

**Final Summary Report on predominant management or protection issues and concerns from stakeholders regarding the Carrizo-Wilcox Aquifer**

1.0 Introduction

This summary report prepared by the Bureau of Economic Geology (BEG) is submitted to fulfill requirements of Task 1a and partial requirements of Task 1b of the TCEQ Carrizo-Wilcox Study, Project 582-8-75374-119. Specifically, this report describes (1) the final stakeholder group identified as part of the TCEQ Carrizo-Wilcox Study (the Study), (2) surveys developed to solicit input from interested parties, including groundwater conservation districts (GCDs) with jurisdictional responsibilities over the Carrizo-Wilcox Aquifer, regarding predominant management or protection issues and concerns related to the Carrizo-Wilcox Aquifer, and (3) a summary and representative detailed responses to the survey questionnaires. While this summary report contains survey responses from the GCD's survey regarding predominant groundwater management and/or protection issues and concerns, the complete responses to the survey questionnaires are available for review at the Carrizo-Wilcox Aquifer Study webpage at <http://www.beg.utexas.edu/cswr/aquiferstudy/>

2.0 Final Stakeholder List

A significant component of Task 1a was focused on identifying, contacting, and soliciting feedback from targeted interest groups and individuals directly or indirectly involved with the Carrizo-Wilcox Aquifer. In order to compile and contact potential stakeholders of the Carrizo-Wilcox Aquifer, the following efforts were completed.

- A project website was created at <http://www.beg.utexas.edu/cswr/aquiferstudy/> that contained a link inviting individuals and interested groups to sign up as a stakeholder.
- State agencies, trade and professional organizations such as Texas Alliance of Groundwater Districts, Texas Water Conservation Association, Texas Rural Water Association, and Texas Section American Water Works Association were contacted with requests to post links on the organization's websites advertising the Study and the request for stakeholders to participate.
- A list of water user groups with contact information from the 2006 and draft 2011 regional water plans for all regional water planning groups currently using or planning to use the Carrizo-Wilcox Aquifer at any point in the 50-year planning horizon were obtained from the TWDB.
- A list of water users of the Carrizo-Wilcox Aquifer and their contact information that have submitted a water use survey was obtained from the TWDB.
- A variety of sources were used to compile a complete list of all GCDs with jurisdictional responsibilities over the Carrizo-Wilcox Aquifer, including current contact information.
- Sign up lists from a 2009 Carrizo-Wilcox Aquifer Symposium held at Texas A&M University

were obtained from the TWDB.

The final stakeholder list contains 517 names, the majority of which include email contact information (see separate electronic attachment). This stakeholder list has been and will continue to be used throughout the course of the Study to disseminate results, findings, and information on future meetings.

### 3.0 Carrizo-Wilcox Study Online Survey Questionnaires

The primary process for soliciting comments from stakeholders of the Carrizo-Wilcox Aquifer was through online surveys developed specifically for this Study. Two separate survey questionnaires were developed to solicit focused information from interested parties and from GCDs. Draft surveys were presented to TCEQ staff for review prior to their release. These surveys are presented below.

#### 3.1 Interested Parties Survey Questionnaire

Following is the complete Carrizo-Wilcox Aquifer Interested Parties Survey Questionnaire that was posted online.

1. What is the name of your interested organization, if applicable?
2. What is the mailing address for your interested party?
3. What is the phone number for your interested party?
4. What is the email address for the interested party?
5. Provide a brief description of any predominant groundwater management or protection issues and concerns related to the Carrizo-Wilcox Aquifer.
6. Please provide a list, with sufficient detail to allow for an availability analysis, of any new or alternative water management strategies that are being considered for future implementation that may impact groundwater availability in the Carrizo-Wilcox Aquifer, but are not currently in the regional and state water plans.
7. Are you aware of any compatibility issues that have already been documented or that may occur as a result of the implementation of any district's management plan? If yes, please describe the nature of the compatibility issue.
8. Provide a list of any substantial enforcement actions, regardless of ultimate resolution, taken for violations of district rules since September 1, 2007. In as much detail as possible, include the dates, nature of violations, citation to rules violated, enforcement actions taken by the district, resolution actions taken by violators, and dates of compliance.
9. Are you aware of the presence of anthropogenic contaminants in the recharge zone or the production zones of the Carrizo-Wilcox Aquifer? If so, please describe the nature of the contamination (i.e.- contaminant, location, possible sources and supporting analytical data, if available).
10. Are you aware of management gaps or regulatory gaps that have led to or could lead to contamination of the recharge zone or production areas of the Carrizo-Wilcox Aquifer? If so,

please describe the management or regulatory gaps related to past, current or potential aquifer contamination.

