



Clearwater Underground Water Conservation District

P.O. Box 729, Belton, Texas 76513

Phone: 254/933-0120 Fax: 254/770-2360

www.clearwaterdistrict.org

Horace Grace, President

Wallace Biskup

Leland Gersbach

Judy Parker

John Mayer

October 6, 2008

J. Kevin Ward, Executive Administrator
Texas Water Development Board
1700 N. Congress Avenue
Austin, TX 78701

Re: Desired Future Conditions Submittal for GMA 8

Dear Mr. Ward:

The Clearwater Underground Water Conservation District is the administrator for Groundwater Management Area 8 (GMA 8). On behalf of GMA 8, we are submitting desired future conditions (DFC) for the Trinity aquifer.

Our submittal includes the following information:

- 1) Desired Future Conditions Report.
- 2) Copies of agendas announcing the meeting at which the DFCs were adopted from each of the groundwater conservation districts in GMA 8. Approved minutes are not currently available but will be provided when approved at the next GMA 8 meeting.
- 3) A signed resolution adopting the desired future conditions and recording the member votes. The resolution references "Appendix B" which includes various hydrogeologic reports and other studies used in developing the DFCs. These have not been included in this submittal but are available upon request.

Please note that the adopted DFCs reflect future aquifer conditions anticipated as a result of pumping from both exempt and non-exempt wells. When the managed available groundwater (MAG) figures are developed, they will reflect the amount of water available for use; however, if this full amount is permitted the desired future conditions will not be maintained because exempt well owners are also pumping groundwater. Therefore, it is our understanding that the groundwater conservation districts may reserve water for exempt well use which would result in a permitting figure that is less than the full MAG.

RECEIVED

OCT 08 2008

TWDB

RECEIVED

OCT 08 2008

TWDB

RECEIVED

TWDB

RECEIVED

OCT 08 2008

TWDB

RECEIVED

OCT 08 2008

TWDB

J. Kevin Ward
October 6, 2008
Page 2

Please feel free to contact me if you have any questions or need additional information.

Sincerely,



Cheryl Maxwell, AICP
Clearwater Underground Water Conservation District Manager
GMA 8 Administrator

cm
attachments

RESOLUTION TO ADOPT DESIRED FUTURE CONDITIONS

FOR AQUIFER(S) IN GROUNDWATER MANAGEMENT AREA 8

THE STATE OF TEXAS

§
§
§
§
§

GROUNDWATER MANAGEMENT AREA 8

GROUNDWATER CONSERVATION DISTRICTS

WHEREAS, Texas Water Code § 36.108 requires the groundwater conservation districts located in whole or in part in a groundwater management area (“GMA”) designated by the Texas Water Development Board to adopt desired future conditions for the relevant aquifers located within the management area;

WHEREAS, the groundwater conservation districts located wholly or partially within Groundwater Management Area 8 (“GMA 8”), as designated by the Texas Water Development Board, as of the date of this resolution are as follows: Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District (collectively hereinafter “the GMA 8 Districts”);

WHEREAS, the GMA 8 Districts are each governmental agencies and bodies politic and corporate operating under Chapter 36, Water Code;

WHEREAS, the GMA 8 Districts desire to fulfill the requirements of Texas Water Code § 36.108 through mutual cooperation and joint planning efforts;

WHEREAS, the GMA 8 Districts have had numerous public meetings at which they have engaged in joint planning efforts to promote more comprehensive management of the aquifers located in whole or in part in Groundwater Management Area 8;

WHEREAS, the GMA 8 Districts may establish different desired future conditions for: (1) each aquifer, subdivision of an aquifer, or geologic strata located in whole or in part within the boundaries of GMA 8; or (2) each geographic area overlying an aquifer in whole or in part or subdivision of an aquifer within the boundaries of GMA 8;

WHEREAS, the GMA 8 Districts recognize that GMA 8 includes a geographically and hydrologically diverse area with a variety of land uses and a diverse mix of water users;

WHEREAS, the GMA 8 Districts have considered the relevant aquifers, subdivisions thereof, and geologic strata located in whole or in part within the boundaries of GMA 8, and have further considered the hydrogeologic characteristics of the same, as well as the various uses and users of groundwater produced from such aquifers, subdivisions, and strata;

WHEREAS, GMA 8 Districts held a meeting, which was open to the public, at 10:00 a.m. on Wednesday, September 17, 2008, in the Mills County State Bank Community Room located at 1101 Parker Street, Goldthwaite, Texas;

WHEREAS, notice of said September 17, 2008, meeting was properly given by each and all of the GMA 8 Districts in accordance with Chapter 36, Water Code, and Chapter 551, Government Code, and a true and correct copy of each of the notices has been attached hereto in Appendix A and is incorporated herein for all purposes;

WHEREAS, at least two-thirds of the GMA 8 Districts had a voting representative in attendance at said September 17, 2008, meeting in accordance with Section 36.108(d-1), Texas Water Code; to wit, the following districts had a voting representative in attendance at said meeting: Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District;

WHEREAS, it is the intent and purpose of the GMA 8 Districts by adoption of this resolution to fulfill the requirements of Texas Water Code § 36.108, including establishing “desired future conditions for the relevant aquifers” within GMA 8 for the specific aquifer(s) and desired future conditions described under “Appendix B” attached hereto and incorporated herein for all purposes;

WHEREAS, at said September 17, 2008, meeting, after a motion was duly made and seconded that the GMA 8 Districts adopt this resolution establishing desired future conditions for the aquifer described under “Appendix B”, the motion prevailed by the following vote:

Trinity Aquifer: 10 Ayes and 0 Nays;

WHEREAS, in establishing these desired future conditions for the aquifer(s) set forth under Appendix B, the GMA 8 Districts have considered all of the criteria required by Chapter 36 of the Texas Water Code and other information, including without limitation groundwater availability models and runs of those models to determine the effects of various conditions and parameters, hydrogeologic reports available for the relevant aquifers, and other technical data and information;

WHEREAS, many of the groundwater availability models, runs, hydrogeologic reports, and other technical data and information considered and determined to be reliable sources of information by the GMA 8 Districts in establishing these desired future conditions for the aquifer(s) have been attached hereto or referenced in the documents attached hereto under Appendix B;

WHEREAS, in establishing these desired future conditions for the aquifer(s) set forth under Appendix B, the GMA 8 Districts have considered the uses and conditions of the aquifer(s) in different geographic areas within GMA 8 and what the effects and impacts of adopting such desired future conditions will have upon the condition of the aquifer(s) and the uses and users of groundwater from the aquifer(s) both now and in the future;

WHEREAS, after considering such anticipated effects and impacts these desired future conditions will have on the aquifer(s), uses, and users of groundwater, and considering all of the other criteria required by Chapter 36 of the Texas Water Code, including without limitation the groundwater resource management duties and responsibilities of the GMA Districts individually and collectively, the GMA 8 Districts have determined that the desired future conditions for the aquifer(s) set forth under Appendix B are reasonable;

NOW, THEREFORE, BE IT RESOLVED BY THE AUTHORIZED VOTING REPRESENTATIVES OF THE GMA 8 DISTRICTS AS FOLLOWS:

1. The above recitals are true and correct.
2. The authorized voting representatives of the GMA 8 Districts hereby establish the desired future conditions of the aquifer(s) as set forth in Appendix B by the vote reflected in the above recitals.
3. The GMA 8 Districts and their agents and representatives, individually and collectively, are further authorized to take any and all actions necessary to implement this resolution.
4. The desired future conditions of the aquifer adopted by the GMA 8 Districts and attached hereto shall be effective immediately and shall continue in effect until amended, superseded, or repealed.

AND IT IS SO ORDERED.

PASSED AND ADOPTED on this 17th day of September, 2008.

ATTEST:



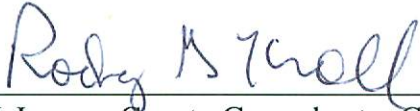
Central Texas Groundwater Conservation District



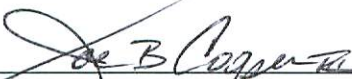
Clearwater Underground Water Conservation District



Fox Crossing Water District



McLennan County Groundwater Conservation District



Middle Trinity Groundwater Conservation District



Northern Trinity Groundwater Conservation District



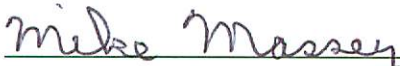
Post Oak Savannah Groundwater Conservation District



Saratoga Underground Water Conservation District



Tablerock Groundwater Conservation District



Upper Trinity Groundwater Conservation District

ATTACHMENTS

Appendix A: Copies of notices of September 17, 2008, meeting

Appendix B: Adopted Desired Future Conditions and supporting information

Appendix A

**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a **Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008**, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

FILED FOR RECORD
2008 SEP - 5 PM 12:30
SHELLEY COSTON
CO. CLK. BELL CO. TX

Dated this 5 day of September, 2008

Horace Grace, CUWCD President

By: Cheryl Maxwell
Cheryl Maxwell, CUWCD Asst. Secretary

The Clearwater Underground Water Conservation District is committed to compliance with the Americans with Disabilities Act. Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the District office at 254-933-0120 at least 24 hours in advance if accommodation is needed.

During the meeting, the Committee reserves the right to go into executive session for any of the purposes authorized under V.T.C.A., Government Code, Chapter 551, for any item on the above agenda or as otherwise authorized by law.

GROUNDWATER MANAGEMENT AREA 8

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

Dated: 8 September, 2008

FILED FOR RECORD
At 9:41 O'clock A M

SEP 10 2008

CAROLYN FOSTER
County and District Clerk
Mills County
By: *Gary Nowell*

Rodney Carlisle, President, Fox Crossing Water District

By: *Sam W. Beaumont*
Sam W. Beaumont Secretary/Treasurer

• **EXECUTIVE SESSION:** The Board may retire to a closed session any time during the meeting for the purpose of deliberating business as authorized by Chapter 551, Government Code. No decision or final action will be taken in closed session.

• **THE DISTRICT IS COMMITTED TO COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA). REASONABLE ACCOMMODATIONS AND EQUAL OPPORTUNITY FOR EFFECTIVE COMMUNICATIONS WILL BE PROVIDED UPON REQUEST. PLEASE CONTACT THE DISTRICT OFFICE AT 325-938-8180 AT LEAST 2 BUSINESS DAYS IN ADVANCE IF ACCOMMODATION IS NEEDED.**

**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

POSTED
_____ A.M. 7:50 P.M.

