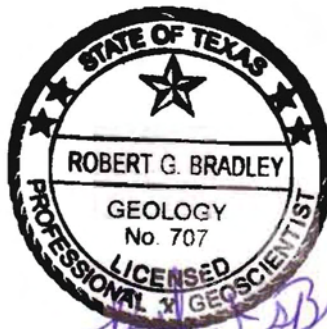


GTA Aquifer Assessment 09-05mag

by Robert G. Bradley, P.G.

Texas Water Development Board
Groundwater Technical Assistance Section
(512) 936-0870



Robert G. Bradley
12/10/09

December 10, 2009

REQUESTOR:

Cheryl Maxwell, of the Clearwater Underground Water Conservation District acting on behalf of Groundwater Management Area (GMA) 8.

DESCRIPTION OF REQUEST:

In a letter dated April 1, 2009, Ms. Cheryl Maxwell provided the Texas Water Development Board (TWDB) with desired future conditions for the Blossom and Nacatoch aquifers in Groundwater Management Area 8 and requested that TWDB estimate managed available groundwater values. This aquifer analysis presents the managed available groundwater for the Blossom Aquifer in Groundwater Management Area 8. The GMA readopted new desired future conditions for the Blossom Aquifer because the estimates of managed available groundwater provided by Aquifer Assessment 07-03 were lower than anticipated by the GMA groundwater conservation districts.

DESIRED FUTURE CONDITIONS:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

METHODS:

In the previous calculation of managed available groundwater, Aquifer Assessment 07-03 (Bradley, 2008) used water levels and water use estimates to determine the managed available groundwater based on maintaining 100 percent of the saturated thickness over 50 years. Because the previous desired future condition was to maintain 100 percent of the saturated thickness over the period of fifty years, the water levels within the aquifer were required to remain at or near the same level throughout the fifty-year period.

Although the conditions state that they are based on “estimated year 2009 conditions”, the method used does not require a stated benchmark year to do the assessment.

The estimates of managed available groundwater from that assessment will be used as the effective recharge amount used in this assessment.

A transient hydrologic budget for the saturated portion of an aquifer is described by Freeze and Cherry (1979, p.365):

$$Q(t) = R(t) - D(t) + \frac{dS}{dt}$$

where $Q(t)$ = total rate of groundwater withdrawal
 $R(t)$ = total rate of groundwater recharge to the basin
 $D(t)$ = total rate of groundwater discharge from the basin
 $\frac{dS}{dt}$ = rate of change of storage in the saturated zone of the basin

For this analysis, it is assumed that,

$$R(t) = R(r) + R(e)$$

where $R(r)$ = rejected recharge for the basin
 $R(e)$ = effective recharge

Effective recharge is the amount of water that enters an aquifer and is available for development (Muller and Price, 1979, p. 5). Rejected recharge is the amount of total (or potential) recharge that discharges from an aquifer because it is over-full and cannot accept more water (Theis, 1940, p.1).

In addition, it is assumed that,

$$R(r) \cong D(t)$$

Therefore, the total rate of groundwater withdrawal equals effective recharge plus the change in storage of the aquifer, or:

$$Q(t) = R(e) + \frac{dS}{dt}$$

County, regional water planning area, river basin, subcrop/outcrop, and groundwater conservation district boundaries subdivided the aquifer into map areas (Figure 1). The areal extent of each aquifer map area was calculated. These areas were used to calculate estimated annual effective recharge.

To determine the volume from storage used, the areas were multiplied by the estimated aquifer specific yield (outcrop) or storage coefficient (subcrop), and then by the drained saturated thickness necessary to maintain the desired future condition. This volume was then divided by 50 years to obtain a yearly volume.

The calculations were completed in a Microsoft Excel worksheet.