### 3.2 Carrizo-Wilcox Aquifer Groundwater Conservation District Survey Questionnaire

Following is the complete Carrizo-Wilcox Aquifer Groundwater Conservation District Survey Questionnaire that was posted online.

1. What is the name of your groundwater conservation district?
2. Who is the primary point of contact, and what is his or her title?
3. What is the physical address of the district's headquarters?
4. What is the mailing address for the district's headquarters?
5. What is the phone number?
6. What is the primary contact email address?
7. On what date was the groundwater conservation district established by the legislature or TCEQ?
8. What is the date of the confirmation election, if applicable?
9. By what method was the district created? (special law, petition, other)
10. If the district's boundaries are based on something other than county boundaries please provide a map of the district's boundaries. (Adobe PDF format preferred)
11. If the district's jurisdictional boundaries are based on political boundaries, please describe what boundaries are included in the district.
12. Provide a brief description of any predominant groundwater management and/or protection issues and concerns related to the Carrizo-Wilcox Aquifer.
13. Provide an electronic copy of the district's current adopted management plan. (Word format preferred)
14. Provide an electronic copy of the district's current adopted rules. (Word format preferred)
15. Provide an electronic copy of any written procedures or guidelines for operational purposes that have been developed and adopted by the district. (Word format preferred)
16. Provide electronic copies of any scientific data, reports, or presentations presented to and considered by the district during development of the current management plan. Include board of directors meeting minutes for any meeting in which the science in question was discussed. (Microsoft Office formats preferred)
17. Provide electronic copies of any scientific reports presented to and considered by the district during the development of the current district rules. Include in this information request electronic copies (Word format preferred) of district board of directors meeting minutes for any meeting during which the science identified was discussed.
18. Provide electronic copies (Word format preferred) of any scientific reports presented to and considered by the district during the development of any procedures that have been adopted by

the district. Include in this information request electronic copies (Word format preferred) of district board of directors meeting minutes for any meeting during which the science identified was discussed.

19. Provide a list of all substantial enforcement actions taken for violations of district rules since September 1, 2007. The district should include in this list the dates, nature of violations, citation to rules violated, enforcement actions taken by the district, resolution actions taken by violators, and dates of compliance. (Word format preferred)

20. Provide a list, with sufficient detail to allow for a groundwater availability analysis, any new or alternative water management strategies that are being considered for future implementation that may impact groundwater availability in the Carrizo-Wilcox Aquifer, but are not currently in the regional and state water plans.

21. Summarize significant programs included in the district's management plan specifically designed to conserve and protect the Carrizo-Wilcox Aquifer.

22. Has the district identified any compatibility issues that have already been documented or that may occur as a result of implementation of the district's current management plan and an adjacent district's management plan? If yes, please describe nature of compatibility issue.

23. Within GMA 11, 12, and 13, each groundwater conservation district that has been selected to serve as the administrator for the GMA process is asked to provide electronic copies of minutes from any meetings that have taken place since the beginning of the joint planning process during which scientific data and/or studies have been considered during the development of desired future condition recommendations. Provide electronic copies of any scientific data or presentations considered and identified in the minutes (Word format preferred).

24. Are you aware of the presence of anthropogenic contaminants in the recharge zone or the production zones of the Carrizo-Wilcox Aquifer? If so, please describe the nature of the contamination (i.e.- contaminant, location, possible sources and supporting analytical data, if available).

