Environmental Stewardship
A Sustainable Ecosphere

27 March 2015

By hand at Joint Planning Meeting and by email

District Representatives
Groundwater Management Area-12
Post Oak Savannah GCD
Fayette County GCD
Lost Pines GCD
Mid-East Texas GCD
Brazos Valley GCD

Re: Review of predictive scenarios for comparison to adopted desired future conditions

Dear District Representatives:

Environmental Stewardship encourages GMA-12 to carefully consider existing groundwater and surface water conditions as the GMA goes about the task of determining the appropriate DFCs within the GMA. The Texas Water Code charges GMA-12 with evaluating several factors when establishing desired future conditions. These factors include aquifer conditions, hydrologic conditions, and other environmental impacts, including interactions between surface water and groundwater. By these comments, Environmental Stewardship seeks to assist GMA-12 as it weighs these factors. Environmental Stewardship is confident that a meaningful consideration of these factors, along with all other statutorily-relevant factors, demonstrates that the DFCs should be maintained at a level that is at least as stringent as the current DFCs.

GROUNDWATER MANAGEMENT AREA - 12 DFC REVIEW

Groundwater Management Area 12 is currently reviewing the adopted DFCs and will be considering revisions as mandated by the Texas Water Code[1]. The information provided at the recent GMA-12[2] meeting included predictive scenarios (PS1 - PS4) to guide review and analysis of the current permitted pumping compared to the adopted desired future conditions (DFCs) and modeled available groundwater (MAG). These scenarios predict that the volume of pumping in the Simsboro aquifer and the resulting drawdowns in the Simsboro and connected aquifers will likely exceed both the DFCs and the MAG. ES compared these values in a set of tables comparing the drawdown and pumping information from PS4 to the adopted DFCs and MAG. (Attachments 1a and 1b). These data are preliminary and will change as the DFC review process continues, but they help identify trends and provide an initial indication as to the magnitude impacts that will occur within the GMA-12 aquifers.

Trends

A. The trend is toward violating adopted DFC drawdowns and/or MAGs in one or more aquifers in all Districts.
B. MAG exceedances are predicted for 4 out of 6 aquifers.
C. MAG exceedance for the Simsboro aquifer are greater than 50% in 3 out of 5 Districts: Lost Pines (59%), Post Oak Savannah (68%), and Brazos (80%) GCDs.
D. Lost Pines and Post Oak Savannah have the greatest divergence in predicted pumpage from 2060 to 2070.
E. Drawdown violations are predicted for all aquifers except the Sparta aquifer.
F. Drawdown violations of greater than 100 ft are predicted for the Simsboro aquifer in Lost Pines, Post Oak Savannah and Brazos GCDs.

The temptation, given the trend toward exceeding the DFC and MAG, will be to "pump deeper" (increase the depth of DFC drawdown and resulting MAG) rather than re-evaluate the DFCs considering ALL of the factors required[3]. The GMA should steadfastly resist that temptation. Instead, the GMA should ensure that the DFCs reflect the ability of the aquifers to yield water without draining the aquifers to the extent that unreasonable damage is inflicted upon the terrestrial environment, surface waters (hydrologically and ecologically including environmental flows in the river and into the estuaries), shallow domestic wells, and other social and economic interests of the local communities.

CONCLUSION NO. 1: Considering the trend toward exceeding the DFCs and MAGs, it is imperative that the GMA-12 and Districts RETAIN the currently adopted desired future conditions until such time as a thorough and rigorous study of the aquifers can be done with best available science and full consideration of all the factors required in Section 36.108(d)[4]. Given the deadlines for revised DFCs, it is unlikely that such a study can be accomplished during this round of DFC review. To take action now to revise the DFCs would be premature and could lead to irreparable damage should the DFCs need to be rolled back. As a reminder, Section 36.108(d) r*equires that "before voting on the proposed desired future conditions of the aquifers* under Subsection (d-2), the districts ***shall consider*** eight (8) specified factors[5].

GMA-12 AND DISTRICT DUTIES

The following paragraphs are intended to provide specific legal rationale for our conclusions and the basis upon which we urge the GMA and Districts to move forward in a conservative approach.

The rules of the Texas Water Development Board define “modeled available groundwater"[6] as the amount of water that TWDB determines may be produced on an average annual basis to achieve a DFC.[7] This amount becomes, in effect, the “regulatory availability[8]” of the aquifer, which the districts may allocate through permits and exemptions. Physical availability has been partially, but incompletely, characterized as the total estimated recoverable storage (TERS[9]). Determining the "regulatory availability" then should be the key-determining factor in developing and adopting desired future conditions.

