

**Scope of Work**  
**Evaluation of Impacts to the Carrizo-Wilcox Aquifer**  
**Of Rules, Plans and Practices of Local Groundwater Conservation Districts**

**OBJECTIVE:** Evaluate the rules, plans and practices adopted by the following groundwater conservation districts: Panola County Groundwater Conservation District, Rusk County Groundwater Conservation District, Neches and Trinity Valleys Groundwater Conservation District, Anderson County Underground Water Conservations District, Pineywoods Groundwater Conservation District, Mid-East Texas Groundwater Conservation District, Brazos Valley Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Bluebonnet Groundwater Conservation District, Lost Pines Groundwater Conservation District, Fayette County Groundwater Conservation District, Gonzales County Underground Water Conservation District, Plum Creek Conservation District, Lavaca Groundwater Conservation District, Guadalupe County Groundwater Conservation District, Medina County Groundwater Conservation District, Uvalde County Underground Water Conservation District, Evergreen Underground Water Conservation District, Wintergarden Groundwater Conservation District, McMullen Groundwater Conservation District, Live Oak Underground Water Conservation District and Harrison Groundwater Conservation District. Evaluate determinations made by the above referenced groundwater conservations districts in connection with the joint planning process for Groundwater Management Areas 11, 12, and 13 for the Carrizo-Wilcox aquifer.

**Task 1a:** Coordinate with TWDB to develop list of existing and projected Carrizo-Wilcox aquifer water user groups and interested parties. Survey the listed parties to determine predominant groundwater management and protection issues and concerns, tabulate and explain findings. This list will establish a stakeholder group.

**Task 1b:** Examine rules, plans and procedures adopted by each groundwater conservation district (GCD) to determine if they are based on sound scientific principles. This information will be obtained from the GCDs using an online survey.

Link individual GCD rules to (1) statutory authority and (2) to any science that was considered during development of the rules.

Link individual GCD plan goals, objectives, and performance standards to any science that was considered in their development.

Link individual GCD permitting procedures and decisions since September 1, 2007 to any science used in their development.

**Deliverables:** Task 1a, draft stakeholders list, final stakeholders list, tabulated findings posted on website.

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Task 1b Quarterly progress reports.

Task 1b summary of matrices for GCDs in Groundwater Management Areas (GMAs) 11, 12, 13 posted on website.

Task 1b summary matrices for all Carrizo-Wilcox aquifer GCDs posted on website.

**Schedule:**

Task 1a, draft stakeholders list to TCEQ for review and approval by December 1, 2009, final stakeholders list by February 1, 2010. Draft tabulated findings to TCEQ for review and comment, April 1, 2010, final tabulated findings June 1, 2010.

Task 1b, matrices posted on website for TCEQ to review and comment by June 1, 2010; final matrices posted on website for TCEQ in September 1, 2010.

**Task 2:**

Evaluate each groundwater conservation district for enforcement of substantial compliance with its rules. Tabulate number of enforcement actions since September 1, 2007. This information will be obtained from the GCDs using an online survey.

**Deliverables:**

Quarterly progress reports.

Summary report on GCD enforcement actions. Summary should include enforcement actions for each GCD studied, highlight no fewer than five positive actions to enforce GCD rules to conserve, preserve, or protect groundwater resources for five different GCD.

Summary should highlight no fewer than five negative actions to enforce GCD rules to conserve, preserve, or protect groundwater resources for five different GCD.

Summary should include identification and contrast of apparent differences between GCDs that demonstrate successful enforcement programs with GCDs that do not demonstrate successful enforcement programs.

**Schedule:**

Draft summary report to TCEQ for review and comment by June 1, 2010.

**Task 3a:**

Evaluate current regional and state water plans and all Carrizo-Wilcox aquifer related strategies for conflicts with GCD plans.

**Task 3b:**

Conduct two stakeholder meetings for the GMAs (11, 12, 13), one towards

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the beginning of the project and the other towards the end of the project. The initial meeting will be used to describe and explain the study to stakeholders, and to provide information on the online survey and database that will be made available to the GCDs so that they can populate the database to address many of the tasks described in this study. The initial meeting within each GMA will also include an opportunity for TCEQ management and staff to become familiar with the Carrizo-Wilcox aquifer, the GMA, and stakeholders. The final meeting will describe the results of the study and address any questions that the GMAs might have related to the results of the study. Additional meetings may be scheduled with stakeholders as agreed upon by TCEQ and contractors.