SEP 05 2008

GWINDA JONES, COUNTY CLERK
ERATH COUNTY, TEXAS
BY LM DEPUTY

Dated this 5TH day of September, 2008

By: Joe Cooper
Joe Cooper, MTGCD General Manager

The Middle Trinity Groundwater Conservation District is committed to compliance with the Americans with Disabilities Act. Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the District office at 254-965-6705 at least 24 hours in advance if accommodation is needed.

During the meeting, the Committee reserves the right to go into executive session for any of the purposes authorized under V.T.C.A., Government Code, Chapter 551, for any item on the above agenda or as otherwise authorized by law.

**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

FILED
MILLS COUNTY CLERK
2008 SEP -8 PM 12:57
SUZANNE HENNING
COUNTY CLERK
D&W

During the meeting, the Committee reserves the right to go into executive session for any of the purposes authorized under V.T.C.A., Government Code, Chapter 551, for any item on the above agenda or as otherwise authorized by law.


The Northern Trinity Groundwater Conservation District is committed to public access. To request an accommodation for a person with a disability who wishes to attend the meeting, contact Mark Mendez at 817-884-2729 at least one business day prior to the posted meeting.

**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a ***Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008***, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

Dated this 8 day of September, 2008


David B. Hamilton, Chairman SUWCD

The Saratoga Underground Water Conservation District is committed to compliance with the Americans with Disabilities Act. Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the District office at 512-556-8271 at least 24 hours in advance if accommodation is needed.

During the meeting, the Committee reserves the right to go into executive session for any of the purposes authorized under V.T.C.A., Government Code, Chapter 551, for any item on the above agenda or as otherwise authorized by law.

**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

FILED
AT 9:10 O'CLOCK AM

SEP 08 2008

Rebecca Dominguez
COUNTY CLERK, CORYELL CO., TEXAS

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

Dated this 8th day of September, 2008.

By: *W. H. Ament*
Wyllis H. Ament, TGCD President

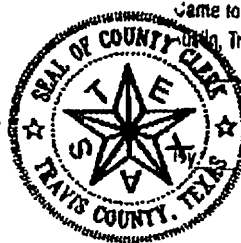
The Clearwater Underground Water Conservation District is committed to compliance with the Americans with Disabilities Act. Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the District office at 254-933-0120 at least 24 hours in advance if accommodation is needed.

During the meeting, the Committee reserves the right to go into executive session for any of the purposes authorized under V.T.C.A., Government Code, Chapter 551, for any item on the above agenda or as otherwise authorized by law.

**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.



Came to hand and posted on a Bulletin Board in the Courthouse,
Travis County, Texas on this the 12th day of

September 2008

Dana DeBeauvoir

County Clerk, Travis County, Texas

J. Smith Deputy

J. Smith

Dated this 12th day of September, 2008

Mike Massey, Upper Trinity Groundwater Conservation District

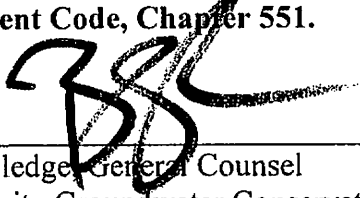
By: [Signature]

Brian Sledge, General Counsel

The Upper Trinity Groundwater Conservation District is committed to compliance with the Americans with Disabilities Act. Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the Clearwater Underground Water Conservation District office at 254-933-0120 at least 24 hours in advance if accommodation is needed.

During the meeting, the Committee reserves the right to go into executive session for any of the purposes authorized under V.T.C.A., Government Code, Chapter 551, for any item on the above agenda or as otherwise authorized by law.

Certification: I, the undersigned authority, do hereby certify that on September 12, 2008, at or before 5:00 p.m., I provided a copy of the above notice of meeting with the Travis County Clerk's office for public posting, and posted a copy at the District's Office in a place convenient and readily accessible to the general public at all times for at least 72 hours preceding the scheduled time of said meeting in accordance with the Texas Government Code, Chapter 551.



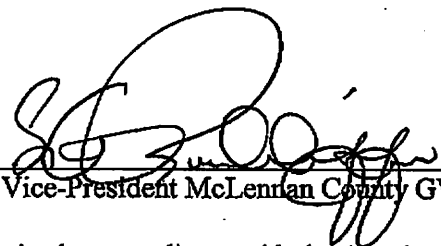
Brian L. Sledge, General Counsel
Upper Trinity Groundwater Conservation District

**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

Dated this 5th day of September, 2008

By: 
Vice-President McLennan County GWCD

The Clearwater Underground Water Conservation District is committed to compliance with the Americans with Disabilities Act. Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the District office at 254-933-0120 at least 24 hours in advance if accommodation is needed.

During the meeting, the Committee reserves the right to go into executive session for any of the purposes authorized under V.T.C.A., Government Code, Chapter 551, for any item on the above agenda or as otherwise authorized by law.

NOTICE OF MEETING GROUNDWATER MANAGEMENT AREA 8

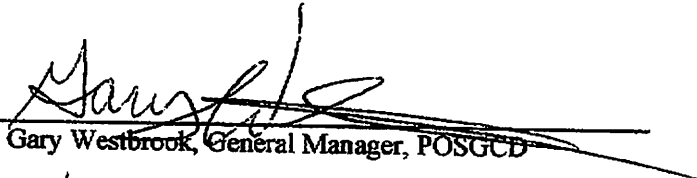
September 17, 2008 – 10:00 a.m.
Mills County State Bank Community Room
1101 Parker Street
Goldthwaite, Texas 76844

AGENDA

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board, consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Table Rock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

Signed this 5th day of September, 2008.


Gary Westbrook, General Manager, POSGCD

Filed 9 day of Sept
in 2008, At 10:00 A.M.
BARBARA VANSA
County Clerk, Mills County, Texas
By [Signature]
Deputy

**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

SEP 12 2008


September 17, 2008 – 10:00 a.m.
Mills County State Bank Community Room
1101 Parker Street
Goldthwaite, Texas 76844

AGENDA

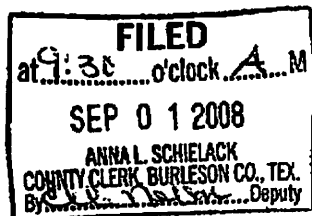
Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board, consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

Signed this 5th day of September, 2008.



Gary Westbrook, General Manager, POSGCD



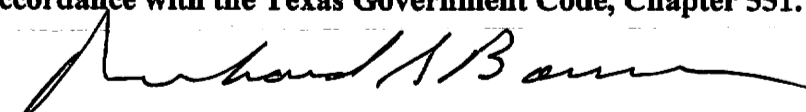
**NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8**

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 8, as designated by the Texas Water Development Board (TWDB), consisting of the Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Fox Crossing Water District, McLennan County Groundwater Conservation District, Middle Trinity Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Saratoga Underground Water Conservation District, Tablerock Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a *Joint Planning meeting at 10:00 A.M. on Wednesday, September 17, 2008*, in the Mills County State Bank Community Room, 1101 Parker Street, Goldthwaite, Texas 76844. The meeting will be open to the public. The following items of business will be discussed:

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of May 19, 2008 GMA 8 meeting.
6. Presentation of proposed desired future conditions for the Trinity aquifer based on the Texas Water Development Board GAM Runs 07-30 and 08-06.
7. Public hearing and possible action to adopt desired future conditions for the Trinity aquifer as described above.
8. Discussion regarding proposed schedule for GMA 8 to complete initial phase of the joint planning process.
9.
 - a. Discussion and possible action to amend contract with TCB, Inc. to develop the desired future conditions for the aquifers in GMA 8;
 - b. Discussion and possible action on how future work conducted by TCB, Inc. will be funded by the committee.
10. Discussion regarding TWDB 30 day default approval statement for draft managed available groundwater (MAG) reports.
11. Committee member comments.
12. Discuss agenda items for next meeting.
13. Set date, time, and place of next meeting.
14. Closing comments.
15. Adjourn.

The Central Texas Groundwater Conservation District is committed to compliance with the Americans with Disabilities Act (ADA). Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the District office at 512-756-4900 at least 24 hours in advance if accommodation is needed.

Certification: I, the undersigned authority, do hereby certify that on September 11, 2008 at or before 5:00 p.m., I posted and filed the above notice of meeting with the Burnet County Clerk's office and posted a copy in the hallway of the Burnet County Courthouse in a place convenient and readily accessible to the general public at all times. I also certify that a copy of the notice was posted on the door and on an outside window of the District office and that they will remain so posted continuously for at least 72 hours preceding the scheduled time of said meeting in accordance with the Texas Government Code, Chapter 551.


Richard S. Bowers, General Manager
Central Texas Groundwater Conservation District

POSTED
September 11, 2008
Janet Parker
County Clerk - Burnet County, Texas
By *[Signature]* Deputy

FILED
County Clerk - Burnet County, Texas
2008 SEP 11 AM 10:00
L. J. [unclear]
BURNET COUNTY, TEXAS
COUNTY CLERK

Appendix B

TCB
400 West 15th Street, Suite 500, Austin, Texas 78701
T 512.472.4519 F 512.472.7519 www.tcb.aecom.com

Memorandum

To: Cheryl Maxwell, Administrative Manager
Clearwater Underground Water Conservation District
Administrative Agent for Groundwater Management Area 8

From: Charles R. Williams, P.G. No. 526

Date: October 3, 2008

Re: Desired Future Conditions of N. Trinity Aquifer

Introduction

Groundwater Management Area 8 (GMA-8) is a groundwater management area of the State of Texas as defined by Statute with responsibility for developing a desired future condition (DFC) for aquifers within an approximately 46-County area. Membership of the GMA is composed of the groundwater conservation districts (GCDs) that occur all or in part within the GMA boundary. (Fig. 1) At the request of GMA-8, TCB Inc. (TCB) developed statements describing DFCs for the portions of the northern segment of the Trinity aquifer and the Woodbine aquifer that occur within the bounds of GMA-8. (Figs. 2 and 3)

Methodology

Clearwater Underground Water Conservation District (CUWCD) previously assessed groundwater availability in the N. Trinity aquifer of Bell County, using the Texas Water Development Board (TWDB) groundwater availability model for the N. Trinity and Woodbine aquifers (GAM). (Bene, Hardin and others, 2004) Central Texas GCD (CTGCD) later assessed the availability of groundwater in the N. Trinity aquifer of Burnet County in a similar GAM application incorporating CUWCD predictive pumping data. Saratoga Underground Water Conservation District (SUWCD) previously requested TWDB to make a series of GAM runs. GMA-8 used the CUWCD, SUWCD and CTGCD experience in adopting preferred metrics for the N. Trinity and Woodbine aquifer DFCs. Groundwater use data from TWDB, previous Regional Water Plan (RWP) assessments of availability were collected. New projections of Trinity and Woodbine aquifer pumping were considered. (Bene, Hardin and others, 2007) GMA-8 requested TWDB to perform a run of the GAM and provide a report the results to GMA-8. GMA-8 used information given in the TWDB report to develop requests for 2 additional GAM runs and provide a

report to GMA-8. (Donnelly, 2007) GMA-8 considered the results of the additional GAM runs. (Wade, 2007) Various members of GMA-8 submitted additional GAM-run requests to TWDB. GMA-8 developed DFCs for the N. Trinity and Woodbine aquifers based on the GAM-run results.

