



11 August, 2010

Board of Directors  
Groundwater Management Area-12  
c/o Post Oak Savannah GCD  
310 East Ave. C  
Milano, Texas 76556

**Re: Urging GMA-12 to protect the Carrizo-Wilcox Aquifer and Colorado River groundwater-surface water relationship in the desired future.**

Dear Board of Directors:

Environmental Stewardship urges the Groundwater Management Area 12 Board of Directors to:

1. Add additional language to the currently accepted desired future conditions to protect the Carrizo-Wilcox Aquifer and Colorado River relationship in the desired future conditions (see attached), and
2. Publish to the public a "water budget" for the GMA-12 that itemizes - by county, aquifer, and decade through 2060 – precipitation recharge, surface water inflow and outflow, lateral inflow and outflow, inter-aquifer flow, wells, and change in storage. Examples include: GAM Runs 04-01 and 06-09 by Mid-East Texas GCD; GAM Run 08-70 for GMA-9.

The attached provides justification for our requests, describe actions that we request be taken, and contains paragraphs we would like to be included in current and future Groundwater Management Area 12 desired future conditions. Based on the information presented by state and regional entities over the past several years, it appears likely that the desired future conditions being submitted by GMA-12 to establish managed available groundwater may result in irreversible changes in the river-aquifer relationship. Given the importance of these water resources to our region, we believe it is imperative that actions be taken to monitor for such impacts and take corrective actions should they occur.

We appreciate the efforts of the GMA-12 to protect these natural resources by balancing the human demand for water against environmental needs. We look forward to working with the member Districts in planning, funding, and implementing the requested program over the next few years. Please feel free to contact me should you have any questions.

Respectfully submitted,  
Environmental Stewardship

Steve Box  
Executive Director

Environmental Stewardship is a charitable nonprofit organization whose purposes are to meet current and future needs of the environment and its inhabitants by protecting and enhancing the earth's natural resources; to restore and sustain ecological services using scientific information; and to encourage public stewardship through environmental education and outreach. We are a Texas nonprofit 501(c) (3) public charity headquartered in Bastrop, Texas. For more information visit our website <http://Environmental-Stewardship.org/>.

**GMA-12 DFC Hearing Comments**  
**URGING GMA-12**  
**TO PROTECT THE CARRIZO-WILCOX AQUIFER & COLORADO RIVER**  
**GROUNDWATER–SURFACE WATER RELATIONSHIP**  
**IN THE DESIRED FUTURE CONDITIONS OF**  
**GROUNDWATER MANAGEMENT AREA-12**

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**WHEREAS**, the Carrizo-Wilcox Major Aquifer and the Colorado River are important natural water resources to the ecology, citizens and economic viability of the Lost Pines Region; and

**WHEREAS**, the groundwater conservation districts of Groundwater Management Area 12 (collectively GMA-12) are required by Sec. 36.108. Water Code to work jointly to adopt desired future conditions for each aquifer within their jurisdictions; and

**WHEREAS**, Texas Parks and Wildlife Department, the National Wildlife Federation, Lone Star Chapter of the Sierra Club, Environmental Defense Fund, and Environmental Stewardship have urged that the five groundwater conservation districts in the GMA-12 protect the groundwater–surface water relationship between the Carrizo-Wilcox Major Aquifer and the Colorado and Brazos rivers, and their associated streams and springs; and

**WHEREAS**, the citizens of Bastrop County in Opportunity Bastrop County, an initiative of the Bastrop County Commissioners’ Court recognize the importance of the groundwater and surface water resources to the near- and long-term future of our region (adopted by the Court on December 10, 2007 and by the city of Smithville on May 13, 2008); and

**WHEREAS**, the environmental goal of Opportunity Bastrop County is to retain and enhance the rural character of Bastrop County while encouraging growth that is in balance with human and environmental needs, both today and in the future; and

**WHEREAS**, the Colorado River gains water from the Simsboro and other aquifers formations as it passes through Bastrop County<sup>1,2,3</sup>; and

**WHEREAS**, the Colorado Regional Water Planning Group (Region K), which includes Bastrop County, has predicted that with currently planned groundwater pumping in the region<sup>3</sup> the Colorado River will become a “losing river” by 2050; and

**WHEREAS**, the Colorado Regional Water Planning Group (Region K), passed a resolution in support of sustainable management of the groundwater resources of the region discouraging over-pumping of the aquifers<sup>3</sup>; and

**WHEREAS**, the Carrizo-Wilcox Aquifer is an artesian aquifer, and that artesian pressure creates springs and seeps that provide surface water outflows; and

**WHEREAS**, the Carrizo-Wilcox Aquifer is a sand aquifer where only 3-5% of precipitation over the outcrop area creates recharge, which means it will take hundreds or possibly thousands of years to recover should over-pumping occur; and

**WHEREAS**, there are a number of State, Regional, County, and local government and public stakeholder organizations that are charged with protecting these resources for today and the future including the Lower Colorado Regional Water Planning Group, the Lower Colorado River Authority, Groundwater Management Area 12, the member Groundwater Conservation Districts, and county and city governments; and

**WHEREAS**, the currently contemplated desired future conditions of GMA-12 do not adequately consider the potential impact of over-pumping on spring flow or other interactions between groundwater and surface water as required by the Texas Administrative Code Section 356.45 (i)(3); and

**WHEREAS** the current desired future conditions and the rules of the GMA-12 member Districts do not, before granting or denying a permit or permit amendment, adequately consider whether the proposed use of water unreasonably affects existing groundwater and surface water resources or existing permit holders, as required by the Texas Water Code Section 36.113 (d)(2); and

**WHEREAS** Section 36.108 (p) of the Texas Water Code provides that Districts located within the same groundwater management areas or in adjacent management areas may contract to jointly conduct studies or research, or to construct projects, under terms and conditions that the districts consider beneficial, and these joint efforts may include studies of ... the interaction of groundwater and surface water; and

**WHEREAS**, the currently contemplated desired future conditions of GMA-12 do not provide for monitoring, triggers, and rules to protect these valuable resources from the potential impact of over-pumping on the groundwater–surface water relationship; and

**WHEREAS**, the Groundwater Management Area-12 Board of Directors desire that these important groundwater and surface water resources be protected from unintended impacts to the extent reasonably available within the context of the laws, regulations, and codes of the State of Texas.