CONCLUSION 2: The currently adopted DFCs allow the withdrawal of groundwater to a point that would cause unreasonable damage to the terrestrial environment, surface waters (hydrologically and ecologically including environmental flows in the river and into the estuaries), shallow domestic wells, and other social and economic factors. Best available science needs to be applied to investigate these factors in order to understand and mitigate the impacts of the currently adopted DFCs.

The importance of the "physical availability" and the "regulatory availability" are reflected in the duty of Districts to permit groundwater pumping. Section 36.1132 requires that districts should, to the extent possible, issue permits so that exempt and permitted production achieves applicable DFCs, considering five factors: (1) MAG, which we characterize as the regulatory availability of the aquifer; (2) exempt groundwater use; (3) previously authorized withdrawals; (4) actual production; and (5) yearly precipitation and production patterns. Section 36.113(d)(2)[10] further requires that before granting or denying a permit or permit amendment, the district **shall** consider whether, among other things, the proposed use of water unreasonably affects existing groundwater and surface water resources or existing permit holders.

CONCLUSION 3. Since factoring in the MAG should[11] assist accomplishment of the intent that the Districts should issue permits "up to the point that total volume of exempt and permitted production will achieve an applicable DFC," the importance of establishing an initial DFC that protects and conserves the aquifer should be our highest priority.

COLORADO RIVER AND SIMSBORO AQUIFER CONNECTION

Environmental Stewardship is concerned that we use our surface and groundwater resources in a way that benefits the State of Texas and its citizens while sustainably conserving and protecting these valuable resources. To that end, we are providing GMA-12 with a paper that we recently provided to the Texas Water Development Board[12] (TWDB). The paper[13] reviews several studies by the United States Geological Survey (USGS) and the Lower Colorado River Authority (LCRA), along with some original research sponsored by Environmental Stewardship (Attachments 2, 2A, 2B, and 2C).

The paper points to empirical data indicating that there may be a significant amount of water that drains from the Colorado River above Bastrop into the Simsboro Aquifer. According to an LCRA gain-loss study, the Colorado River, which is an overall "gaining stream" in the lower basin, is a "losing stream" in the segment where the river and the Simsboro aquifer intersect between Austin and Bastrop, Texas. Our interest is to call attention to this situation because we believe it points to several public policy issues that require consideration during this round of the DFC review process and is technically significant in the Section 36.108(d) review.

Policy Issue 1: Are we going to preserve and protect environmental flows in the Colorado and Brazos rivers that provide *essential life-support flow* for the river, especially during drought and extreme drought?

Policy Issue 2: Are we going to recognize this connection between groundwater and surface water and take steps to *conjunctively manage* these two resources as we make decisions regarding the desired future conditions of our aquifers and how they impact on the connected surface water resources?

NEEDED INFORMATION:

In order to facilitate consideration of the relevant facts, Environmental Stewardship asks that the following information be provided:

1. The number of NEW permits in the Calvert Bluff, Hooper and other aquifers since adopted DFCs (number of permits, pumping volumes approved, year) be tabulated for each GCD and be reported prior to the first public comment period under Section 36.108(d-2).
2. The number of registered wells in each aquifers be tabulated for each GCD along with an estimate of how many are likely to be impacted by PS4 drawdowns and be reported prior to the first public comment period under Section 36.108(d-2).
3. A MODFILE be extracted on the impact of PS4 pumping on outflows from the GMA into the Colorado and Brazos Rivers and be reported prior to the first public comment period under Section 36.108(d-2).

REQUESTED ACTIONS:

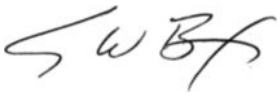
In order to ensure continued protection of the aquifers, Environmental Stewardship asks that the following actions be taken:

1. The GMA research and adopt scientific review and monitoring programs that would enable detection of groundwater-surface water interactions that may impact on the Colorado and Brazos rivers and the other environments and economies of the region.

2. The GMA refrain from voting on potential changes to the currently adopted DFCs until such consideration of factors required by Section 36.108(d) can be thoroughly evaluated using best available science and reported to the public (see CONCLUSION 1).

Environmental Stewardship and its supporters look forward to having an ongoing dialogue with the District Representatives regarding these issues. We believe the information provided represents a substantial body of information that has not been fully evaluated by the District's of GMA-12. Thank you for your attention to these important issues.

Respectfully submitted,
Environmental Stewardship



Steve Box
Executive Director

Attachment:

Attachment 1: ES DFC and MAG comparison tables.
Attachment 2: Colorado River - Simsboro Aquifer Connection.