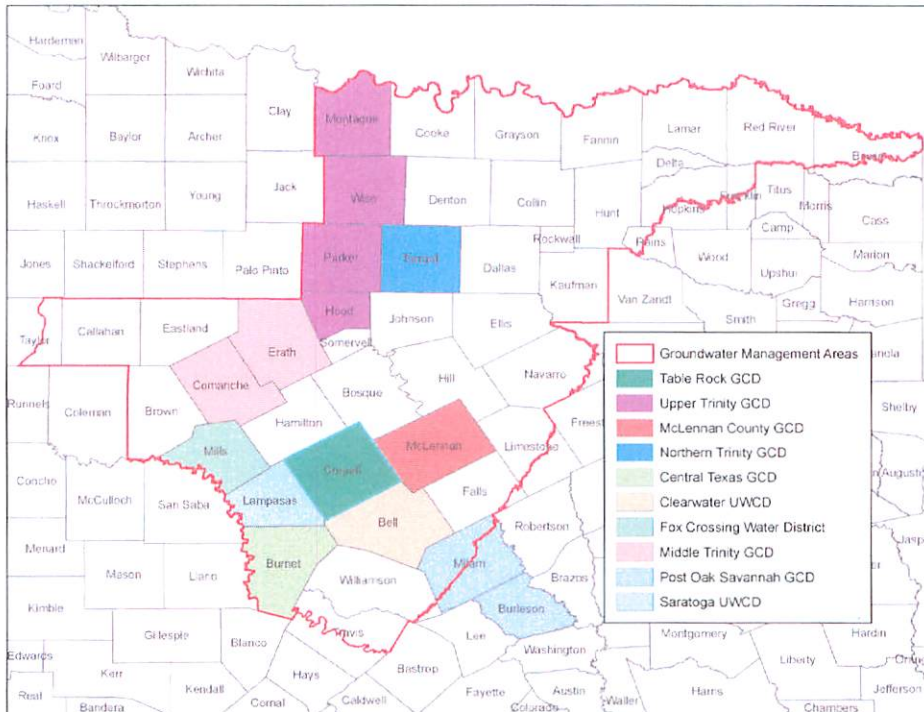


Figure 1, the Boundaries and Member GCDs of GMA-8

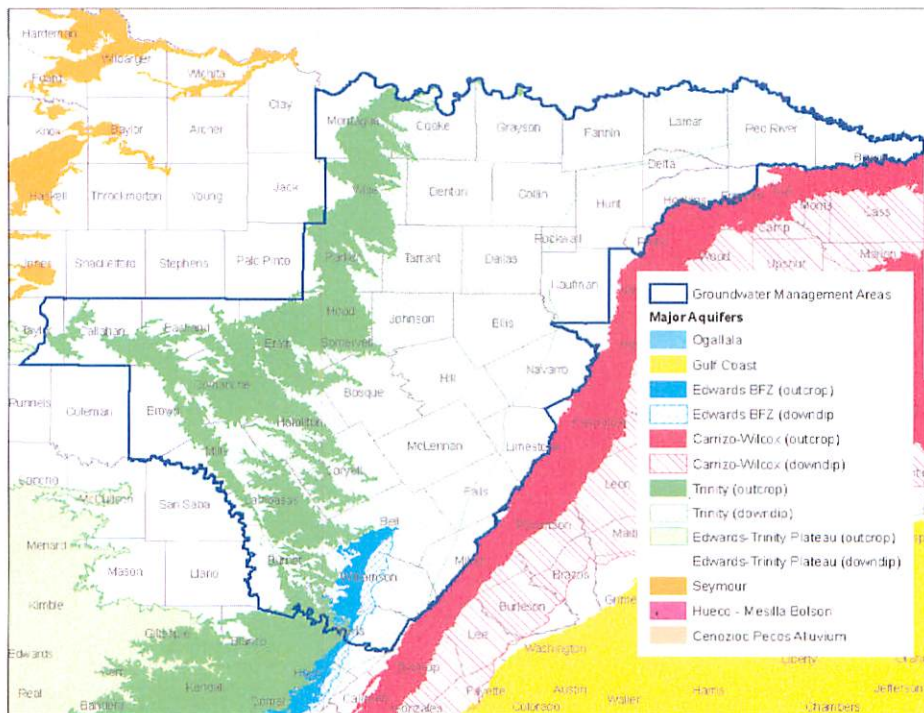


Figure 2, the Major Aquifers of GMA-8

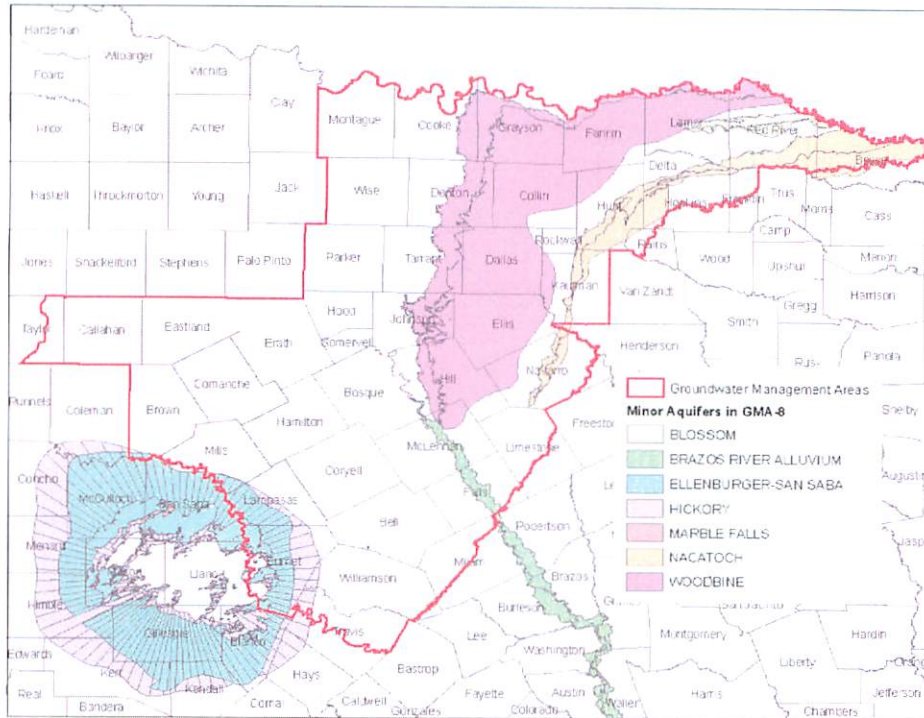


Figure 3, the Minor Aquifers of GMA-8

Discussion

The Trinity aquifer consists of three hydrologic subdivisions. Each subdivision may consist of one or more geologic units. The GAM consists of 7 layers representing the Woodbine and Trinity aquifers. Each layer in the GAM may represent an aquifer, an aquitard, or a subdivision of an aquifer. (Table 1) The pumping simulated in the GAM may be changed for each GAM run with respect to the amount of pumping applied to each layer and the spatial distribution of the pumping, if desired. Changes in the amount of pumping may be made to each layer individually, if desired, for a specific GAM run. Changes may be made to all layers collectively or to one layer while the others layers remain unchanged in successive runs.

The 50-year runs of the GAM performed by TWDB included simulation of the drought of record (DOR) by using 47 of average climatic conditions (recharge) followed by 3 drought years (simulating recharge in the 3 worst years of the 1950's drought). The GAM runs maintained the spatial and vertical distribution (by model layer) of the original model predictive pumping data set. However, a revised simulated pumping amount was specified for each County in GMA-8 for each GAM run performed by TWDB. A total of three GAM runs were requested by GMA-8 and performed by TWDB. The results of the first run (GAM-run 07-09) suggested that the existing spatial distribution of pumping in the Woodbine aquifer created an exaggerated cone of depression from the specified amount of pumping simulated in Lamar and Hunt Counties. Additionally, the simulated pumping specified for Delta (Woodbine and Trinity aquifers) and Kaufman (Trinity aquifer) Counties could not be applied because the spatial distribution of pumping in the

original model did not include pumping in those Counties. The second and third runs had similar specifications and were combined by TWDB as GAM-run 07-30. GAM-run 07-30 revised the spatial pumping distribution in Hunt, Lamar, Rains and Kaufman Counties to address the previously identified issues in those Counties while maintaining pumping amounts specified for GMA-run 07-09. Simulation Request (Simulation) 2 of GAM-run 07-30 included revised Trinity aquifer pumping specifications for Comanche, Erath and McLennan Counties. Simulation 3 of GAM-run 07-30 differed from Simulation 2 only in revised Trinity aquifer pumping specifications for Comanche and Erath Counties.

Geologic Unit		GAM Layer	Hydrologic Unit
Woodbine Fm.		Layer 1	Woodbine Aquifer
Fredericksburg Group		Layer 2	
Paluxy Sand		Layer 3	Upper Trinity
Glen Rose Limestone		Layer 4	Upper / Middle Trinity
Travis Peak Fm.	Hensell Sand	Layer 5	Middle Trinity
	Cow Creek Limestone	Layer 6 Treated as an Aquitard	
	Hammett Shale		
	Sligo Limestone		
	Hosston Conglomerate	Layer 7	Lower Trinity

Table 1, Generalized Relationships of Geologic Units to GAM Layers and Hydrologic Units

DFC Development Approach

CUWCD and CTGCD previously assessed the availability of groundwater in the Trinity aquifer within their jurisdictions. GMA-8 considered the experience gained by those GCDs in deciding to adopt the maintenance of water-levels (or stated alternatively the management of drawdown) in the Trinity aquifer subdivisions and Woodbine aquifer (as represented in the several GAM layers). The initial approach adopted by GMA-8 provided for each GCD to specify an amount of pumping to be applied to the Trinity aquifer its area and the RWP aquifer availability values for the Trinity and Woodbine aquifers to be specified for all unprotected Counties in a GAM-run request to TWDB.

