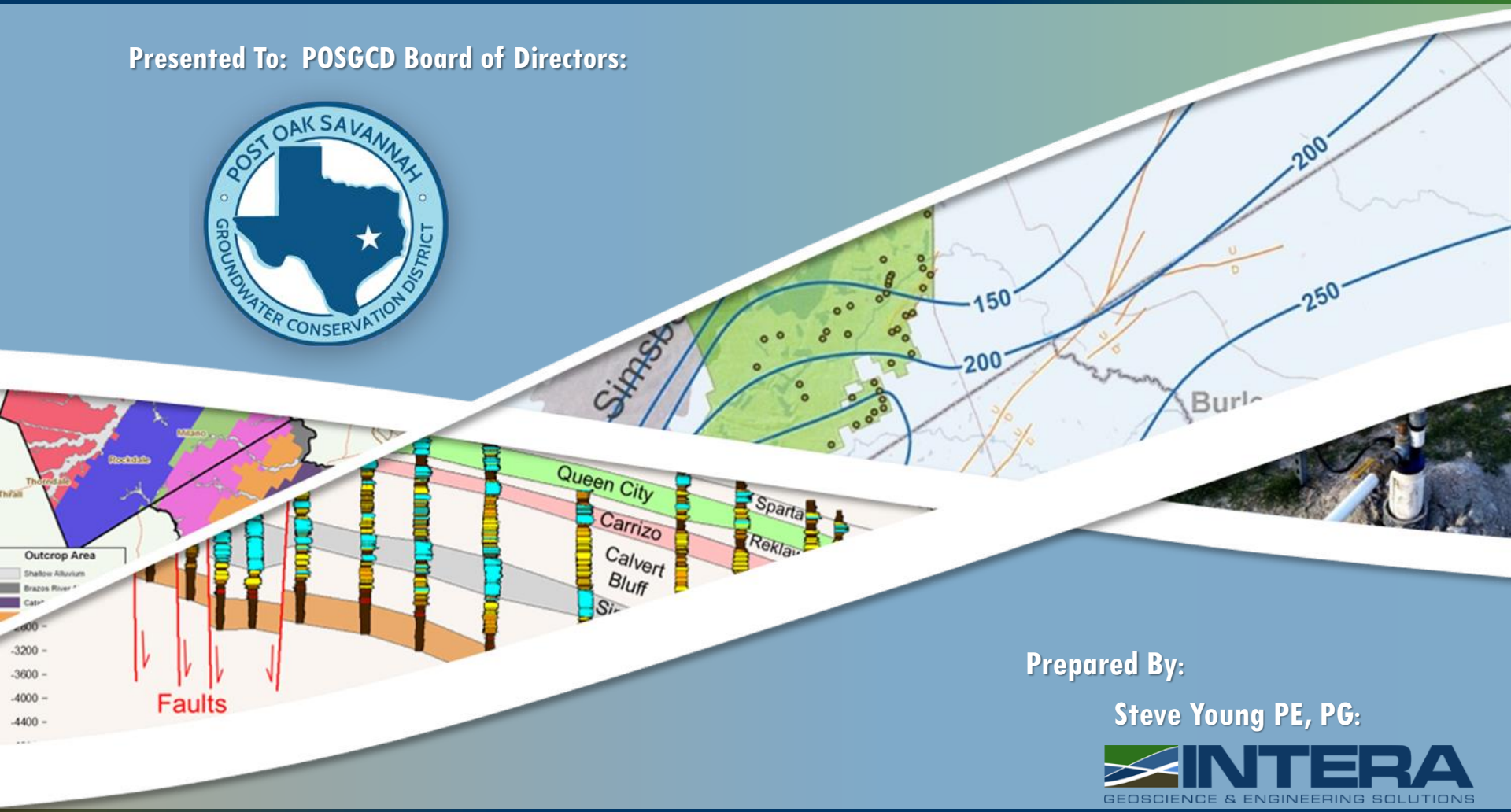
Update on GANA, Compliance, and Management Strategies Reports

Presented To: POSGCD Board of Directors:



Prepared By:

Steve Young PE, PG:

INTERA
GEOSCIENCE & ENGINEERING SOLUTIONS

April 13, 2021

DFC Committee Reports

GANA Report
Groundwater Assistance Program Annual Needs Assessment

Objective: Evaluate the potential of *water wells* going "dry" based on *simulated water levels* from GMA 12 DFC simulations

CR Report
Evaluation of Compliance Goals Based on Monitored Water Levels

Objective: Evaluate compliance to *DFC's and PDL's* based on interpretation of *measured water levels*