25. Are you aware of management gaps or regulatory gaps that have led to or could lead to contamination of the recharge zone or production areas of the Carrizo-Wilcox Aquifer? If so, please describe the management or regulatory gaps related to past, current or potential aquifer contamination.

#### 4.0 Summary and Representative Responses to Carrizo-Wilcox Aquifer Study Survey Questionnaire

There are a variety of stakeholders within the Carrizo-Wilcox Aquifer, representing numerous interests such as municipalities, regional water suppliers, environmental interests, private property owners, agriculture, industry, and locally governed GCDs. All identified interests were invited to participate in the Study by responding to surveys developed to collect information regarding the Carrizo-Wilcox Aquifer and any predominant groundwater management and protection concerns. The following sections summarize selected responses to the survey questionnaires. For the complete set of responses, the reader is referred to the Carrizo-Wilcox Aquifer Study webpage at <http://www.beg.utexas.edu/csww/aquiferstudy/>

#### 4.1 Interested Parties Responses

There were 65 unique responses received, either directly to the BEG (via email or other correspondence) or through the online Carrizo-Wilcox Aquifer Interested Parties Survey Questionnaire. Questions 1-4 were included to solicit contact information in the event that follow up questions were determined to be warranted.

Question 5 requests that the interested party *“Provide a brief description of any predominant groundwater management or protection issues and concerns related to the Carrizo-Wilcox Aquifer.”* This was the question for which almost all responses were focused. Generally, the responses can be divided into four broad categories:

- Wholesale and retail water providers concerned about the future of groundwater management in the Carrizo-Wilcox Aquifer
- Environmental interests concerned with inadequate focus on environmental protection during adoption of desired future conditions, management plans, and rules by Carrizo-Wilcox GCDs
- Citizens concerned about property rights being violated by the Lost Pines Groundwater Conservation District
- Citizens in Gonzales County concerned about their ability to sell their groundwater due to actions by the Gonzales County Groundwater Conservation District

Wholesale and retail water providers survey comments focused on a number of issues related to their ability to continue to provide water supplies to their current and future customers. For example, San Antonio Water System and Schertz Seguin Local Government Corporation commented on difficulties they experienced during water supply project implementation due to inconsistencies in the permitting process from one district to another and their inability to obtain long-term commitments for water supply permits. San Antonio Water System commented regarding the variability in local groundwater conservation district philosophies and rules that *“This regulatory inconsistency adds unnecessary difficulty to both long-term planning for water supply projects, as well as planning for the aquifer on a hydrologic basis.”* Canyon Regional Water Authority commented that the “crisis” in management of the Carrizo-Wilcox Aquifer is not based on actual hydrologic data. Specifically, Canyon Regional Water Authority commented that, *“Over the past several years, public awareness of groundwater issues and concerns over the availability of future supplies has grown dramatically. Fueling much of the anxiety is a fear of the impending “drying up” of Texas’ aquifers. However, the common perception that we are recklessly “mining” groundwater and that future generations will be left with meager and dwindling supplies is unfounded. On the contrary, the large amount of available hydrogeologic data indicates that the Carrizo-Wilcox aquifers are vast and largely underdeveloped resources that contain enough water to supply all of Central and South Texas’ needs for centuries.”*

The City of Bryan submitted two sets of comments to the Study. The following is a portion of the comments submitted by the City of Bryan along with recommendations:

*“...When Senate Bill 2 passed in 2001, the Texas Water Development Board was directed to ‘designate groundwater management areas covering all major and minor aquifers in the state...Each groundwater management area shall be designated with the objective of providing the most suitable area for the management of the groundwater resources. To the extent feasible, the groundwater management area shall coincide with the boundaries of a groundwater*

*reservoir or a subdivision of a groundwater reservoir’. (Sec. 35.004, Senate Bill 2, 77<sup>th</sup> Texas Legislature).*

*In response to this directive, the Texas Water Development Board designated 16 groundwater management areas, based almost exclusively on the boundaries of major and minor aquifers throughout the state. Recognizing the natural hydrologic divide effect that the Colorado and Trinity rivers have on groundwater flow in this critical groundwater resource, the Carrizo-Wilcox Aquifer, which covers all or parts of more than 60 counties in Texas, was divided into three groundwater management areas.*