During the GMA consideration of the Trinity aquifer pumping to be specified by the GCDs TWDB released a report giving new projections on use of the Trinity and Woodbine aquifers. The report also describes the use and sources of water for enhanced gas production in the Barnett Shale. (Bene, Hardin and others, 2007) GMA-8 considered the new information and decided to the new projections for use of the Trinity and Woodbine aquifers for the GMA-8 Counties included in the Medium Barnett Shale Development scenario given in the TWDB report. (Fig. 4)

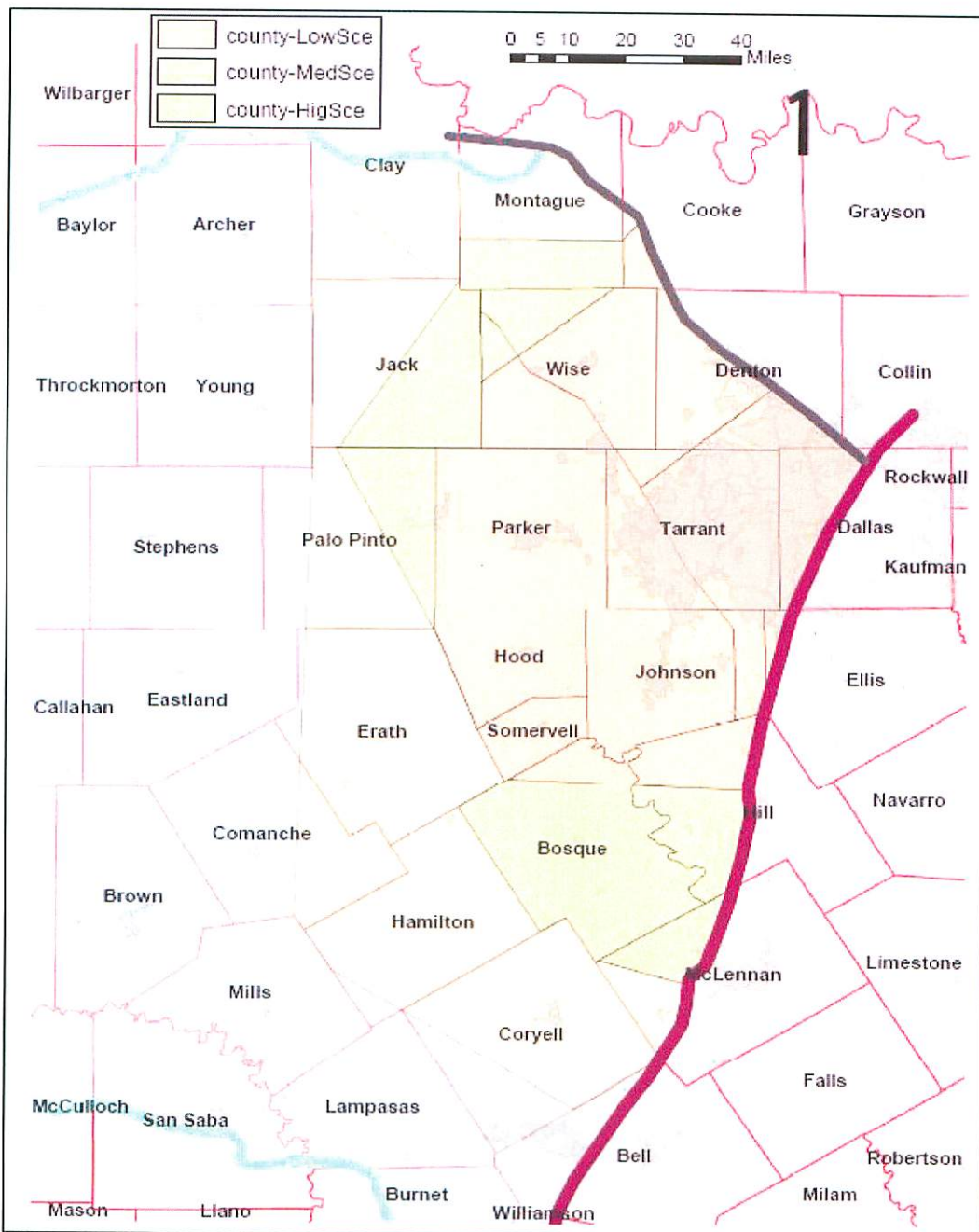


Figure 4, Counties in the Low, Medium and High Barnett Shale Development Scenarios, from Bene, Hardin and others, 2007

To develop the initial GAM-run request to TWDB, the GCDs of GMA-8 each specified the amount of Trinity aquifer pumping to be simulated in the GAM run for their area. CUWCD and CTGCD specified the pumping to be applied to GAM Layers 3, 4, 5 and 7 maintaining the existing model spatial pumping distribution in each layer. The other GCDs specified a total pumping to be applied to Trinity aquifer in their area maintaining the existing distribution of pumping as a percentage of the total pumping specified and maintaining the existing spatial pumping distribution. The specified pumping for the

Trinity aquifer or Trinity and Woodbine aquifers for the Counties in the Medium Barnett Shale scenario was equal to the highest year of the projected pumping values given in the TWDB report. The specified pumping for the Trinity aquifer or Trinity and Woodbine aquifers for the remaining Counties in GMA-8 was equal to the highest year value (after year 2000) of the aquifer availability given in the RWP. Pumping was held constant in all areas of the model where a pumping specification was provided. (Appendix A)

While TWDB processed the initial GAM-run request, the Tablerock GCD (TGCD), McLennan County GCD (MCGCD), Northern Trinity GCD (NTGCD) and Upper Trinity GCD (UTGCD) were created and became members of GMA-8. GMA-8 prepared orientation material for the new GCD members to acquaint them with the GMA process and the prior decisions made by the original members. At the next GMA meeting the new GCD members were provided with the orientation and materials.

On receipt of the report for GAM-run 07-09, GMA-8 considered the results and determined that 2 additional GAM-run requests would be necessary. The runs were considered necessary to address the issues identified in GAM-run 07-09 related to spatial pumping distribution. The additional runs allowed Middle Trinity GCD (MTGCD) and MCGCD to give further pumping specifications for their areas. In the first of the two runs, MTGCD and MCGCD specified a total pumping to for the Trinity aquifer in their area maintaining the existing distribution of pumping as a percentage of the total pumping specified and maintaining the existing spatial pumping distribution. All other previous GAM-run specifications remained unchanged. (Appendix B) In the second of the two runs, MTGCD specified a total pumping to for the Trinity aquifer in its area maintaining the existing distribution of pumping as a percentage of the total pumping specified and maintaining the existing spatial pumping distribution. All other previous GAM-run specifications remained unchanged. (Appendix C)

On receipt of the report for GAM-run 07-30, GMA-8 considered the results. GMA-8 submitted a DFC for the Woodbine aquifer based on GAM-run 07-30. After further consideration, Tablerock GCD and Middle Trinity GCD submitted requests for GAM runs to TWDB for modification of the amount of pumping applied to each respective GCD area. (Appendices D, E and F) The results of the two Tablerock GCD GAM-runs (the second of which contained an amended pumping specification for Middle Trinity GCD) are given in TWDB GAM-run 08-05 and 08-06. (Donnelly, 2008a and 2008b) The results of the additional GAM-run requested by Middle Trinity GCD were not available as of the date of this report. GMA-8 gave careful consideration to two possible strategies for development of DFCs for the Trinity aquifer. The first strategy was continuing investigation of the Trinity aquifer until the statutory deadline for DFC submission in 2010. The second strategy is to develop DFCs based on existing TWDB GAM-runs. After deliberation, GMA-8 decided to develop DFCs for the Trinity aquifer so that the MAG values could be used in the next round of RWPs while continuing Trinity and Woodbine aquifer investigations. GMA-8 decided to submit DFCs for the Trinity aquifer based on the results of GAM-run 08-06. All average draw down values provided by TWDB are from GAM-runs 07-09 and 07-30 for use in developing DFCs are rounded to the nearest 1-foot for presentation in the DFC statements using the normal rounding convention.

GMA-8 Desired Future Conditions for the N. Trinity Aquifer

Bell County (CUWCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 134 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 155 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 286 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 319 feet after 50 years.

Bosque County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 26 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 33 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 201 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 220 feet after 50 years.

Brown County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 2 feet after 50 years.

Burnet County (CTGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 11 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 29 feet after 50 years.

Callahan County

- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 2 feet after 50 years.

Collin County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 298 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 247 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 224 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 236 feet after 50 years.

Comanche County (MTGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 2 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 11 feet after 50 years.

Cooke County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 26 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 42 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 60 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 78 feet after 50 years.

Coryell County (TGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 15 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 15 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 156 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 179 feet after 50 years.

Dallas County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 240 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 224 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 263 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 290 feet after 50 years.

Delta County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 175 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 162 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 162 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 159 feet after 50 years.

Denton County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 98 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 134 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 180 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 214 feet after 50 years.

Eastland County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 0 feet after 50 years.

Ellis County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 265 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 283 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 336 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 362 feet after 50 years.

Erath County (MTGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 11 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 27 feet after 50 years.

Falls County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 279 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 354 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 459 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 480 feet after 50 years.

Fannin County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 212 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 196 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 182 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 181 feet after 50 years.

Grayson County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 175 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 160 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 161 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 165 feet after 50 years.

Hamilton County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 2 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 39 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 51 feet after 50 years.

Hill County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 209 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 253 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 381 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 406 feet after 50 years.

Hood County (UTGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 2 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 16 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 56 feet after 50 years.

Hunt County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 286 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 245 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 215 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 223 feet after 50 years.

Johnson County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 37 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 83 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 208 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 234 feet after 50 years.

Kaufman County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 303 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 286 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 295 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 312 feet after 50 years.