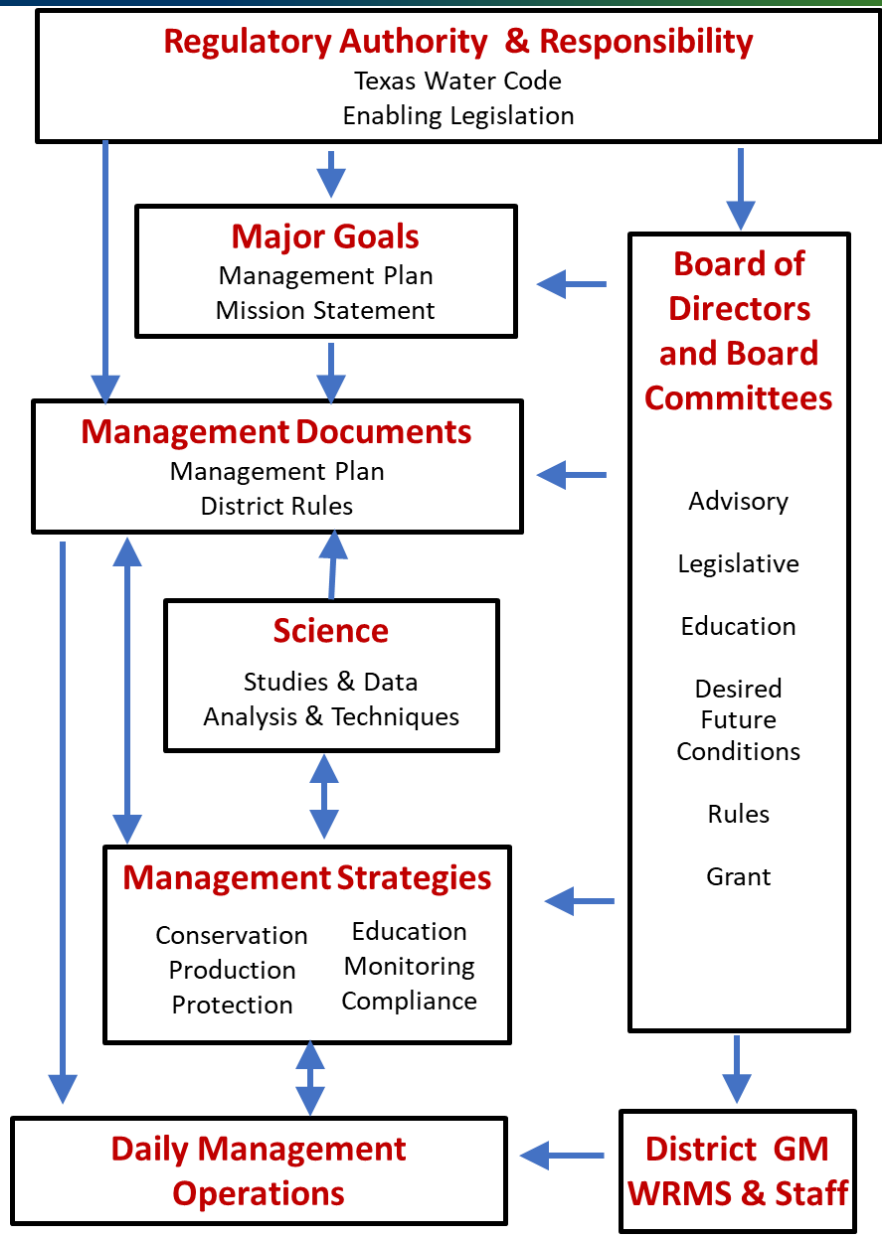
MS Report
Assessment of Management Strategies for Water Availability and Production

- describe and formalize the District structure for managing groundwater resources;
- identify factors that could impact the District ability to implement management strategies to accomplish District goals;
- identify actions that would improve the District's ability to implement strategies to accomplish goals

GANA = Groundwater Assistance Program Annual Needs Assessment
CR = Compliance Report
MS = Management Strategies

Structure for Groundwater Management

- Structural framework consists of eight main components
- Report Discusses each component
- Flowchart Illustrates Two Key Points
  - Board of Directors is the primary decision maker regarding development and implementing GW management
  - Management strategies have a central and pivotal role with District's GW management



Groundwater Management Strategies

GW Management Strategies defined as the formulation and promotion of policies that are important to the District's management of groundwater

- Necessary attribute
  - Help achieve District goals
  - Legally defensible: aligned and supported by legislative statutes
  - Scientifically defensible: aligned and supported by science
- Development and Implementation
  - Are dynamic and will change in response to changes in aquifer conditions, water demands, and best available science
  - Ability to implement affected by external factors over which the District has limited control