PARAMETERS AND ASSUMPTIONS:

- Water level declines listed in the desired future conditions were estimated to be uniform across the areas that were designated.
- The areas for each area were calculated from the TWDB shapefile for the Blossom Aquifer, projected into the groundwater availability modeling (GAM) projection (Anaya, 2001).
- The downdip limit of the Blossom Aquifer is delineated at the 3,000 TDS isoline (Ashworth and Flores, 1991, p.20).
- Areas, in acres, were calculated within ArcGIS 9.2.
- Estimates of managed available groundwater from Aquifer Assessment 07-03 are used as effective recharge amounts (Table 1).
- The draft managed available groundwater volume estimates are the sum of the annual effective recharge amount and the annual volume of water depleted from the aquifer based on the draft desired future condition.
- Annual volumes of water depleted are calculated by dividing the total volume by 50 years.
- Specific yield of the aquifer is estimated as 0.10 (McLaurin, 1988) and the storage coefficient is estimated as 0.00005 (McLaurin, 1988; Williams, 2009)
- Outcrop areas are calculated as unconfined areas of the aquifer and subcrop areas are calculated as confined areas of the aquifer.
- Conditions were assumed to be physically possible across the groundwater management area.

Table 1. Estimated total annual effective recharge volume for the Blossom Aquifer by map areas (See Figure 1; Bradley, 2008).

GMA	Aquifer	County	GCD	Map area	Areal extent (acres)	Estimated annual effective recharge (ac-ft/yr)		
8	Blossom	Lamar	none	1	2,864	17		
			none	2	28,028	157		
			none	6	12,839	71		
		Red River	none	3	23,629	138		
			none	4	52,392	296		
			none	7	31,477	179		
			none	8	13,546	76		
		Bowie	none	5	9,832	74		
			none	9	2,831	21		
		Total					177,438	1,029

RESULTS:

The annual effective recharge estimate for the Blossom Aquifer in Groundwater Management Area 8 is 1,029 acre-feet per year.

The results (Table 2) show the draft managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8. This results in an estimated annual total volume of 2,273 acre-feet per year.

Therefore, based on the assessment of the adopted desired future conditions,

- Bowie County has 201 acre-feet of managed available groundwater.
- Lamar County has a total of 394 acre feet of managed available groundwater; and
- Red River County has 1,678 acre-feet of managed available groundwater.