**NOW, THEREFORE, WE URGE and REQUEST THAT:**

1. The Groundwater Management Area-12 Districts include the attached paragraphs, or substantively equivalent language, as an addition to their desired future conditions; and
2. The Groundwater Management Area-12 Districts cooperate in taking all reasonable actions necessary to establish monitoring, pumping triggers, and rules, as described in the attached paragraphs, to ensure that the Colorado River and associated streams and springs of the region are adequately protected.

## **Urging and requesting that the following language to be included in the Desired Future Conditions for Groundwater Management Area 12**

**Protective Groundwater-Surface Water Safeguards** – Having considered the water needs of Central Texas and the potential water available from the aquifers under the jurisdiction of Groundwater Management Area 12 (GMA-12), and in consideration of the potential irreversible changes that might result from implementation of the desired future conditions described herein, the GMA-12 is committed to working with member Districts to investigate and install monitoring programs that will provide an early warning of potential unintended impacts to the Colorado River, streams and springs within Bastrop, Lee, and other counties as determined to be appropriate.

Realizing the social, economic and ecological value of these surface water resources to Bastrop, Lee and other counties, it is important that these resources be monitored in order to detect significant changes in the historical groundwater–surface water relationships that might have unintended adverse impacts. Historical records<sup>1</sup> and recent studies<sup>2</sup> indicate that the Colorado River has been, and remains, a gaining river as it passes through the river segment associated with the Carrizo-Wilcox aquifer group, especially the Simsboro outcrop. The historical low-flow studies conducted by the USGS<sup>1</sup> in 1918 and flow-duration curve generated by Dutton<sup>1</sup> in 2003 indicate that these groundwater formations contribute a volume of water that approximates 25,000 acre-feet per year to the Colorado River (26,100 acre-feet per year was used to calibrate the Carrizo-Wilcox groundwater availability model). The Lower Colorado Regional Water Planning Group (Region K) estimates that over-pumping of these aquifers could cause this historical relationship to change from a “gaining” to a “losing” river by 2050<sup>3</sup>, and recent GAM studies<sup>4</sup> of the region have shown a recent decline in surface water outflows. It is reasonable and prudent therefore that the GMA-12 take appropriate actions to monitor and protect against such impacts should they start to occur.

Monitoring of the groundwater–surface water relationship of the Colorado River and the Gulf Coast aquifer has been accomplished in the coastal portion of the basin providing a model for a potential monitoring project. The LCRA-SAWS<sup>5,6,7</sup> Water Project developed and implemented such a program in Wharton and Matagorda counties where the river is associated with the Gulf Coast Aquifer. Such a project, where shallow wells are placed in close proximity to existing river and stream gage stations, would likely provide an adequate means of monitoring this relationship. The information gained would likewise be helpful in guiding remedial actions should they be needed in order to protect the integrity of the aquifers and surface waters. Therefore, the GMA-12 will evaluate this program and determine whether it would be suitable for our segment of the basin and, if appropriate, install a similar system in the region.

Action levels are an important element of any program that is designed to provide early warning along with an opportunity to take remedial actions to prevent unintended impacts from occurring. As such, the GMA-12 will work with member Districts to set action levels that are linked to management actions to be taken in the event the action levels are met. These action levels and management actions will be incorporated into the management plans and rules of the Districts. These action levels and management practices will be a part of the District’s ongoing adaptive management practices that can be adjusted as experience is gained in monitoring and studying the groundwater-surface water relationship.

1. Dutton, Alan R., Bob Harden, Jean-Philippe Nicot, and David O’Rourke. February 2003. Groundwater Availability Model for the Central Part of the Carrizo-Wilcox Aquifer in Texas, Appendix B – Surface Water- Groundwater Interaction in the Central Carrizo-Wilcox Aquifer.

2. Saunders, Geoffrey P. June 2009. Low-Flow Gain-Loss Study of the Colorado River in Bastrop County, Texas.

3. Lower Colorado Regional Water Planning Group. January 2006. Adopted Region “K” Water Plan for the Lower Colorado Regional Water Planning Group.

4. Hutchinson, Bill. November 18, 2009. Presentation to the Lost Pines Groundwater Conservation District Board: Joint Planning in Groundwater Management Area 12.

5. LSWP Groundwater for Agriculture Team: URS Corporation, Baer Engineering and Environmental Consulting, Inc. June 2006. Shallow Monitoring Well Installation Wharton and Matagorda Counties, Texas.

6. LSWP Groundwater for Agriculture Team: URS Corporation, Baer Engineering and Environmental Consulting, Inc. March 2008. Monitoring Data Report from April 2006 to December 2007 for the LSWP Shallow Wells Installed in Wharton and Matagorda Counties, Texas.

7. URS Corporation, INTERA, and Baer Engineering and Consulting. April 2009. Development of the LCRB Groundwater Flow Model for the Chicot and Evangeline Aquifers in Colorado, Wharton, and Matagorda Counties.