*It is noteworthy to reflect on the directive from the Texas Legislature in 2001, ‘Each groundwater management area shall be designated with the objective of providing the most suitable area for the management of the groundwater resources’. If the Carrizo-Wilcox Aquifer is to be managed as effectively as possible in order to ensure that it remains a high quality, cost-effective, reliable water supply for the citizens of Texas, including the City of Bryan, then the most effective form of groundwater management should be utilized. However, the Carrizo-Wilcox Aquifer is currently managed, in part by 24\* groundwater conservation districts, and in other areas, still has no management. (\*- reader’s note - for this study, it has been determined that there are 21 confirmed GCDs with jurisdictional authority over the Carrizo-Wilcox Aquifer.)*

*Therefore, the City of Bryan requests;*

- Continued legislative review to ensure hydrologically-based management of the Carrizo-Wilcox Aquifer,*
- Continued legislative support for financial resources necessary to develop, update, and maintain science necessary to make sound policy and regulatory decisions, and*
- Legislative review regarding ownership of groundwater as it relates to investments made by political subdivisions, such as the City of Bryan, to ensure that these investments will not be negatively harmed by any adopted desired future conditions or regulatory methods developed and adopted by groundwater conservation districts.”*

The Brazos River Authority, a large wholesale water supplier over a significant portion of the Carrizo-Wilcox Aquifer expressed concerns regarding (1) groundwater conservation district’s that treat local use differently than non-local use in permitting, (2) that current regulations encourage “use it or lose it” mentality, i.e., current district rules give no incentive to keep water in place, (3) district rules do not address conjunctive use with any specificity and in practice work against the concept, (4) permits give no assurance to continued access to the water in the “out” years, and (5) differences in groundwater management philosophies of adjacent GCDs managing and regulating essentially the same supply of water will result in recurring problems and conflicts with no clear solutions.

Environmental Stewardship submitted comments regarding concerns that the groundwater management area joint planning process and individual GCDs need to adequately capture the need to sustain spring flows and base flows to streams and rivers as a component of establishing desired future conditions. Environmental Stewardship’s primary conclusion is that the groundwater management area process and GCDs have a duty and obligation to include rivers, streams and springs in the adopted desired future conditions of the Carrizo-Wilcox Aquifer.



Thirty five comment letters (form letters) were received from landowners who are concerned that their property rights are being violated through the actions of the Lost Pines Groundwater Conservation District. This letter states that the moratorium placed on groundwater permits in the Lost Pines Groundwater Conservation District is preventing the citizens from selling their water to the Guadalupe-Blanco River Authority for future water supplies. The letter is reproduced below in its entirety.

*“As a constituent landowner in Texas, I am writing to let you know I feel my property rights are being violated. The Lost Pines Groundwater Conservation District (LPGCD) is blocking my rights to sell my ground water. The Rule of Capture has been in effect in the State of Texas since 1904. Although tested more than once, the Texas State Supreme Court has upheld this law in every case. The legislative creation of groundwater conservation districts has, because of the actions and policy of our local district, taken away my rights to my water, and has given it to the District. The District is not bound to either its constituents or science. “Life” terms for board members, and appointee vs. elected official status, gives board members free rein to act on political motivation and personal bias, with no accountability to anyone. Across the state, districts are “hoarding” resources that are the property rights of landowners. The Carrizo Wilcox aquifer has more than enough water to meet the projected demands in our district for decades beyond the 50-year planning period. The Guadalupe Blanco Water Authority has signed a letter of intent to purchase much needed municipal water supplies from my land, water that I have a legal right to sell. In addition, the project would generate considerable revenues for our county. The Lost Pines Groundwater Conservation District is attempting to block this sale. The District has placed a moratorium on issuing any permits for water to be exported outside the district pending the setting of Desired Future Conditions (DFC’s) by the TWDB. The neighboring district, Post Oak Savannah Groundwater Conservation District, does not have a moratorium and is still issuing permits regardless of the DFC’s. The district has denied the landowners the right to participate or comment on rules, reservations, or any action that could impact landowners by refusing to post all meetings, except their regularly scheduled monthly meetings, and denying attendance in any meeting met with less than a forum. Therefore, the LPGCD is interfering with the free market system and placing all landowners within the District at a disadvantage because of denying due process.”*