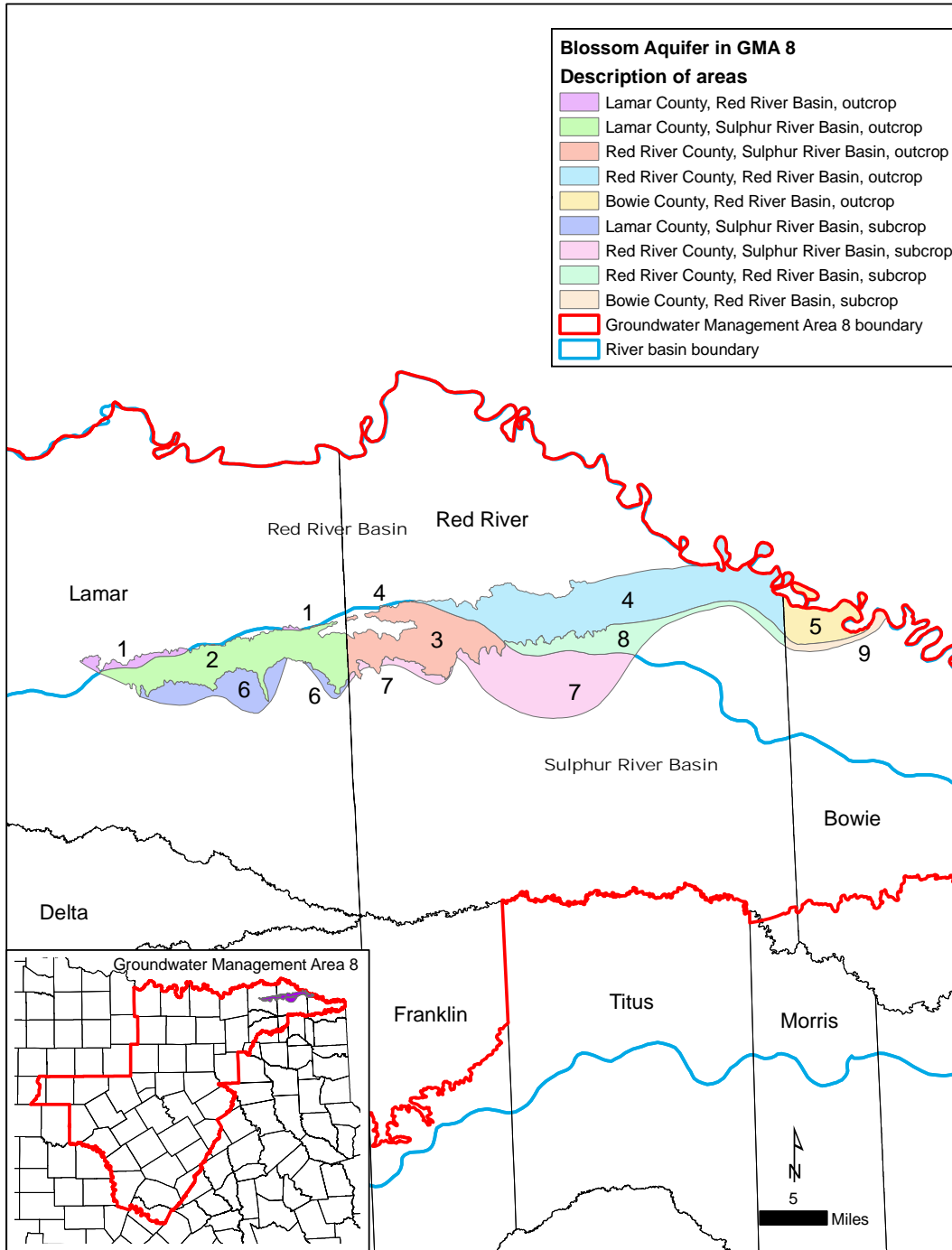


Figure 1. Map areas for estimating managed available groundwater for the Blossom Aquifer in Groundwater Management Area 8. * See Table 3 for a description of map areas based on county, regional water planning area, river basin, groundwater conservation district, and subcrop/outcrop boundaries.

Table 2. Estimates of draft managed available groundwater for the Blossom Aquifer summarized by map areas
 (see Figure 1).

GMA	Aquifer	County	GCD	Map area	Storage coefficient	Areal extent (acres)	Desired total aquifer drawdown (feet)	Estimated volume (acre-feet)	Estimated annual volume (ac-ft/yr)	Estimated annual effective recharge ¹ (ac-ft/yr)	Estimated annual total volume (ac-ft/yr)
9	Blossom	Lamar	none	1	0.1	2,864	2.4	687	14	17	31
			none	2	0.1	28,028	2.4	6,727	135	157	292
			none	6	0.00005	12,839	20.0	13	0	71	71
		Red River	none	3	0.1	23,629	6.5	15,359	307	138	445
			none	4	0.1	52,392	6.5	34,055	681	296	977
			none	7	0.00005	31,477	20.0	31	1	179	180
		Bowie	none	8	0.00005	13,546	20.0	14	0	76	76
			none	5	0.1	9,832	5.4	5,309	106	74	180
			none	9	0.00005	2,831	20.0	3	0	21	21
			Total				62,198	1,244	1,029	2,273	

GMA = groundwater management area
 GCD= groundwater conservation district
 ac-ft/yr = acre-feet per year
 1 - This is the estimated total annual effective recharge volume for the Blossom Aquifer by map areas as shown in Table 1.
 The formulas for this table are: storage coefficient * areal extent * desired total aquifer water level decline = estimated total volume from water level decline. Estimated total volume from water level decline/50 = estimated annual volume from water level decline. Then estimated annual volume from water level decline + estimated annual effective recharge = estimated annual total volume.

Table 3. Estimates of draft managed available groundwater for water level declines of 5 feet in the Blossom Aquifer (see Figure 1).