Lamar County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 132 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 130 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 136 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 134 feet after 50 years.

Lampasas County (SUWCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 12 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 23 feet after 50 years.

Limestone County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 328 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 392 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 475 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 492 feet after 50 years.

McLennan County (MCGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 251 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 291 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 489 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 527 feet after 50 years.

Milam County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 252 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 294 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 337 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 344 feet after 50 years.

Mills County (Fox Crossing Water District)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 3 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 12 feet after 50 years.

Montague County (UTGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 0 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 3 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 12 feet after 50 years.

Navarro County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 344 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 353 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 399 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 413 feet after 50 years.

Parker County (UTGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 5 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 6 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 16 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 40 feet after 50 years.

Red River County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 82 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 77 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 78 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 78 feet after 50 years.

Rockwall County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 346 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 272 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 248 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 265 feet after 50 years.

Somervell County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 1 foot after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 4 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 53 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 114 feet after 50 years.

Tarrant County (NTGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 33 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 75 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 160 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 173 feet after 50 years.

Taylor County

- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 3 feet after 50 years.

Travis County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 124 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 61 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 98 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 116 feet after 50 years.

Williamson County

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 108 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 88 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 142 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 166 feet after 50 years.

Wise County (UTGCD)

- From estimated year 2000 conditions, the average draw down of the Paluxy aquifer should not exceed approximately 4 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Glen Rose aquifer should not exceed approximately 14 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hensell aquifer should not exceed approximately 23 feet after 50 years.
- From estimated year 2000 conditions, the average draw down of the Hosston aquifer should not exceed approximately 53 feet after 50 years.

Note: The observations and assessments made in this report were based on data supplied by the members of GMA-8, TWDB or available from referenced published sources available at the time the report preparation. The conclusions drawn in the report are based on the available data and reasonable methods of assessment. The Desired Future Conditions presented in this report reflect policy decisions made by GMA-8. If new or different data is made available the conclusions of this report may change.

Bibliography

Bene, James, Hardin, Robert and others, 2004; Northern Trinity / Woodbine Aquifer Groundwater Availability Model – Final Report to Texas Water Development Board

Bene, James, Hardin, Robert and others, 2007; Northern Trinity / Woodbine Aquifer Groundwater Availability Model – Assessment of Groundwater Use in the Northern Trinity Aquifer Due to Urban Growth and Barnett Shale Development

Donnelley, Andrew, 2007; GAM-run 07-09; Texas Water Development Board

Donnelley, Andrew, 2008a; GAM-run 08-05; Texas Water Development Board

Donnelley, Andrew, 2008b; GAM-run 08-06; Texas Water Development Board

Wade, Shirley, 2007; GAM-run 07-30; Texas Water Development Board

APPENDIX A**GMA-8 Simulation Request Specifications
For Northern Trinity/Woodbine Aquifer GAM**

April 25, 2007

Clearwater Underground Water Conservation District (UWCD) acting on behalf of GMA-8 requests Texas Water Development Board (TWDB) to perform a projected pumping simulation of the N. Trinity / Woodbine aquifer Groundwater Availability Model (GAM). The N. Trinity / Woodbine aquifer GAM consists of 7-layers representing both water-producing and non water-producing zones. In the GAM, layer 1 represents the Woodbine aquifer and layers 3, 4, 5, 6 and 7 represent both the water-bearing and non water-bearing portions of the Trinity aquifer. Clearwater UWCD requests the GAM simulation be performed with the following specifications:

1. The simulation period should be for 50 years.
2. The simulation should use annual time steps.
3. The simulated climatic conditions should include 4 decades of average climatic conditions with the last decade beginning with average climatic conditions and ending in a simulated repeat of the drought of record.
4. The simulation should maintain the existing model spatial pumping distribution.
5. The simulation should maintain the existing distribution of pumping by layer (as a percentage of the total Trinity aquifer pumping within a County area) for layers 3, 4, 5, 6, and 7; except where specified otherwise.
6. Pumping should be held constant for each area for which a pumping amount is specified (*i.e.* by County total for the Trinity aquifer or by a layer specified within a County).
7. The projected pumping to be applied to layer 1 (Woodbine) by County should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Woodbine aquifer; the balance of Counties using the Woodbine aquifer are addressed in request item 9 below):
 - a. Collin – 2,500 ac-ft per year
 - b. Delta – 16 ac-ft per year
 - c. Fannin – 3,300 ac-ft per year
 - d. Grayson – 12,100 ac-ft per year
 - e. Hunt – 2,840 ac-ft per year
 - f. Kaufman – 200 ac-ft per year
 - g. Lamar – 3,658 ac-ft per year
 - h. Limestone – 33 ac-ft per year
 - i. Navarro – 300 ac-ft per year
 - j. Red River – 170 ac-ft per year
 - k. Rockwall – 144 ac-ft per year
8. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Trinity aquifer):
 - a. Brown – 2,085 ac-ft per year
 - b. Callahan – 3,787 ac-ft per year
 - c. Collin – 2,100 ac-ft per year

- d. Coryell – 1,791 ac-ft per year
 - e. Delta – 364 ac-ft per year
 - f. Eastland – 4,853 ac-ft per year
 - g. Falls – 161 ac-ft per year
 - h. Fannin – 700 ac-ft per year
 - i. Grayson – 9,400 ac-ft per year
 - j. Hamilton – 2,146 ac-ft per year
 - k. Hunt – 551 ac-ft per year
 - l. Kaufman – 1,184 ac-ft per year
 - m. Lamar – 1,320 ac-ft per year
 - n. Limestone – 66 ac-ft per year
 - o. Montague – 2,682 ac-ft per year
 - p. Navarro – 1,873 ac-ft per year
 - q. Red River – 528 ac-ft per year
 - r. Rockwall – 958 ac-ft per year
 - s. Taylor – 679 ac-ft per year
 - t. Travis – 3,900 ac-ft per year
 - u. Williamson – 1,810 ac-ft per year
9. The projected pumping to be applied to layers 1, 3, 4, 5 and 7 (as applicable with totals by County for Woodbine and Trinity aquifers) should be as follows (note these projected pumping values are based on the highest year for each requested County in the High Estimate of Predictive Groundwater Use given in the TWDB report “Assessment of Groundwater Use in the Northern Trinity Aquifer Due to Urban Growth and Barnett Shale Development”):
- a. Bosque – 7,509 ac-ft per year
 - b. Cooke – 7,018 ac-ft per year
 - c. Dallas – 7,807 ac-ft per year
 - d. Denton – 23,442 ac-ft per year
 - e. Ellis – 9,403 ac-ft per year
 - f. Hill – 5,412 ac-ft per year
 - g. Hood – 11,064 ac-ft per year
 - h. Johnson – 17,767 ac-ft per year
 - i. Mc Lennan - 15,234 ac-ft per year
 - j. Parker – 15,389 ac-ft per year
 - k. Somervell – 2,485 ac-ft per year
 - l. Tarrant – 19,615 ac-ft per year
 - m. Wise – 9,801 ac-ft per year
10. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Middle Trinity Groundwater Conservation District (GCD) should be as follows:
- a. Comanche – 25,000 ac-ft per year
 - b. Erath – 30,000 ac-ft per year
11. The projected pumping to be applied to layers 3, 4, 5, and 7 (Trinity aquifer with total by County) in Lampasas County (Saratoga UWCD) should be – 3,164 ac-ft per year.
12. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Milam County (Post Oak Savannah GCD) should be – 321 ac-ft per year.
13. The projected pumping to be applied to layers 3, 4, 5 and 7 (total by County) in Mills County (Fox Crossing Water District) should be – 2,400 ac-ft per year.

14. The projected pumping to be applied to the Trinity aquifer in Bell County (Clearwater UWCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 112 ac-ft per year
 - b. Layer 4 (Glen Rose) – 880 ac-ft per year
 - c. Layer 5 (Hensell) – 1,100 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 5,000 ac-ft per year
15. The projected pumping to be applied to the Trinity aquifer in Burnet County (Central Texas GCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 200 ac-ft per year
 - b. Layer 4 (Glen Rose) – 200 ac-ft per year
 - c. Layer 5 (Hensell) – 700 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 2,500 ac-ft per year

APPENDIX B**GMA-8 2nd Simulation Request Specifications
For Northern Trinity/Woodbine Aquifer GAM**

October 4, 2007

Clearwater Underground Water Conservation District (UWCD) acting on behalf of GMA-8 requests Texas Water Development Board (TWDB) to perform a projected pumping simulation of the N. Trinity / Woodbine aquifer Groundwater Availability Model (GAM). The N. Trinity / Woodbine aquifer GAM consists of 7-layers representing both water-producing and non water-producing zones. In the GAM, layer 1 represents the Woodbine aquifer and layers 3, 4, 5, 6 and 7 represent both the water-bearing and non water-bearing portions of the Trinity aquifer. Clearwater UWCD requests the GAM simulation be performed with the following specifications:

16. The simulation period should be for 50 years.
17. The simulation should use annual time steps.
18. The simulated climatic conditions should include 4 decades of average climatic conditions with the last decade beginning with average climatic conditions and ending in a simulated repeat of the drought of record.
19. The simulation should maintain the existing model spatial pumping distribution, where possible. It is understood from TWDB GAM Run 07-09 that the existing model spatial distribution does not provide for pumping in the Woodbine aquifer in Delta County nor provide for pumping in the Trinity aquifer of Delta and Kaufman Counties. It is further understood from TWDB GAM Run 07-09 that the existing model spatial distribution of pumping in the Woodbine aquifer in Hunt and Lamar Counties may contribute to extreme draw down resulting in concentrated areas. TWDB is requested to suggest an appropriate methodology or methodologies by which the requested amounts of pumping may be reasonably distributed in the above mentioned Counties and aquifers.
20. The simulation should maintain the existing distribution of pumping by layer (as a percentage of the total Trinity aquifer pumping within a County area) for layers 3, 4, 5, 6, and 7; except where specified otherwise.
21. Pumping should be held constant for each area for which a pumping amount is specified (*i.e.* by County total for the Trinity aquifer or by a layer specified within a County).
22. The projected pumping to be applied to layer 1 (Woodbine) by County should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Woodbine aquifer; the balance of Counties using the Woodbine aquifer are addressed in request item 9 below):
 - a. Collin – 2,500 ac-ft per year
 - b. Delta – 16 ac-ft per year
 - c. Fannin – 3,300 ac-ft per year
 - d. Grayson – 12,100 ac-ft per year
 - e. Hunt – 2,840 ac-ft per year
 - f. Kaufman – 200 ac-ft per year
 - g. Lamar – 3,658 ac-ft per year
 - h. Limestone – 33 ac-ft per year
 - i. Navarro – 300 ac-ft per year