Attachment 2A: Saunders, Geoffrey P. February 2006. Low Flow Gain-Loss Study of the Colorado River in Texas. TWDB Report 365, Chapter 19. Table 19-1 with calculations to convert cubic feet per second (cfs) to acre-feet per year.
Attachment 2B: Saunders, Geoffrey P. February 2009. Low-Flow Gain-Loss Study of the Colorado river in Bastrop County, TWDB Report 374, Chapter 8.
Attachment 2C: Rice, George. February 2015. Evaluation of Drawdowns Resulting from Baseline Pumping and Potential Pumping from the Simsboro Aquifer in Bastrop and Lee Counties, Texas (Rice Evaluation Report).

cc: Paul Pape, Bastrop County Judge
Paul Fischer, Lee County Judge

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/ .

REFERENCES

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[1] Section 36.108(d)

[2] GMA-12. February 26, 2015. Update of Preliminary Groundwater Modeling Results (PPT).

[3] Section 36.108 (d)(1-8). One of the factors that is hyped and given much attention by water marketers is, or will be, "*(3) hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage".* Developers and water marketers are using TERS, without consideration for the limitations identified by the TWDB on the concept of "recoverable", to argue that these resources are vast and undamagable. On this basis, the groundwater resources below the counties that are seeking groundwater from Bastrop and Lee counties ALSO have vast resources available; see also footnote 7. Paragraph 3 goes on to include *"and the average annual recharge, inflows, and discharge"*. Consideration of these factors would bring attention to the imbalance between recharge and pumping, and would including a thorough analysis of the impacts of declining discharge to surface waters. The statute requires consideration of "(*4) other environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water".* Consideration of this factor would bring attention to the impacts of over pumping on the Colorado and Brazos river alluviums, and the specific impacts brought about by the Colorado River - Simsboro Connection (See Attachment 2). The statute requires consideration of *"(8) the feasibility of achieving the desired future condition".* See Attachment 1: tables comparing baseline & potential pumping to DFC and MAG. And finally the statue requires consideration of *"(9) any other information relevant to the specific desired future conditions"*. This consideration would likely bring attention to the ecological impacts on surface waters and terrestrial ecosystems caused by a shift from the Colorado and Brazos rivers being primarily "gaining" to "losing" streams.

[4] Section 108(d)(1-9) was added to the Water Code on September 1, 2011, by 82nd Leg., R.S., Ch. 1233 (S.B. 660), Sec. 17, eff. September 1, 2011. The State and GMA-12 have had a little over three and a half (3.5) years to develop the science necessary to initially implement these provisions into the current round of DFC reviews.

[5] See also footnote 3 for annotations. Section 36.108(d): Before voting on the proposed desired future conditions of the aquifers under Subsection (d-2), the districts shall consider: (1) aquifer uses or conditions within the management area, including conditions that differ substantially from one geographic area to another; (2) the water supply needs and water management strategies included in the state water plan; (3) hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage as provided by the executive administrator, and the average annual recharge, inflows, and discharge; (4) other environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water; (5) the impact on subsidence; (6) socioeconomic impacts reasonably expected to occur; (7) the impact on the interests and rights in private property, including ownership and the rights of management area landowners and their lessees and assigns in groundwater as recognized under Section 36.002; (8) the feasibility of achieving the desired future condition; and (9) any other information relevant to the specific desired future conditions.

[6] *Section 36.1132* As amended in 2011 by SB737

[7] 31 TAC § 356.10(13)

[8] Environmental Stewardship asserts, and so asserted in its appeal of the originally adopted DFCs, that the currently adopted DFCs do not accurately reflect the amount of groundwater the aquifers can produce without unreasonable damage (Conclusion 2).

[9] It should be noted that TERS for any aquifer is an *estimated* number and a number associated with *availability*, not *sustainability.* Regulatory decisions premised on aquifer storage enable aquifer mining, rather than the sustainable use of the resource. Deliberate and intentional citation of TERS in marketing materials, technical documents supporting permit applications, public statements and speeches, and even legislative testimony, to substantiate claims of a vast quantity of water, there for the taking, in the Simsboro Aquifer should be discouraged. Without prominent reference, or any reference, to TWDB's disclaimers as to how these numbers should be *qualified by other critical factors associated with assuring sustainability*, water users, policy makers and the general public may be misled into thinking TERS, in isolation, is controlling with respect to *sustainability* of withdrawals of any amount up to TERS*.* We are concerned the District must address this issue such that withdrawals of anything less than TERS become perceived as imminently reasonable, whether proven sustainable or not.

[10] A factor that should be considered in adopting DFCs such that the Districts have the ability to grant permits within this constraint.

[11] "Should," to the limits imposed by an inappropriately determined initial DFC (See Conclusion 2)

[12] ES letter to the Texas Water Development Board. February 25, 2015. Re: Colorado River - Simsboro Connection, w/attachments.

[13] Box, Steve. February 23, 2015 Environmental Stewardship. Colorado River - Simsboro Aquifer Connection.