**Task 3c:** Identify, tabulate and describe every existing and projected water user group strategy or alternative strategy that is presently or is likely to impact groundwater use from the Carrizo-Wilcox aquifer including but not limited to strategies for the use of brackish groundwater.

**Deliverables:** Quarterly progress reports.

Stakeholder meetings and educational opportunities for TCEQ management and staff. Summary report on water plans and strategies applicable to the Carrizo-Wilcox aquifer.

**Schedule:** Initial stakeholder meeting to be arranged within two months of the development of the final stakeholders list. Subsequent meetings to be scheduled by the contractor to meet milestone dates for specific tasks. Draft summary report to TCEQ for review and comment by September 1, 2010.

**Task 4:** Characterize GCD plans with respect to their ability to conserve and protect the aquifer. Compare each GCD's plans, rules and procedures with those of each adjacent GCD for compatibility.

Identify, tabulate and describe each GCD's conservation and protection programs.

Matrix and describe GCD conservation and protection program compatibility for each Groundwater Management Area.

Matrix and describe GCD conservation and protection program effects to adjacent Carrizo-Wilcox aquifer counties that do not presently have a GCD.

Matrix and describe GCD conservation and protection program effects to the adjacent non-Carrizo-Wilcox aquifer Groundwater

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Management Areas.

Identify and describe areas of greatest conflict.

**Deliverables:**           Quarterly progress reports.

Summary report on GCD aquifer conservation and protection activities.

**Schedule:**           Draft summary report to TCEQ for review and comment November 1, 2010.

**Task 5:**           Review available records from GMAS 11, 12, and 13 and evaluate science behind ultimate Desired Future Conditions (DFCs) recommendations. Survey GCDs to determine if any science was submitted during deliberations of DFCs. Evaluate whether the rules adopted by the appropriate GCDs are designed to achieve the probable DFC for each GMA. Determine other long-term impacts of the GCD rules and plans on the entire Carrizo-Wilcox aquifer, considering projected agricultural, industrial and municipal demands for water from the aquifer.

Link individual GMA DFC data to any science used to develop the DFC.

**Deliverables:**           Quarterly progress reports.

Summary of matrices for GCDs in GMAs 11, 12, 13.

Summary report on impacts of GCD rules and plans on Carrizo-Wilcox aquifer.

**Schedule:**           Draft summary report to TCEQ for review and comment November 1, 2010.

**Task 6:**           Examine and critique Groundwater Availability Models (GAMs) to assess

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(a) model runs of representative pumpage scenarios in the north, central, and southern Carrizo Wilcox aquifer

**(b)** estimation of spatial and temporal variability of recharge and modeling of recharge

**(c)** sources of water for pumpage (outcrop zone [increased recharge, reduced discharge], confined zone [change in aquifer storage, increased recharge from overlying Queen City Sparta])

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**(d)** timescales for impacts of pumpage on outcrop and Queen City Sparta aquifer

**Deliverables:** Quarterly progress reports.

**Schedule:** Draft summary report to TCEQ for review and comment December 1, 2010.

**Task 7:** Determine whether the presence of anthropogenic contaminants in the recharge area of the aquifer and the potential pollution of the aquifer are issues that should be addressed, and if so, by whom. Assess distribution of contaminants from available databases from TCEQ PWS and TWDB. Identify any management or protection regulatory gaps.

**Deliverables:** Quarterly progress reports.

Summary report on presence of contaminants. Report should include recommendations for issues to be addressed.

**Schedule:** Draft summary report to TCEQ for review and comment December 1, 2010.

**Task 8:** Contractors will be available upon request during the legislative session to act as resource witnesses.

**Task 9:** Prepare final draft report on evaluation of impacts to the Carrizo-Wilcox Aquifer of rules, plans and practices of local Groundwater Conservation Districts. Final report will address TCEQ comments on final draft report.

**Deliverables:** **Final draft** report.

**Schedule:** Complete by February 1, 2011.

**Deliverables:** **Final** report.

**Schedule:** Complete by June 30, 2011.