- j. Red River – 170 ac-ft per year
 - k. Rockwall – 144 ac-ft per year
23. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Trinity aquifer):
- a. Brown – 2,085 ac-ft per year
 - b. Callahan – 3,787 ac-ft per year
 - c. Collin – 2,100 ac-ft per year
 - d. Coryell – 1,791 ac-ft per year
 - e. Delta – 364 ac-ft per year
 - f. Eastland – 4,853 ac-ft per year
 - g. Falls – 161 ac-ft per year
 - h. Fannin – 700 ac-ft per year
 - i. Grayson – 9,400 ac-ft per year
 - j. Hamilton – 2,146 ac-ft per year
 - k. Hunt – 551 ac-ft per year
 - l. Kaufman – 1,184 ac-ft per year
 - m. Lamar – 1,320 ac-ft per year
 - n. Limestone – 66 ac-ft per year
 - o. Montague – 2,682 ac-ft per year
 - p. Navarro – 1,873 ac-ft per year
 - q. Red River – 528 ac-ft per year
 - r. Rockwall – 958 ac-ft per year
 - s. Taylor – 679 ac-ft per year
 - t. Travis – 3,900 ac-ft per year
 - u. Williamson – 1,810 ac-ft per year
24. The projected pumping to be applied to layers 1, 3, 4, 5 and 7 (as applicable with totals by County for Woodbine and Trinity aquifers) should be as follows (note these projected pumping values are based on the highest year for each requested County in the High Estimate of Predictive Groundwater Use given in the TWDB report “Assessment of Groundwater Use in the Northern Trinity Aquifer Due to Urban Growth and Barnett Shale Development”):
- a. Bosque – 7,509 ac-ft per year
 - b. Cooke – 7,018 ac-ft per year
 - c. Dallas – 7,807 ac-ft per year
 - d. Denton – 23,442 ac-ft per year
 - e. Ellis – 9,403 ac-ft per year
 - f. Hill – 5,412 ac-ft per year
 - g. Hood – 11,064 ac-ft per year
 - h. Johnson – 17,767 ac-ft per year
 - i. Parker – 15,389 ac-ft per year
 - j. Somervell – 2,485 ac-ft per year
 - k. Tarrant – 19,615 ac-ft per year
 - l. Wise – 9,801 ac-ft per year
25. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in McLennan County (McLennan County Groundwater Conservation District (GCD)) should be – 20,694 ac-ft per year
26. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Middle Trinity GCD should be as follows:
- a. Comanche – 30,000 ac-ft per year

- b. Erath – 36,000 ac-ft per year
27. The projected pumping to be applied to layers 3, 4, 5, and 7 (Trinity aquifer with total by County) in Lampasas County (Saratoga UWCD) should be – 3,164 ac-ft per year.
 28. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Milam County (Post Oak Savannah GCD) should be – 321 ac-ft per year.
 29. The projected pumping to be applied to layers 3, 4, 5 and 7 (total by County) in Mills County (Fox Crossing Water District) should be – 2,400 ac-ft per year.
 30. The projected pumping to be applied to the Trinity aquifer in Bell County (Clearwater UWCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 112 ac-ft per year
 - b. Layer 4 (Glen Rose) – 880 ac-ft per year
 - c. Layer 5 (Hensell) – 1,100 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 5,000 ac-ft per year
 31. The projected pumping to be applied to the Trinity aquifer in Burnet County (Central Texas GCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 200 ac-ft per year
 - b. Layer 4 (Glen Rose) – 200 ac-ft per year
 - c. Layer 5 (Hensell) – 700 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 2,500 ac-ft per year

APPENDIX C**GMA-8 3rd Simulation Request Specifications
For Northern Trinity/Woodbine Aquifer GAM**

October 4, 2007

Clearwater Underground Water Conservation District (UWCD) acting on behalf of GMA-8 requests Texas Water Development Board (TWDB) to perform a projected pumping simulation of the N. Trinity / Woodbine aquifer Groundwater Availability Model (GAM). The N. Trinity / Woodbine aquifer GAM consists of 7-layers representing both water-producing and non water-producing zones. In the GAM, layer 1 represents the Woodbine aquifer and layers 3, 4, 5, 6 and 7 represent both the water-bearing and non water-bearing portions of the Trinity aquifer. Clearwater UWCD requests the GAM simulation be performed with the following specifications:

32. The simulation period should be for 50 years.
33. The simulation should use annual time steps.
34. The simulated climatic conditions should include 4 decades of average climatic conditions with the last decade beginning with average climatic conditions and ending in a simulated repeat of the drought of record.
35. The simulation should maintain the existing model spatial pumping distribution, where possible. It is understood from TWDB GAM Run 07-09 that the existing model spatial distribution does not provide for pumping in the Woodbine aquifer in Delta County nor provide for pumping in the Trinity aquifer of Delta and Kaufman Counties. It is further understood from TWDB GAM Run 07-09 that the existing model spatial distribution of pumping in the Woodbine aquifer in Hunt and Lamar Counties may contribute to extreme draw down resulting in concentrated areas. TWDB is requested to suggest an appropriate methodology or methodologies by which the requested amounts of pumping may be reasonably distributed in the above mentioned Counties and aquifers.
36. The simulation should maintain the existing distribution of pumping by layer (as a percentage of the total Trinity aquifer pumping within a County area) for layers 3, 4, 5, 6, and 7; except where specified otherwise.
37. Pumping should be held constant for each area for which a pumping amount is specified (*i.e.* by County total for the Trinity aquifer or by a layer specified within a County).
38. The projected pumping to be applied to layer 1 (Woodbine) by County should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Woodbine aquifer; the balance of Counties using the Woodbine aquifer are addressed in request item 9 below):
 - a. Collin – 2,500 ac-ft per year
 - b. Delta – 16 ac-ft per year
 - c. Fannin – 3,300 ac-ft per year
 - d. Grayson – 12,100 ac-ft per year
 - e. Hunt – 2,840 ac-ft per year
 - f. Kaufman – 200 ac-ft per year
 - g. Lamar – 3,658 ac-ft per year
 - h. Limestone – 33 ac-ft per year
 - i. Navarro – 300 ac-ft per year

- j. Red River – 170 ac-ft per year
 - k. Rockwall – 144 ac-ft per year
39. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Trinity aquifer):
- a. Brown – 2,085 ac-ft per year
 - b. Callahan – 3,787 ac-ft per year
 - c. Collin – 2,100 ac-ft per year
 - d. Coryell – 1,791 ac-ft per year
 - e. Delta – 364 ac-ft per year
 - f. Eastland – 4,853 ac-ft per year
 - g. Falls – 161 ac-ft per year
 - h. Fannin – 700 ac-ft per year
 - i. Grayson – 9,400 ac-ft per year
 - j. Hamilton – 2,146 ac-ft per year
 - k. Hunt – 551 ac-ft per year
 - l. Kaufman – 1,184 ac-ft per year
 - m. Lamar – 1,320 ac-ft per year
 - n. Limestone – 66 ac-ft per year
 - o. Montague – 2,682 ac-ft per year
 - p. Navarro – 1,873 ac-ft per year
 - q. Red River – 528 ac-ft per year
 - r. Rockwall – 958 ac-ft per year
 - s. Taylor – 679 ac-ft per year
 - t. Travis – 3,900 ac-ft per year
 - u. Williamson – 1,810 ac-ft per year
40. The projected pumping to be applied to layers 1, 3, 4, 5 and 7 (as applicable with totals by County for Woodbine and Trinity aquifers) should be as follows (note these projected pumping values are based on the highest year for each requested County in the High Estimate of Predictive Groundwater Use given in the TWDB report “Assessment of Groundwater Use in the Northern Trinity Aquifer Due to Urban Growth and Barnett Shale Development”):
- a. Bosque – 7,509 ac-ft per year
 - b. Cooke – 7,018 ac-ft per year
 - c. Dallas – 7,807 ac-ft per year
 - d. Denton – 23,442 ac-ft per year
 - e. Ellis – 9,403 ac-ft per year
 - f. Hill – 5,412 ac-ft per year
 - g. Hood – 11,064 ac-ft per year
 - h. Johnson – 17,767 ac-ft per year
 - i. Parker – 15,389 ac-ft per year
 - j. Somervell – 2,485 ac-ft per year
 - k. Tarrant – 19,615 ac-ft per year
 - l. Wise – 9,801 ac-ft per year
41. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in McLennan County (McLennan County Groundwater Conservation District (GCD)) should be – 20,694 ac-ft per year
42. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Middle Trinity GCD should be as follows:
- a. Comanche – 35,000 ac-ft per year

- b. Erath – 42,000 ac-ft per year
- 43. The projected pumping to be applied to layers 3, 4, 5, and 7 (Trinity aquifer with total by County) in Lampasas County (Saratoga UWCD) should be – 3,164 ac-ft per year.
- 44. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Milam County (Post Oak Savannah GCD) should be – 321 ac-ft per year.
- 45. The projected pumping to be applied to layers 3, 4, 5 and 7 (total by County) in Mills County (Fox Crossing Water District) should be – 2,400 ac-ft per year.
- 46. The projected pumping to be applied to the Trinity aquifer in Bell County (Clearwater UWCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 112 ac-ft per year
 - b. Layer 4 (Glen Rose) – 880 ac-ft per year
 - c. Layer 5 (Hensell) – 1,100 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 5,000 ac-ft per year
- 47. The projected pumping to be applied to the Trinity aquifer in Burnet County (Central Texas GCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 200 ac-ft per year
 - b. Layer 4 (Glen Rose) – 200 ac-ft per year
 - c. Layer 5 (Hensell) – 700 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 2,500 ac-ft per year

APPENDIX D**GMA-8 4th Simulation Request Specifications
For Northern Trinity/Woodbine Aquifer GAM**