Ten GW Management Strategies

- Education and Public Outreach
- Regional & JointPlanning
- Compliance Evaluations for DFCs and PDLs
- Management Zone
- Well Monitoring Program
- District Action Triggered by Exceedances of Tiered Thresholds
- Well Permitting Requirements
- Production Limitations
- Curtailment of Permitted Production
- Conservation of Groundwater

Interconnection Among Science and Management Strategies

Quantitative Data	Example Hydrogeological Application	Management Strategy with Possible Overlap with Example Applications
Measured Water Level and Water Quality Data	• Maps of water level contours and elevations • Estimates of vertical hydraulic gradients • Measure change in water levels over time • Determine an average water for DFC zones • Maps of water quality including brackish zones	1. Education and Public Outreach 2. Regional Planning 3. Compliance Evaluations for DFC and PDLs 5. Well Monitoring Program 6. District Action Triggered by Exceedances of Tiered Thresholds 9. Curtailment of Permitted Productions
Reported Pumping Rates	• Track compliance with individual operating permits • Track compliance with modeled available groundwater • Provide pumping rates for GAM update • Establish water budgets for management zones	2. Regional Planning 5. Well Monitoring Program 6. District Action Triggered by Exceedances of Tiered Thresholds 7. Well Permitting Requirements 9. Curtailment of Permitted Productions
Aquifer Pumping Tests	• Estimate Transmissivity at District well locations • Use to help identify fault locations • Validate and test groundwater models	2. Regional Planning 3. Compliance Evaluations for DFC and PDLs 7. Well Permitting Requirements 9. Curtailment of Permitted Productions
Driller Logs & Geophysical Logs	• Identify total depth and screen intervals for wells to support aquifer assignment • Identify pump settings • Identify boundaries between aquifers • Locate faults and fault zones • Identify and quantify clay and sand interval	2. Regional Planning 3. Compliance Evaluations for DFC and PDLs 5. Well Monitoring Program 6. District Action Triggered by Exceedances of Tiered Thresholds 7. Well Permitting Requirements

External Factors of Potential Importance

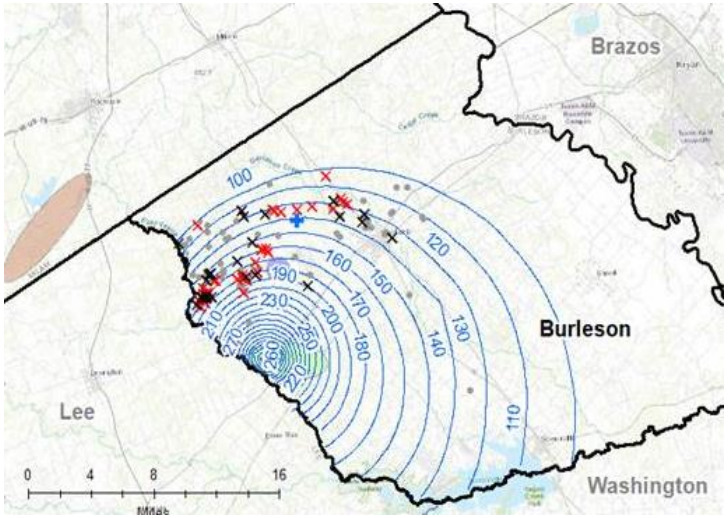
External factors are largely outside of the control of POSGCD although POSGCD may have a role in defining the factors

External Factors

- District's Regulatory Authority
- Evolution of Best Availability Science
- Joint Planning Process
- Adjacent District Policies & Pumping
- State Water Needs
- Interest of Landowners and Well Owners
- Environmental Conditions including Endangered Species Act
- Modification of Water Code
- Court (SOAH) Findings

Report Findings Important to District Achieving Its Goals

GANA Report and Related DFC Committee Analysis



POSGCD Carrizo Production (AFY)	Impacted* Wells		
	2029	2039	2049
18,200	71	114	141
12,200	36	69	97