Aquifer	Map Key	County	RWPA	River Basin	GCD	GMA	GeoArea	Outcrop/subcrop	Year	MAG (acre-feet per year)
Blossom	1	Lamar	D	Red	None	8	n/a	n/a	n/a	31
Blossom	2	Lamar	D	Red	None	8	n/a	n/a	n/a	292
Blossom	3	Red River	D	Sulphur	None	8	n/a	n/a	n/a	445
Blossom	4	Red River	D	Red	None	8	n/a	n/a	n/a	977
Blossom	5	Bowie	D	Sulphur	None	8	n/a	n/a	n/a	180
Blossom	6	Lamar	D	Sulphur	None	8	n/a	n/a	n/a	71
Blossom	7	Red River	D	Sulphur	None	8	n/a	n/a	n/a	180
Blossom	8	Red River	D	Red	None	8	n/a	n/a	n/a	76
Blossom	9	Bowie	D	Red	None	8	n/a	n/a	n/a	21

RWPA = regional water planning area GCD= groundwater conservation district GMA = groundwater management area
 GeoArea = Geographic areas defined by unique desired future conditions as specified by a groundwater management area.
 MAG = Managed available groundwater in units of acre-feet per year.

LIMITATIONS:

Additional data are needed to create improved estimates; these estimates are a fundamental interpretation of the requested conditions. This analysis assumes homogeneous and isotropic aquifers; however, conditions for the Blossom Aquifer may not behave in a uniform manner. The analysis further assumes that precipitation is the only source of aquifer recharge and that lateral inflow to the aquifer is equal to lateral outflow from the aquifer, and that future pumping will not alter this balance.

Note that estimates of managed available groundwater are based on the best available scientific tools that can be used to develop managed available groundwater and that these estimates can be a function of assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not they are achieving their desired future conditions and to work with the TWDB to refine managed available groundwater given the reality of how the aquifer responds to the actual magnitude and distribution of pumping now and in the future.

REFERENCES:

- Anaya, R., 2001, GAM technical memo 01-01(rev a): Texas Water Development Board technical memorandum, 2p.
- Ashworth, J.B and Flores, R.R., 1991, Delineation criteria for the major and minor aquifer maps of Texas: Texas Water Development Board Limited Publication Report LP-212, 27p.
- Bradley, R.G, 2000: GTA Aquifer Assessment 07-03mag: Texas Water Development Board Aquifer Assessment, 18p.
- Freeze, R. A., and Cherry, J. A., 1979, Groundwater: Englewood Cliffs, New Jersey, Prentice Hall, Inc., 604.
- McLauren, C., 1988, Occurrence, availability, and chemical quality of the ground water in the Blossom sand aquifer: Texas Water Development Report no. 307, 32p.
- Muller, D. A. and Price, R. D., 1979, Ground-water availability in Texas, estimates and projections through 2030: Texas Department of Water Resources Report 238, 77 p.

GTA Aquifer Assessment 09-05mag
Groundwater Management Area 8
Blossom Aquifer
Managed Available Groundwater estimates
December 10, 2009

Theis, C.V., 1940, The source of water derived from wells: Essential factors controlling the response of an aquifer to development: Civil Engineering 10, pp.277-280.

Williams, C.R, 2009, Re-defined Desired Future Condition of Blossom Aquifer: memorandum to Cheryl Maxwell, Groundwater Management Area 8, 12p.



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December 10, 2009

Ms. Cheryl Maxwell, General Manager
Clearwater Underground Water Conservation District
P.O. Box 729
Belton, TX 76513

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Ms. Maxwell:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Ms. Cheryl Maxwell
December 10, 2009
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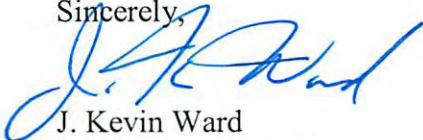
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

Attachment: GTA Aquifer Assessment 09-05mag

c w/att.: Cary Betz, Texas Commission of Environmental Quality, Water Supply Division
Kelly Mills, Texas Commission of Environmental Quality, Groundwater Planning and Assessment Division
Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, TWDB, Water Science and Conservation