January 18, 2008

Clearwater Underground Water Conservation District (UWCD) acting on behalf of GMA-8 requests Texas Water Development Board (TWDB) to perform a projected pumping simulation of the N. Trinity / Woodbine aquifer Groundwater Availability Model (GAM). The N. Trinity / Woodbine aquifer GAM consists of 7-layers representing both water-producing and non water-producing zones. In the GAM, layer 1 represents the Woodbine aquifer and layers 3, 4, 5, 6 and 7 represent both the water-bearing and non water-bearing portions of the Trinity aquifer. Clearwater UWCD requests the GAM simulation be performed with the following specifications:

48. The simulation period should be for 50 years.
49. The simulation should use annual time steps.
50. The simulated climatic conditions should include 4 decades of average climatic conditions with the last decade beginning with average climatic conditions and ending in a simulated repeat of the drought of record.
51. The simulation should maintain the spatial pumping distribution developed by TWDB for GAM Run 07-30 that provides for: pumping in the Woodbine aquifer in Delta County; pumping in the Trinity aquifer of Delta and Kaufman Counties and; the spatial distribution of pumping in the Woodbine aquifer in Hunt and Lamar Counties to address extreme draw down resulting in concentrated areas.
52. The simulation should maintain the existing distribution of pumping by layer (as a percentage of the total Trinity aquifer pumping within a County area) for layers 3, 4, 5, 6, and 7; except where specified otherwise or where modified by TWDB to address the issues identified in Item 4 above.
53. Pumping should be held constant for each area for which a pumping amount is specified (*i.e.* by County total for the Trinity aquifer or by a layer specified within a County).
54. The projected pumping to be applied to layer 1 (Woodbine) by County should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Woodbine aquifer; the balance of Counties using the Woodbine aquifer are addressed in request item 9 below):
 - a. Collin – 2,500 ac-ft per year
 - b. Delta – 16 ac-ft per year
 - c. Fannin – 3,300 ac-ft per year
 - d. Grayson – 12,100 ac-ft per year
 - e. Hunt – 2,840 ac-ft per year
 - f. Kaufman – 200 ac-ft per year
 - g. Lamar – 3,658 ac-ft per year
 - h. Limestone – 33 ac-ft per year
 - i. Navarro – 300 ac-ft per year
 - j. Red River – 170 ac-ft per year
 - k. Rockwall – 144 ac-ft per year

55. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Trinity aquifer):
- a. Brown – 2,085 ac-ft per year
 - b. Callahan – 3,787 ac-ft per year
 - c. Collin – 2,100 ac-ft per year
 - d. Delta – 364 ac-ft per year
 - e. Eastland – 4,853 ac-ft per year
 - f. Falls – 161 ac-ft per year
 - g. Fannin – 700 ac-ft per year
 - h. Grayson – 9,400 ac-ft per year
 - i. Hamilton – 2,146 ac-ft per year
 - j. Hunt – 551 ac-ft per year
 - k. Kaufman – 1,184 ac-ft per year
 - l. Lamar – 1,320 ac-ft per year
 - m. Limestone – 66 ac-ft per year
 - n. Montague – 2,682 ac-ft per year
 - o. Navarro – 1,873 ac-ft per year
 - p. Red River – 528 ac-ft per year
 - q. Rockwall – 958 ac-ft per year
 - r. Taylor – 679 ac-ft per year
 - s. Travis – 3,900 ac-ft per year
 - t. Williamson – 1,810 ac-ft per year
56. The projected pumping to be applied to layers 1, 3, 4, 5 and 7 (as applicable with totals by County for Woodbine and Trinity aquifers) should be as follows (note these projected pumping values are based on the highest year for each requested County in the High Estimate of Predictive Groundwater Use given in the TWDB report “Assessment of Groundwater Use in the Northern Trinity Aquifer Due to Urban Growth and Barnett Shale Development”):
- a. Bosque – 7,509 ac-ft per year
 - b. Cooke – 7,018 ac-ft per year
 - c. Dallas – 7,807 ac-ft per year
 - d. Denton – 23,442 ac-ft per year
 - e. Ellis – 9,403 ac-ft per year
 - f. Hill – 5,412 ac-ft per year
 - g. Hood – 11,064 ac-ft per year
 - h. Johnson – 17,767 ac-ft per year
 - i. Parker – 15,389 ac-ft per year
 - j. Somervell – 2,485 ac-ft per year
 - k. Tarrant – 19,615 ac-ft per year
 - l. Wise – 9,801 ac-ft per year
57. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Coryell County (Tablerock Groundwater Conservation District (GCD)) should be – 3,000 ac-ft per year
58. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in McLennan County (McLennan County Groundwater Conservation District (GCD)) should be – 20,694 ac-ft per year

59. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Middle Trinity GCD should be as follows:
 - a. Comanche – 27,000 ac-ft per year
 - b. Erath – 32,000 ac-ft per year
60. The projected pumping to be applied to layers 3, 4, 5, and 7 (Trinity aquifer with total by County) in Lampasas County (Saratoga UWCD) should be – 3,164 ac-ft per year.
61. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Milam County (Post Oak Savannah GCD) should be – 321 ac-ft per year.
62. The projected pumping to be applied to layers 3, 4, 5 and 7 (total by County) in Mills County (Fox Crossing Water District) should be – 2,400 ac-ft per year.
63. The projected pumping to be applied to the Trinity aquifer in Bell County (Clearwater UWCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 112 ac-ft per year
 - b. Layer 4 (Glen Rose) – 880 ac-ft per year
 - c. Layer 5 (Hensell) – 1,100 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 5,000 ac-ft per year
64. The projected pumping to be applied to the Trinity aquifer in Burnet County (Central Texas GCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 200 ac-ft per year
 - b. Layer 4 (Glen Rose) – 200 ac-ft per year
 - c. Layer 5 (Hensell) – 700 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 2,500 ac-ft per year

APPENDIX E

GMA-8 5th Simulation Request Specifications
For Northern Trinity/Woodbine Aquifer GAM

January 18, 2008

Clearwater Underground Water Conservation District (UWCD) acting on behalf of GMA-8 requests Texas Water Development Board (TWDB) to perform a projected pumping simulation of the N. Trinity / Woodbine aquifer Groundwater Availability Model (GAM). The N. Trinity / Woodbine aquifer GAM consists of 7-layers representing both water-producing and non water-producing zones. In the GAM, layer 1 represents the Woodbine aquifer and layers 3, 4, 5, 6 and 7 represent both the water-bearing and non water-bearing portions of the Trinity aquifer. Clearwater UWCD requests the GAM simulation be performed with the following specifications:

65. The simulation period should be for 50 years.
66. The simulation should use annual time steps.
67. The simulated climatic conditions should include 4 decades of average climatic conditions with the last decade beginning with average climatic conditions and ending in a simulated repeat of the drought of record.
68. The simulation should maintain the spatial pumping distribution developed by TWDB for GAM Run 07-30 that provides for: pumping in the Woodbine aquifer in Delta County; pumping in the Trinity aquifer of Delta and Kaufman Counties and; the spatial distribution of pumping in the Woodbine aquifer in Hunt and Lamar Counties to address extreme draw down resulting in concentrated areas.
69. The simulation should maintain the existing distribution of pumping by layer (as a percentage of the total Trinity aquifer pumping within a County area) for layers 3, 4, 5, 6, and 7; except where specified otherwise or where modified by TWDB to address the issues identified in Item 4 above.
70. Pumping should be held constant for each area for which a pumping amount is specified (*i.e.* by County total for the Trinity aquifer or by a layer specified within a County).
71. The projected pumping to be applied to layer 1 (Woodbine) by County should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Woodbine aquifer; the balance of Counties using the Woodbine aquifer are addressed in request item 9 below):
 - a. Collin – 2,500 ac-ft per year
 - b. Delta – 16 ac-ft per year
 - c. Fannin – 3,300 ac-ft per year
 - d. Grayson – 12,100 ac-ft per year
 - e. Hunt – 2,840 ac-ft per year
 - f. Kaufman – 200 ac-ft per year
 - g. Lamar – 3,658 ac-ft per year
 - h. Limestone – 33 ac-ft per year
 - i. Navarro – 300 ac-ft per year
 - j. Red River – 170 ac-ft per year
 - k. Rockwall – 144 ac-ft per year

72. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Trinity aquifer):
- a. Brown – 2,085 ac-ft per year
 - b. Callahan – 3,787 ac-ft per year
 - c. Collin – 2,100 ac-ft per year
 - d. Delta – 364 ac-ft per year
 - e. Eastland – 4,853 ac-ft per year
 - f. Falls – 161 ac-ft per year
 - g. Fannin – 700 ac-ft per year
 - h. Grayson – 9,400 ac-ft per year
 - i. Hamilton – 2,146 ac-ft per year
 - j. Hunt – 551 ac-ft per year
 - k. Kaufman – 1,184 ac-ft per year
 - l. Lamar – 1,320 ac-ft per year
 - m. Limestone – 66 ac-ft per year
 - n. Montague – 2,682 ac-ft per year
 - o. Navarro – 1,873 ac-ft per year
 - p. Red River – 528 ac-ft per year
 - q. Rockwall – 958 ac-ft per year
 - r. Taylor – 679 ac-ft per year
 - s. Travis – 3,900 ac-ft per year
 - t. Williamson – 1,810 ac-ft per year
73. The projected pumping to be applied to layers 1, 3, 4, 5 and 7 (as applicable with totals by County for Woodbine and Trinity aquifers) should be as follows (note these projected pumping values are based on the highest year for each requested County in the High Estimate of Predictive Groundwater Use given in the TWDB report “Assessment of Groundwater Use in the Northern Trinity Aquifer Due to Urban Growth and Barnett Shale Development”):
- a. Bosque – 7,509 ac-ft per year
 - b. Cooke – 7,018 ac-ft per year
 - c. Dallas – 7,807 ac-ft per year
 - d. Denton – 23,442 ac-ft per year
 - e. Ellis – 9,403 ac-ft per year
 - f. Hill – 5,412 ac-ft per year
 - g. Hood – 11,064 ac-ft per year
 - h. Johnson – 17,767 ac-ft per year
 - i. Parker – 15,389 ac-ft per year
 - j. Somervell – 2,485 ac-ft per year
 - k. Tarrant – 19,615 ac-ft per year
 - l. Wise – 9,801 ac-ft per year
74. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Coryell County (Tablerock Groundwater Conservation District (GCD)) should be – 3,777 ac-ft per year
75. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in McLennan County (McLennan County Groundwater Conservation District (GCD)) should be – 20,694 ac-ft per year

76. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Middle Trinity GCD should be as follows:
 - a. Comanche – 27,000 ac-ft per year
 - b. Erath – 32,000 ac-ft per year
77. The projected pumping to be applied to layers 3, 4, 5, and 7 (Trinity aquifer with total by County) in Lampasas County (Saratoga UWCD) should be – 3,164 ac-ft per year.
78. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Milam County (Post Oak Savannah GCD) should be – 321 ac-ft per year.
79. The projected pumping to be applied to layers 3, 4, 5 and 7 (total by County) in Mills County (Fox Crossing Water District) should be – 2,400 ac-ft per year.
80. The projected pumping to be applied to the Trinity aquifer in Bell County (Clearwater UWCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 112 ac-ft per year
 - b. Layer 4 (Glen Rose) – 880 ac-ft per year
 - c. Layer 5 (Hensell) – 1,100 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 5,000 ac-ft per year
81. The projected pumping to be applied to the Trinity aquifer in Burnet County (Central Texas GCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 200 ac-ft per year
 - b. Layer 4 (Glen Rose) – 200 ac-ft per year
 - c. Layer 5 (Hensell) – 700 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 2,500 ac-ft per year

APPENDIX F**GMA-8 6th Simulation Request Specifications
For Northern Trinity/Woodbine Aquifer GAM**

July 25, 2008

Clearwater Underground Water Conservation District (UWCD) acting on behalf of GMA-8 requests Texas Water Development Board (TWDB) to perform a projected pumping simulation of the N. Trinity / Woodbine aquifer Groundwater Availability Model (GAM). The N. Trinity / Woodbine aquifer GAM consists of 7-layers representing both water-producing and non water-producing zones. In the GAM, layer 1 represents the Woodbine aquifer and layers 3, 4, 5, 6 and 7 represent both the water-bearing and non water-bearing portions of the Trinity aquifer. Clearwater UWCD requests the GAM simulation be performed with the following specifications:

82. The simulation period should be for 50 years.
83. The simulation should use annual time steps.
84. The simulated climatic conditions should include 4 decades of average climatic conditions with the last decade beginning with average climatic conditions and ending in a simulated repeat of the drought of record.
85. The simulation should maintain the spatial pumping distribution developed by TWDB for GAM Run 07-30 that provides for: pumping in the Woodbine aquifer in Delta County; pumping in the Trinity aquifer of Delta and Kaufman Counties and; the spatial distribution of pumping in the Woodbine aquifer in Hunt and Lamar Counties to address extreme draw down resulting in concentrated areas.
86. The simulation should maintain the existing distribution of pumping by layer (as a percentage of the total Trinity aquifer pumping within a County area) for layers 3, 4, 5, 6, and 7; except where specified otherwise or where modified by TWDB to address the issues identified in Item 4 above.
87. Pumping should be held constant for each area for which a pumping amount is specified (*i.e.* by County total for the Trinity aquifer or by a layer specified within a County).
88. The projected pumping to be applied to layer 1 (Woodbine) by County should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Woodbine aquifer; the balance of Counties using the Woodbine aquifer are addressed in request item 9 below):
 - a. Collin – 2,500 ac-ft per year
 - b. Delta – 16 ac-ft per year
 - c. Fannin – 3,300 ac-ft per year
 - d. Grayson – 12,100 ac-ft per year
 - e. Hunt – 2,840 ac-ft per year
 - f. Kaufman – 200 ac-ft per year
 - g. Lamar – 3,658 ac-ft per year
 - h. Limestone – 33 ac-ft per year
 - i. Navarro – 300 ac-ft per year
 - j. Red River – 170 ac-ft per year
 - k. Rockwall – 144 ac-ft per year

89. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) should be as follows (note these projected pumping values are based on Regional Water Plan (RWP) groundwater availability values for the Trinity aquifer):
- a. Brown – 2,085 ac-ft per year
 - b. Callahan – 3,787 ac-ft per year
 - c. Collin – 2,100 ac-ft per year
 - d. Delta – 364 ac-ft per year
 - e. Eastland – 4,853 ac-ft per year
 - f. Falls – 161 ac-ft per year
 - g. Fannin – 700 ac-ft per year
 - h. Grayson – 9,400 ac-ft per year
 - i. Hamilton – 2,146 ac-ft per year
 - j. Hunt – 551 ac-ft per year
 - k. Kaufman – 1,184 ac-ft per year
 - l. Lamar – 1,320 ac-ft per year
 - m. Limestone – 66 ac-ft per year
 - n. Navarro – 1,873 ac-ft per year
 - o. Red River – 528 ac-ft per year
 - p. Rockwall – 958 ac-ft per year
 - q. Taylor – 679 ac-ft per year
 - r. Travis – 3,900 ac-ft per year
 - s. Williamson – 1,810 ac-ft per year
90. The projected pumping to be applied to layers 1, 3, 4, 5 and 7 (as applicable with totals by County for Woodbine and Trinity aquifers) should be as follows (note these projected pumping values are based on the highest year for each requested County in the High Estimate of Predictive Groundwater Use given in the TWDB report “Assessment of Groundwater Use in the Northern Trinity Aquifer Due to Urban Growth and Barnett Shale Development”):
- a. Bosque – 7,509 ac-ft per year
 - b. Dallas – 7,807 ac-ft per year
 - c. Ellis – 9,403 ac-ft per year
 - d. Hill – 5,412 ac-ft per year
 - e. Somervell – 2,485 ac-ft per year
 - f. Tarrant – 19,615 ac-ft per year
91. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Coryell County (Tablerock Groundwater Conservation District (GCD)) should be – 3,714 ac-ft per year by layer (maintaining existing spatial distribution of pumping for items a through e below) as follows:
- a. Layer 3 (Paluxy) – 254 ac-ft per year
 - b. Layer 4 (Glen Rose) – 783 ac-ft per year
 - c. Layer 5 (Hensell) – 836 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 433 ac-ft per year
 - f. An additional 928 ac-ft per year of simulated pumping should be added to layer 5 (distributed equally throughout) in the areas of western and northern Coryell Co. agreed to in the GMA 8 workshop meeting held in Belton, TX on March 24, 2008.
 - g. An additional 480 ac-ft per year of simulated pumping should be added to layer 7 (distributed equally throughout) in the areas of western and

- northern Coryell Co. agreed to in the GMA 8 workshop meeting held in Belton, TX on March 24, 2008.
92. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in McLennan County (McLennan County Groundwater Conservation District (GCD)) should be – 20,694 ac-ft per year
 93. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Middle Trinity GCD should be as follows:
 - a. Comanche – 27,000 ac-ft per year
 - b. Erath – 32,000 ac-ft per year
 94. The projected Pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Upper Trinity GCD and adjacent counties should be as follows:
 - a. Hood – 11,001 ac-ft per year
 - b. Montague – 506 ac-ft per year
 - c. Parker – 11,751 ac-ft per year
 - d. Wise – 8,414 ac-ft per year
 - e. Cooke – 7,018 ac-ft per year
 - f. Denton – 18,132 ac-ft per year
 - g. Johnson – 16,349 ac-ft per year
 95. The projected pumping to be applied to layers 3, 4, 5, and 7 (Trinity aquifer with total by County) in Lampasas County (Saratoga UWCD) should be – 3,164 ac-ft per year.
 96. The projected pumping to be applied to layers 3, 4, 5 and 7 (Trinity aquifer with total by County) in Milam County (Post Oak Savannah GCD) should be – 321 ac-ft per year.
 97. The projected pumping to be applied to layers 3, 4, 5 and 7 (total by County) in Mills County (Fox Crossing Water District) should be – 2,400 ac-ft per year.
 98. The projected pumping to be applied to the Trinity aquifer in Bell County (Clearwater UWCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 112 ac-ft per year
 - b. Layer 4 (Glen Rose) – 880 ac-ft per year
 - c. Layer 5 (Hensell) – 1,100 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 5,000 ac-ft per year
 99. The projected pumping to be applied to the Trinity aquifer in Burnet County (Central Texas GCD) by layer is as follows:
 - a. Layer 3 (Paluxy) – 200 ac-ft per year
 - b. Layer 4 (Glen Rose) – 200 ac-ft per year
 - c. Layer 5 (Hensell) – 700 ac-ft per year
 - d. Layer 6 (Cow Creek, Hammett, Sligo) – No change from existing predictive pumping
 - e. Layer 7 (Hosston) – 2,500 ac-ft per year

APPENDIX F Cont'**GAM Request Addendum**

On behalf of the Middle Trinity District, GMA 8 requests that the GAM simulation be documented in the same fashion as done for GAM Run 08-06 but that the additional tasks listed below be performed. We request that the additional work not be begun until after the GAM write-up has been submitted to GMA 8 and that the additional work be prepared as an addendum to the GAM report. We request this work because Middle Trinity's has expressed concerns the GAM results are not consistent with their field data and their assessment of groundwater availability in the Trinity Aquifer. We believe that the additional work will help Middle Trinity and other Districts to incorporate the results of the DFC process into their management plans, drought contingency plans, interactions with stakeholders, design of monitoring networks, on-going research, and planned updates of the Northern Trinity GAM.

Task 1 – Additional Data Analysis

Middle Trinity requests the following additions to the data analysis:

- Total number of dry cells in Comanche, Erath, and other Counties at the beginning (2000) and at five-year increments thereafter
- Total amount of pumping removed in each county because of the dry cells
- Map of the dry cell locations
- Map of saturated aquifer thickness at beginning (2000) and end (2050) of simulations
- Explain how dry cells are included in the calculation of average drawdown
- Calculate average drawdown at five-year increments for Erath and Comanche Counties
- Provide mass balance calculations at five-year increments for Erath and Comanche Counties

Task 2 – Additional Discussion of Results:

Middle Trinity requests the following additions to the evaluation of results:

- Discuss the possible and probable reasons for dry model cells in Comanche, Erath, and other Counties
- Discuss the likelihood that the aquifer will go dry at the location of the de-saturated cells
- Discuss the changes in the mass balance and in drawdown over time with regard to the groundwater availability and sustainability
- Discuss the reliability of the model predictions and implications for future groundwater monitoring in areas where the groundwater resource has been significantly depleted
- Identify potential areas of concern with the GAM that could limit its ability to accurately estimate MAGs from DFCs for specific counties