Thirteen comments were received from a group of landowners and board members of Gonzales-Carrizo Management, Inc. This is a group of landowners who organized and arranged to lease groundwater to Texas Water Alliance - a division of the San Jose Water Company. These survey responders state that they own property in eastern Gonzales County. This set of comments states, *“Our main concern is being able to lease our water rights. We want parity (for our eastern side of the county) with the western side of the county, with regard to the number of allocable acre feet that we are allowed to lease.”*

Question 6 asks the interested party to *“Provide a list, with sufficient detail to allow for an availability analysis, of any new or alternative water management strategies that are being considered for future implementation that may impact groundwater availability in the Carrizo-Wilcox Aquifer, but are not currently in the regional and state water plans.”* Two responses were received to this request for information. First, the Schertz-Seguin Local Government Corporation submitted a preliminary project description for expansion of the existing Schertz-Seguin Local Government Corporation Project well fields in Gonzales and Guadalupe counties

to include wells and/or well fields in Wilson County to provide a project yield of 10,000 acre feet per year by the year 2020. Second, Environmental Stewardship submitted a substantial set of comments and information that supported the process of establishing desired future conditions. Environmental Stewardship has been involved in the joint planning process leading to the establishments of desired future conditions, and is supporting the need to ensure sustainable management of the groundwater resources including the protection of spring flow and base flow into streams and rivers from the Carrizo-Wilcox Aquifer. Due to the volume of information submitted by Environmental Stewardship, the reader is encouraged to review the complete set of comments and information submitted by Environmental Stewardship on this survey request at the Study website. Canyon Regional Water Authority submitted a lengthy commentary under this question, titled *Observations on the Regulation of the Carrizo-Wilcox Aquifer in Central and South Central Texas*. However, the content of this commentary was determined to not be related to this question. It is included in its entirety on the Study website link for survey responses.

Question 7 from the Interested Parties Survey asked “*Are you aware of any compatibility issues that have already been documented or that may occur as a result of the implementation of any district’s management plan? If yes, please describe the nature of the compatibility issue.*” Six “yes” responses addressing Question 7 were received, all but one of which were from either wholesale or retail water suppliers. The main concerns raised were (1) conflicts between GCDs over different approaches to the issuance of production permits and in their interpretation and application of Chapter 36 requirements, (2) conflicts between regional water planning groups and GCDs in that the regional water planning groups have incorporated water supplies from the Carrizo-Wilcox Aquifer in volumes that are reported to be in excess of what the Carrizo-Wilcox Aquifer ecosystem can sustain, (3) that GCDs through the groundwater management area joint planning process should submit desired future conditions that are based on preferred hydrogeologic parameters and not geographically specific production amounts, which will allow TWDB to calculate a managed available groundwater estimate for the GCDs to manage, and (4) absence of required coordination between GCDs and regional water planning groups will lead to significant uncertainty about the reliability of water management strategies in the regional water plans. There were 12 “no” responses.

Question 8 requests the responder to “*Provide a list of any substantial enforcement actions, regardless of ultimate resolution, taken for violations of district rules since September 1, 2007. In as much detail as possible, include the dates, nature of violations, citation to rules violated, enforcement actions taken by the district, resolution actions taken by violators, and dates of compliance.*” Question 9 asks “*Are you aware of the presence of anthropogenic contaminants in the recharge zone or the production zones of the Carrizo-Wilcox Aquifer? If so, please describe the nature of the contamination (i.e.- contaminant, location, possible sources and supporting analytical data, if available).*” Of the 65 responses to the Interested Party Survey Questionnaire, no respondent answered question 8. Seventeen respondents answered question 9 with “no”, “none” or “not aware of any”.