Ms. Cheryl Maxwell
December 10, 2009
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Bill Hutchison, Ph.D., P.E., P.G., Director, TWDB, Groundwater Resources Division

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December 10, 2009

Mr. Richard Bowers, General Manager
Central Texas Groundwater Conservation District
P.O. Box 870
Burnet, TX 78611

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear  Mr. Bowers:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

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- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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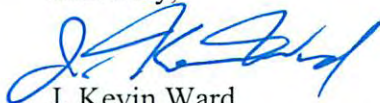
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
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Sincerely,



J. Kevin Ward
Executive Administrator

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December 10, 2009
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December 10, 2009

Mr. Rodney Carlisle, Board President
Fox Crossing Water District
P.O. Box 926
Goldthwaite, TX 76844

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Mr. Carlisle:

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- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
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Mr. Rodney Carlisle
December 10, 2009
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Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
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December 10, 2009

Mr. Joe Cooper, General Manager
Middle Trinity Groundwater Conservation District
150 North Harbin Drive, Suite 434
Stephenville, TX 76401

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear  Mr. Cooper:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

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- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

Attachment: GTA Aquifer Assessment 09-05mag

c w/att.: Cary Betz, Texas Commission of Environmental Quality, Water Supply Division
Kelly Mills, Texas Commission of Environmental Quality, Groundwater Planning
and Assessment Division
Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, TWDB, Water
Science and Conservation

Mr. Joe Cooper
December 10, 2009
Page 3

Bill Hutchison, Ph.D., P.E., P.G., Director, TWDB, Groundwater Resources
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Joe M. Crutcher, *Member*

December 10, 2009

Mr. Eddy Daniel, Board President
North Texas Groundwater Conservation District
114 McKinney Street
Farmersville, TX 75442

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Mr. Daniel:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. Eddy Daniel
December 10, 2009
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Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

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Mr. Eddy Daniel
December 10, 2009
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December 10, 2009

Mr. Mark Mendez, District Agent
Northern Trinity Groundwater Conservation District
100 E. Weatherford Street, Suite 404
Fort Worth, TX 76196

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Mr. Mendez:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. Mark Mendez
December 10, 2009
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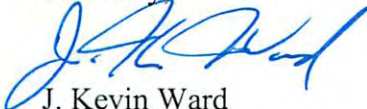
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

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Mr. Mark Mendez
December 10, 2009
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December 10, 2009

Mr. Gary Westbrook, General Manager
Post Oak Savannah Groundwater Conservation District
P.O. Box 92
Milano, TX 76556

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Mr.  Westbrook:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. Gary Westbrook
December 10, 2009
Page 2

Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

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Mr. Gary Westbrook
December 10, 2009
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Joe M. Crutcher, *Member*

December 10, 2009

Mr. Brian Sledge, Attorney
Prairielands Groundwater Conservation District
816 Congress Avenue, Suite 1900
Austin, TX 78701

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8


Dear Mr. Sledge:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. Brian Sledge
December 10, 2009
Page 2

Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

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Sincerely,



J. Kevin Ward
Executive Administrator

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Joe M. Crutcher, *Member*

December 10, 2009

The Honorable Eileen Cox, Fannin County Judge
Red River Groundwater Conservation District
101 E. Rayburn Drive, Suite 101
Bonham, TX 75418

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Judge Cox:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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The Honorable Eileen Cox
December 10, 2009
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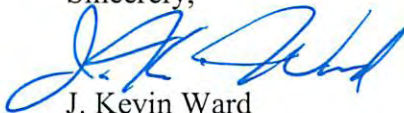
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

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Sincerely,



J. Kevin Ward
Executive Administrator

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The Honorable Eileen Cox
December 10, 2009
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Thomas Weir Labatt III, *Member*
Joe M. Crutcher, *Member*

December 10, 2009

Mr. Randy McGuire, Board President
Saratoga Underground Water Conservation District
P.O. Box 231
Lampasas, TX 76550

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Mr. McGuire:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

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- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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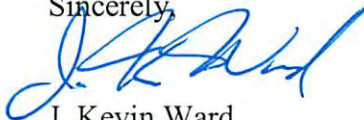
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