* Impacted define as water level drops to less than 15 feet above pump setting

Compliance Report and Exceedances to Rule 16.5 Tiered Thresholds in 2020

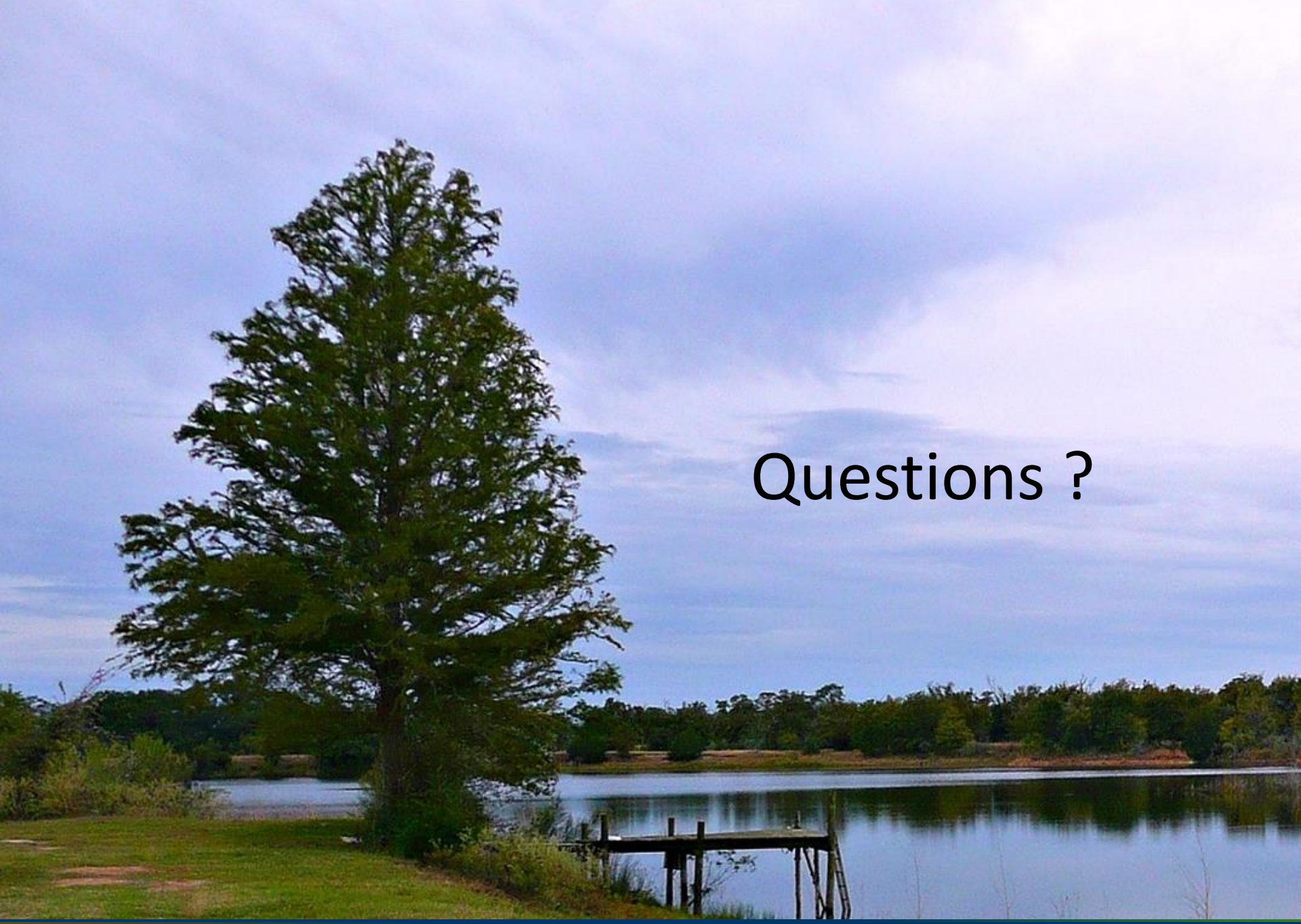
Threshold	Description	Aquifer
Level 1	>60% of MAG	Queen City
Level 1	>60% of MAG	Carrizo
Level 1	>50% of DFCs	Sparta
Level 1	>50% of DFCs	Carrizo
Level 1	>PDL in 15 years	Carrizo
Level 1	>PDL in 15 years	Calvert Bluff
Level 1	>PDL in 15 years	Simsboro
Level 1	>PDL in 15 years	Queen City
Level 2	>60% of MAG	Queen City
Level 2	>60% of MAG	Carrizo

Note: DFC = Desired Future Condition
PDL = Protective Drawdown Limit
MAG = Modeled Available Groundwater

Suggested Actions to Help District Implement GW Strategies and Accomplish Goals

Perform Comprehensive Review of GW Management Issues

- Correlative Rights and Fair Share
- Management Zones
- Time Intervals associated with DFCs
- Compatibility of DFCs and PDLs
- Enforcement of Reduction of Production
- Unreasonable Impacts
- Fee Structure


Questions ?