Question 10 asks “*Are you aware of management gaps or regulatory gaps that have led to or could lead to contamination of the recharge zone or production areas of the Carrizo-Wilcox Aquifer? If so, please describe the management or regulatory gaps related to past, current or potential aquifer contamination.*” Fourteen respondents answered this question with a negative



response. There were three responses to this question regarding management or regulatory gaps. The Schertz-Seguin Local Government Corporation reported that "...there are numerous wells in the Carrizo Formation. Some are old wells that were originally used for irrigation of crops. There are also numerous oil wells that have been converted to water wells. Some of these wells are deteriorated and should be plugged but landowners are reluctant to assume financial responsibility for maintaining wells that are no longer in use." Bexar Metropolitan Water District pointed to possible management or regulatory gaps because of the many different GCDs and their rules and the lack of consistency between them. The absence of any interstate and bi-national management of the aquifer could lead to potential future contamination of the aquifer. The City of Bryan reported that they were unaware of what regulatory controls are in place to manage the recharge zone. The City of Bryan went on to suggest that the recharge zone should be considered a sensitive area to protect these areas from sources of contamination such as from manufacturing or commercial industries. Forty eight respondents did not answer this question.

Finally, a few other comments were received regarding the need for the Study and other issues that were not specific to the questions posed in the survey. These comments are included in the online database.

#### 4.2 Carrizo-Wilcox Aquifer Groundwater Conservation Districts Responses

For the purposes of this Study, 21 confirmed GCDs are recognized as having statutory responsibilities regarding the management and conservation of groundwater resources in the Carrizo-Wilcox Aquifer. The 21 GCDs are:

1. Anderson County Groundwater Conservation District
2. Bee Groundwater Conservation District
3. Bluebonnet Groundwater Conservation District
4. Brazos Valley Groundwater Conservation District
5. Evergreen Underground Water Conservation District
6. Fayette County Groundwater Conservation District
7. Gonzales County Underground Water Conservation District
8. Guadalupe County Groundwater Conservation District
9. Live Oak Underground Water Conservation District
10. Lost Pines Groundwater Conservation District
11. McMullen Groundwater Conservation District
12. Medina County Groundwater Conservation District
13. Mid-East Texas Groundwater Conservation District
14. Neches and Trinity Valleys Groundwater Conservation District
15. Panola County Groundwater Conservation District
16. Pineywoods Groundwater Conservation District

17. Plum Creek Conservation District which is a WC&ID
18. Post Oak Savannah Groundwater Conservation District
19. Rusk County Groundwater Conservation District
20. Uvalde County Underground Water Conservation District
21. Wintergarden Groundwater Conservation District

The confirmation election for the Harrison County Groundwater Conservation District was defeated by the voters during a May 8, 2010 election. It is not authorized to hold any subsequent election, and therefore is dissolved.

Sixteen GCDs (76 percent of the total) responded to the survey request. Survey responses were not submitted by:

1. Anderson County Groundwater Conservation District
2. Bee County Groundwater Conservation District
3. Guadalupe County Groundwater Conservation District
4. Live Oak Groundwater Conservation District
5. McMullen County Groundwater Conservation District

The overarching purpose of the survey was to evaluate the scientific foundation of the management plans, rules and regulations promulgated by these Carrizo-Wilcox Aquifer GCDs.

The 16 GCDs had three common responses to the survey question regarding predominant groundwater management and/or protection issues and concerns related to the Carrizo Wilcox Aquifer. These responses can be characterized as concerns regarding (1) availability of water supplies and challenges involved in the establishment of desired future conditions (2) need for continuous improvement of available science for purposes of decision making (3) and perceived lack of regulatory oversight by the Texas Railroad Commission regarding oil and gas activities. Allegations are made in some of the surveys that lack of regulatory oversight has contributed to contamination of local groundwater supplies.