Attachment: GTA Aquifer Assessment 09-05mag

c w/att.: Cary Betz, Texas Commission of Environmental Quality, Water Supply Division
Kelly Mills, Texas Commission of Environmental Quality, Groundwater Planning
and Assessment Division
Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, TWDB, Water
Science and Conservation

Mr. Randy McGuire
December 10, 2009
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Bill Hutchison, Ph.D., P.E., P.G., Director, TWDB, Groundwater Resources
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Cindy Ridgeway, P.G., Manager, TWDB, Groundwater Availability Modeling
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Joe M. Crutcher, *Member*

December 10, 2009

Ms. Tricia Law, General Manager
Southern Trinity Groundwater Conservation District
P.O. Box 2205
Waco, TX 76703

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Ms. Law:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Ms. Tricia Law
December 10, 2009
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Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

Attachment: GTA Aquifer Assessment 09-05mag

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Ms. Tricia Law
December 10, 2009
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Joe M. Crutcher, *Member*

December 10, 2009

Mr. Mike Massey, Board President
Upper Trinity Groundwater Conservation District
P.O. Box 1786
Granbury, TX 76048

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8


Dear Mr. Massey:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. Mike Massey
December 10, 2009
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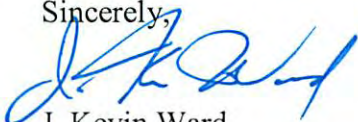
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

Attachment: GTA Aquifer Assessment 09-05mag

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Mr. Mike Massey
December 10, 2009
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Thomas Weir Labatt III, *Member*
Joe M. Crutcher, *Member*

December 10, 2009

Mr. John Grant
Colorado River Municipal Water District
P.O. Box 869
Big Spring, TX 79721

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Mr. Grant:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. John Grant
December 10, 2009
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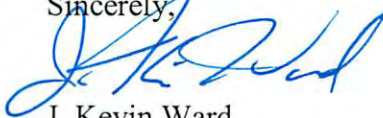
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

Attachment: GTA Aquifer Assessment 09-05mag

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Mr. John Grant
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December 10, 2009

The Honorable Dale Spurgin
Jones County Judge
P.O. Box 148
Anson, TX 79501

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Judge Spurgin:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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The Honorable Dale Spurgin
December 10, 2009
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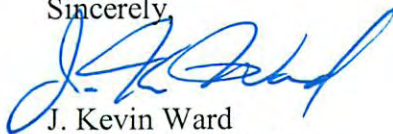
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

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The Honorable Dale Spurgin
December 10, 2009
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Joe M. Crutcher, *Member*

December 10, 2009

Mr. John Burke
Aqua Water Supply Corporation
P.O. Drawer P
Bastrop, TX 78602

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8


Dear Mr. Burke:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. John Burke
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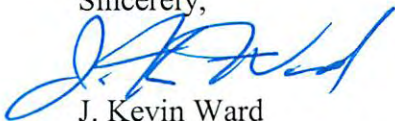
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

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Sincerely,



J. Kevin Ward
Executive Administrator

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Joe M. Crutcher, *Member*

December 10, 2009

Mr. Curtis Campbell
Red River Authority of Texas
P.O. Box 240
Wichita Falls, TX 76307

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8


Dear Mr. Campbell:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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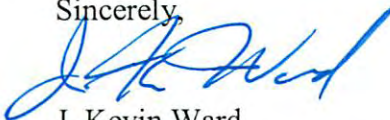
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

Attachment: GTA Aquifer Assessment 09-05mag

c w/att.: Cary Betz, Texas Commission of Environmental Quality, Water Supply Division
Kelly Mills, Texas Commission of Environmental Quality, Groundwater Planning
and Assessment Division
Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, TWDB, Water
Science and Conservation

Mr. Curtis Campbell
December 10, 2009
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Joe M. Crutcher, *Member*

December 10, 2009

Mr. James Parks
North Texas Municipal Water District
P.O. Box 2408
Wylie, TX 75098