Seven of the 16 GCDs responded that their districts primary concern was establishment of desired future conditions that will result in protection and conservation of available groundwater resources in their district. For example, Plum Creek Conservation District (PCCD) stated their primary concern was incorporation of desired future conditions into their management plan and that “permitting outside the boundaries of the PCCD that could impact the amount of water that would be available to satisfy local needs in the future”. Lost Pines Groundwater Conservation District stated that “it appears that LPGCD has already permitted more than the anticipated total of the MAGs for the district” that were established by Groundwater Management Area 12. Moreover, Lost Pines Groundwater Conservation District noted that export of groundwater resources outside of the district is on the rise and that “13.5 percent of the total pumpage from non-exempt wells was exported from the district.” Current and future groundwater production capabilities are of serious concern to three quarters of the districts that responded to the survey.

Three of the 16 GCDs cited a lack of readily available groundwater science resources that could help them make important short-term and long-term decisions. Rusk County GCD stated the need for more technology specifically aimed at monitoring “pumping, spring flow and aquifer

volume.” Brazos Valley Groundwater Conservation District concerns included establishment of groundwater production limits and development of Depletion Management Zones to “alleviate the depletion stress on the aquifer”, which are to be based upon “best available science.” Post Oak Savannah Groundwater Conservation District stated “our District has significant concerns with the reliability of the GAM predictions of the groundwater levels in the CW Aquifer”. Districts throughout the Carrizo-Wilcox Aquifer expressed uncertainty derived from the availability of accurate local groundwater science and districts ability to forecast future demand.

Texas Railroad Commission’s (RRC) groundwater management policies and enforcement procedures were a primary concern for 6 of the 16 GCDs. The RRC ability to comprehensively regulate oil and gas exploration, production, and transportation companies is contested because of the perceived inability to effectively regulate groundwater support wells and their inability to eliminate the occurrence of orphan or abandoned wells. Neches and Trinity Valleys Groundwater Conservation District stated concerns regarding *“inadequate oversight by the RCT of oil and gas wells and rig supply wells, including the many old wells within the district, which has presented many potential sources of contamination of groundwater.”* GCDs in the eastern region of the Carrizo Wilcox Aquifer, including Panola County Groundwater Conservation District, Plum Creek Conservation District, Neches and Trinity Valleys Groundwater Conservation District, and Rusk County Groundwater Conservation District noted that there are regulatory concerns with the management of oil and gas exploration and the oversight provided by Texas agencies including the RRC and Texas Department of Licensing and Regulation (TDLR). For instance, Rusk County GCD stated *“With each oil/gas exploration well drilled, a water well is drilled to support the operation. Due to lack of staffing, the TDLR does not conduct any construction inspections of these water wells. Our concern is for the illegal practice of screening more than one zone to gain the quantity of water needed. This practice, although not a major problem while the rig is in use, becomes a problem when the well is capped and left idle. The RCGCD purchased a down hole video camera in 2008 and requires inspection of each of these support wells within 180 days of the oil/gas rig leaving the pad. We have inspected over 300 wells and have found that about 11% were screened in more than one zone.”* Neches and Trinity Valleys GCD stated *“Inadequate oversight by the RRC of the oil and gas wells and rig supply wells, including the many old wells within the District, which has presented many potential sources of contamination of groundwater.”* Panola GCD stated *“lack of regulation by Railroad Commission of water wells involved in oil and gas operations and mining.”* Plum Creek CD stated *“There are management and regulatory gaps from the Railroad Commission that could possible lead to contamination of the recharge zone. These gaps are from past production practices and casing leaks.”* The aforementioned comments were submitted to the Carrizo-Wilcox Aquifer Study GCD survey.

Moreover, Rusk County GCD noted that the recharge zone for the Carrizo Wilcox Aquifer extends beyond the borders of Texas and suggested that a management or regulatory gap could lead to contamination of the recharge zone. Rusk County GCD suggested that this gap should be addressed by the TWDB or some other state entity if it is not currently under study. Rusk County GCD also noted extensive strip mining operations in the recharge area. The strip mining process includes removing 200 to 300 feet of earth to mine the lignite. Once mined, the overburden is then replaced. This mixing of the overburden and removal of the lignite may have an effect on recharge for the Carrizo Wilcox Aquifer. Rusk County GCD noted that this issue should be evaluated in future studies.

Attachment: Electronic copy of Carrizo-Wilcox Study stakeholders list