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8


Dear Mr. Parks:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. James Parks
December 10, 2009
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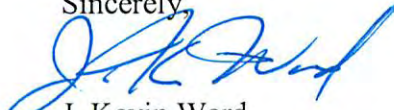
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

Attachment: GTA Aquifer Assessment 09-05mag

c w/att.: Cary Betz, Texas Commission of Environmental Quality, Water Supply Division
Kelly Mills, Texas Commission of Environmental Quality, Groundwater Planning
and Assessment Division

Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, TWDB, Water
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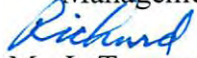
J. Kevin Ward
Executive Administrator

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Thomas Weir Labatt III, *Member*
Joe M. Crutcher, *Member*

December 10, 2009

Mr. Richard LeTourneau
Regional Water Planning Group D
P.O. Box 12071
Longview, TX 75607

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8


Dear Mr. LeTourneau:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. Richard LeTourneau
December 10, 2009
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Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

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Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, TWDB, Water
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Mr. Richard LeTourneau
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December 10, 2009

Mr. Phil Ford, General Manager
Brazos River Authority
P.O. Box 7555
Waco, TX 76714

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8


Dear Mr. Ford:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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Mr. Phil Ford
December 10, 2009
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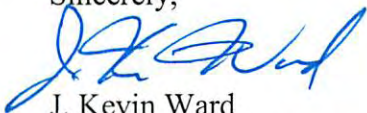
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

We understand that groundwater conservation districts have options on how to distribute managed available groundwater in a groundwater management area; therefore we encourage open communication and coordination between groundwater conservation districts, regional water planning groups and the TWDB to ensure that managed available groundwater reported in regional water plans and groundwater management plans are not in conflict. In addition, please note that estimates of managed available groundwater are based on the best available scientific tools that can be currently used to develop managed available groundwater and that these estimates may be based on assumptions made on the magnitude and distribution of pumping in the aquifer. Therefore, it is important for groundwater conservation districts to monitor whether or not their management of pumping is achieving their desired future conditions. Districts are encouraged to continue work with the TWDB to better define available groundwater as additional new data could help better assess responses of the aquifer to actual pumpage values and their distribution now and in the future.

Sincerely,



J. Kevin Ward
Executive Administrator

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Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, TWDB, Water
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Joe M. Crutcher, *Member*

December 10, 2009

Ms. Nancy Rose, Office Manager
Sulphur River Basin Authority
911 N. Bishop Street, Suite C-104
Wake Village, TX 75501

Re: Managed available groundwater estimates for the Blossom Aquifer in Groundwater Management Area 8

Dear Ms. Rose:

The Texas Water Code, Section 36.108, Subsection (o), states that Texas Water Development Board's executive administrator shall provide each district and regional water planning group located wholly or partly within a groundwater management area with the managed available groundwater in the management area based upon the desired future condition of the groundwater resource. This letter and the attached report (GTA Aquifer Assessment 09-05mag) are in response to this directive.

As noted in your letter dated April 1, 2009 the desired future condition submitted for the Blossom Aquifer in Groundwater Management Area 8 was as follows:

Bowie County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 5.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Lamar County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 2.4 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

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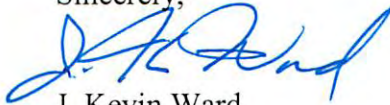
Red River County

- From estimated year 2009 conditions, the average draw down of the unconfined zone of the Blossom aquifer should not exceed approximately 6.5 feet after 50 years.
- From estimated year 2009 conditions, the average draw down of the confined zone of the Blossom aquifer should not exceed approximately 20 feet after 50 years.

Managed available groundwater is defined in the Texas Water Code as the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer as determined under Texas Water Code, Section 36.108. For various planning purposes the managed available groundwater estimates have been reported at the combined aquifer, county, river basin, regional water planning area, groundwater management area, groundwater conservation district (if applicable), subdivision of an aquifer (if designated), geologic strata (if designated), and geographic area (if designated) level.

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J. Kevin Ward
Executive Administrator

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